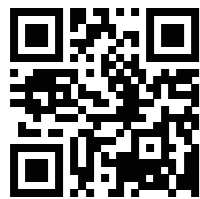
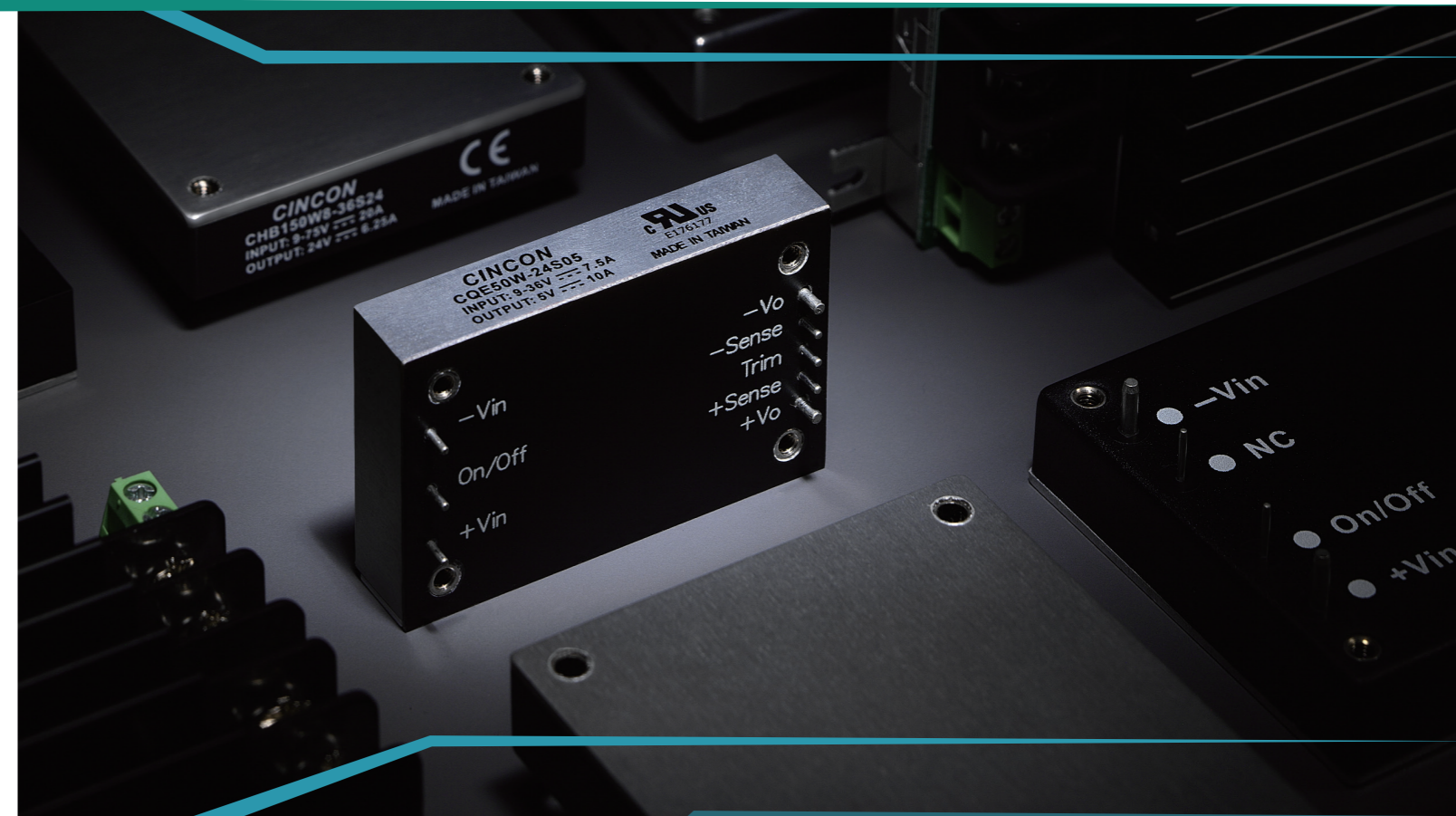


CINCON ELECTRONICS

33-700 WATTS BRICK DC-DC CONVERTER CATALOG 2016



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Every day, 365 days a year Cincon makes a difference in people's lives throughout the world.

Design engineers and other power supply specifiers select our AC-DC and DC-DC convertors to power a wide range of products. Cincon power supplies are found in a myriad of applications, from medical equipment used to keep us healthy, to security systems working to keep us safe. Name an electronic device in any equipment category and it's likely you'll find a Cincon power supply inside. The communications, test instrumentation, entertainment, lighting, medical, computer, networking, industrial and transportation industries all use Cincon power supplies.

Cincon gives power supply specifiers what they need, speed and specification. Need a power supply fast? Designers can select from one of our 25,000 plus standard model numbers, many available off the shelf from distributors located around the globe. Give us a little more time and we can modify one of our standard products to your requirement. Need a full custom power supply? We do that also.

Using state of the art design tools, our power supplies are engineered with proven technology in one of our two Taiwan design laboratories. We focus heavily on reliability

in the early stages of development to ensure a robust final product. Combined with extensive verification testing at the prototype and pilot production stages, Cincon is able to offer power supplies with long operational lives.

Cincon AC-DC and DC-DC power supplies are manufactured in one of our wholly owned, ISO 9001 and ISO 14001 certified, manufacturing facilities in Taiwan and China. Products are built using the latest manufacturing and quality assurance techniques on state of the art equipment; giving our customers not only high quality but also short lead times.

As a global designer and manufacturer of AC-DC and DC-DC power supplies, our products are certified to international safety, efficiency, hazardous substance and EMI standards where required. We also have capability to design and certify to application and country specific standards.

When you require an AC-DC or DC-DC power supply, standard or custom, and have little time, look to us for a solution. Let Cincon power your idea.

| | | |
|-----|------------------|---------|
| | QUICK SELECTION | 2 |
| | CQE50W | 50W 4 |
| NEW | CQB60W-110S | 60W 6 |
| | PKQ75 | 60W 8 |
| | CQB75W | 75W 10 |
| | CQB100W | 100W 12 |
| | CQB100-110S | 100W 14 |
| NEW | CQB150W | 150W 16 |
| NEW | CQB150W-110S | 150W 18 |
| NEW | CQB150-300S | 150W 20 |
| | CHB50 | 50W 22 |
| | CHB50W | 50W 24 |
| | CHB75 | 75W 26 |
| | CHB75W | 75W 28 |
| | CHE75W | 75W 30 |
| | CHB75-Dual | 75W 32 |
| | CHB100 | 100W 34 |
| NEW | CHB100-110S | 100W 36 |
| | CHB100W | 100W 38 |
| | CHE100 / CHE100W | 100W 40 |
| | CHB150 | 150W 42 |
| | CHB150W | 150W 44 |
| | CHB150-110S | 150W 46 |
| NEW | CHB150W8 | 150W 48 |
| | CHB200 | 200W 50 |
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| | | |
|-----|------------------------------|--------------|
| | CHB300W | 300W 54 |
| NEW | CHB300W-110S | 300W 56 |
| NEW | CHB300-300S | 300W 58 |
| | CHB350 | 350W 60 |
| | CFB200 | 200W 62 |
| NEW | CFB200-110S | 200W 64 |
| | CFB400W | 400W 66 |
| | CFB600 | 600-700W 68 |
| NEW | CFB600-300S | 600W 70 |
| NEW | PFC700FB | 700W 72 |
| NEW | CQB CHASSIS MOUNT & DIN-RAIL | 33-100W 74 |
| NEW | CHB CHASSIS MOUNT & DIN-RAIL | 33-100W 76 |
| | FM FILTER MODULE | 10A - 20A 78 |
| | HEATSINK | 80 |
| | SIPSMT05-05 | 5A 82 |
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| | SIPSMT10W-12 | 10A 90 |
| | SIPSMT15-05 | 15A 92 |
| | SIPSMT16-12 | 16A 94 |
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| | REQUEST FOR QUOTE | 100 |

QUICK SELECTION

| Input Voltage Range | Package | Output Voltage (V) and Max Power (W) | | | | | | | | | | | I/O Isolation | Series | Page | | |
|---------------------|--------------------|--------------------------------------|-------|-------|------|------|------|------|------|------|------|------|---------------|----------|----------|----------|--------|
| | | 1.8V | 2.5V | 3.3V | 5V | 12V | 15V | 24V | 28V | 32V | 48V | 290V | | | | | |
| 12 V (9 – 18 V) | Half Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | | | DC 1500V | CHB50 | 22 |
| | Half Brick | | | 49.5W | 75W | 75W | 75W | 75W | | | | | | | DC 1500V | CHB75 | 26 |
| 24 V (18 – 36 V) | Quarter Brick | 45W | 62.5W | 66W | 75W | | | | | | | | | | DC 1500V | PKQ75 | 8 |
| | Half Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | | | DC 1500V | CHB50 | 22 |
| | Half Brick | | | 49.5W | 75W | 75W | 75W | 75W | | | | | | | DC 1500V | CHB75 | 26 |
| | Half Brick | | | 66W | 100W | 100W | 100W | 100W | | | | | | | DC 1500V | CHB100 | 34 |
| | Half Brick | | | | | | | | 100W | | | | | | DC 1500V | CHE100 | 40 |
| | Half Brick | | | 165W | 200W | 200W | | 200W | | | | 200W | | | DC 1500V | CHB200 | 50 |
| | Half Brick | | | 231W | 350W | 350W | | 350W | 350W | | | 350W | | | DC 1500V | CHB350 | 60 |
| | Full Brick | | | | | 600W | | 600W | 600W | 600W | 600W | | | | DC 1500V | CFB600 | 68 |
| | 24 V (9 – 36 V) | Quarter Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | 50W | | DC 1500V | CQE50W |
| Quarter Brick | | | | 39.6W | 60W | 75W | 75W | 75W | | | | | | | DC 1500V | CQB75W | 10 |
| Quarter Brick | | | | 100W | 100W | 100W | 100W | 100W | | | | | | | DC 1500V | CQB100W | 12 |
| Quarter Brick | | | | | 150W | 150W | | 150W | 150W | | | | 150W | | DC 1500V | CQB150W | 16 |
| Half Brick | | | | 33W | 50W | 50W | 50W | 50W | | | | | 50W | | DC 1500V | CHB50W | 24 |
| Half Brick | | | | 50W | 75W | 75W | 75W | 75W | | | | | 75W | | DC 1500V | CHB75W | 28 |
| Half Brick | | | | 66W | 75W | 75W | 75W | 75W | | | | | 75W | | DC 1500V | CHE75W | 30 |
| Half Brick | | | | 66W | 100W | 100W | 100W | 100W | | | | | 100W | | DC 1500V | CHB100W | 38 |
| Half Brick | | | | 82.5W | 100W | 100W | 100W | 100W | | | | | 100W | | DC 1500V | CHE100W | 40 |
| Half Brick | | | | 99W | 150W | 150W | 150W | 150W | | | | | 150W | | DC 1500V | CHB150W | 44 |
| 24 V (10 – 36 V) | Half Brick | | | 300W | 300W | 300W | 300W | 300W | | | | | 300W | | DC 1500V | CHB300W | 54 |
| | Half Brick | | | 400W | 400W | | 400W | 400W | | | | | 400W | | DC 1500V | CFB400W | 66 |
| 24 V (9 – 36 V) | Half Brick | | | 165W | 200W | 200W | 200W | 200W | | | | | 200W | | DC 1500V | CHB200W | 52 |
| | Quarter Brick | 45W | 62.5W | 66W | 75W | | | | | | | | | | DC 1500V | PKQ75 | 8 |
| | Half Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | | | DC1500V | CHB50 | 22 |
| | Half Brick | | | 49.5W | 75W | 75W | 75W | 75W | | | | | | | DC 1500V | CHB75 | 26 |
| | Half Brick | | | 66W | 100W | 100W | 100W | 100W | | | | | | | DC 1500V | CHB100 | 34 |
| | Half Brick | | | 99W | 150W | 150W | 150W | 150W | | | | | | | DC 1500V | CHB150 | 42 |
| | Half Brick | | | 165W | 200W | 200W | | 200W | | | | | 200W | | DC 1500V | CHB200 | 50 |
| | Half Brick | | | 231W | 350W | 350W | | 350W | 350W | | | | 350W | | DC 1500V | CHB350 | 60 |
| | Full Brick | | | 132W | 200W | 200W | 200W | 200W | | | | | 200W | | DC 1500V | CFB200 | 62 |
| Full Brick | | | | | 600W | | 600W | 700W | 600W | 600W | | | | DC 1500V | CFB600 | 68 | |

Modified Product Support

Recognizing the requirements for matching standard products to unique applications, Cincon is dedicated to provide support for customers requiring additional features or modification to catalog products.

| Input Voltage Range | Package | Output Voltage (V) and Max Power (W) | | | | | | | | | | | I/O Isolation | Series | Page | | |
|----------------------------------|------------------------------|--------------------------------------|------|-------|------|------|------|------|------|------|-----|------|---------------|---------------|--------------|-------------|----|
| | | 1.8V | 2.5V | 3.3V | 5V | 12V | 15V | 24V | 28V | 32V | 48V | 290V | | | | | |
| 24 V & 48 V (18 – 75 V) | Quarter Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | | | DC 1500V | CQE50W | 4 |
| | Quarter Brick | | | 39.6W | 60W | 75W | 75W | 75W | | | | | | | DC 1500V | CQB75W | 10 |
| | Quarter Brick | | | 100W | 100W | 100W | 100W | 100W | | | | | | | DC 1500V | CQB100W | 12 |
| | Quarter Brick | | | | 150W | 150W | | 150W | 150W | | | | 150W | | DC 1500V | CQB150W | 16 |
| | Half Brick | | | 33W | 50W | 50W | 50W | 50W | | | | | 50W | | DC 1500V | CHB50W | 24 |
| | Half Brick | | | 50W | 75W | 75W | 75W | 75W | | | | | 75W | | DC 1500V | CHB75W | 28 |
| | Half Brick | | | 66W | 75W | 75W | 75W | 75W | | | | | 75W | | DC 1500V | CHE75W | 30 |
| | Half Brick | | | 66W | 100W | 100W | 100W | 100W | | | | | 100W | | DC 1500V | CHB100W | 38 |
| | Half Brick | | | 82.5W | 100W | 100W | 100W | 100W | | | | | 100W | | DC 1500V | CHE100W | 40 |
| | Half Brick | | | 99W | 150W | 150W | 150W | 150W | | | | | 150W | | DC 1500V | CHB150W | 44 |
| | Half Brick | | | 165W | 200W | 200W | 200W | 200W | | | | | 200W | | DC 1500V | CHB200W | 52 |
| | Half Brick | | | | 300W | 300W | | 300W | 300W | | | | 300W | | DC 1500V | CHB300W | 54 |
| | Full Brick | | | | 400W | 400W | | 400W | 400W | | | | 400W | | DC 1500V | CFB400W | 66 |
| 24 V, 36 V & 48 V (9 to 75 V) | Half Brick | | | | 150W | 150W | 150W | 150W | | | | | 150W | | DC 1500V | CHB150W8 | 48 |
| | 72 V & 110 V (43 – 160 V) | Quarter Brick | | | | 60W | 60W | 60W | 60W | | | | 60W | | DC 2250V | CQB60W-110S | 6 |
| Quarter Brick | | | | | 150W | 150W | | 150W | 150W | | | 150W | | DC 2250V | CQB150W-110S | 18 | |
| Half Brick | | | | | 300W | 300W | | 300W | 300W | | | 300W | | DC 2250V | CHB300W-110S | 56 | |
| 110 V (66 – 160 V) | Quarter Brick | | | 82.5W | 100W | 100W | | 100W | | | | | | DC 2250V | CQB100-110S | 14 | |
| | Half Brick | | | | | | | 100W | 100W | 100W | | | 100W | | 3KV RMS | CHB100-110S | 36 |
| | Half Brick | | | | 150W | 150W | | 150W | | | | | | | DC 2250V | CHB150-110S | 46 |
| 300 V (180 – 425 V) | Full Brick | | | | | | | 200W | 200W | 200W | | | 200W | | 3KV RMS | CFB200-110S | 64 |
| | Quarter Brick | | | 99W | 150W | 150W | 150W | 150W | | | | | 150W | | AC 3KV | CQB150-300S | 20 |
| | Half Brick | | | | 300W | 300W | | 300W | 300W | | | 300W | | AC 3KV | CHB300-300S | 58 | |
| 85 – 264 VAC | Full Brick | | | | | | | 600W | | 600W | | | 600W | | AC 3KV | CFB600-300S | 70 |
| | Full Brick | | | | | | | | | | | | 700W | Non-Isolation | PFC700FB | 72 | |

CQE50W SERIES

50 WATT, 4:1 INPUT RANGE

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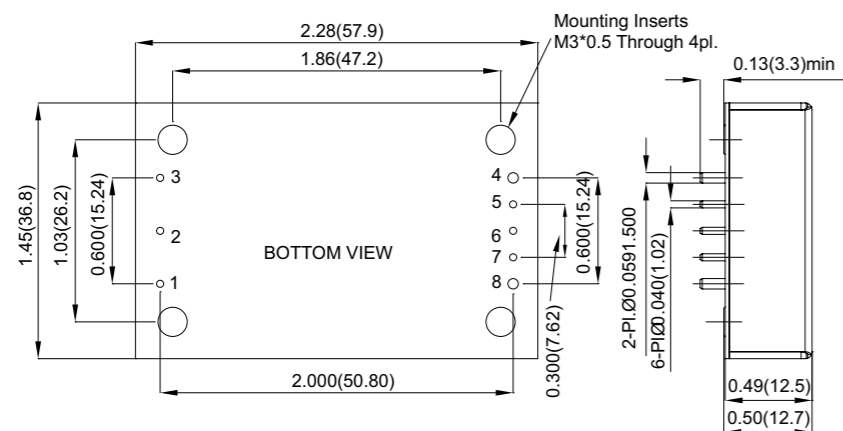
Features

- ◆ 50W Isolated Output
- ◆ No Tantalum Capacitor Inside
- ◆ Quarter-Brick Size, Six-Sided Shield Metal Case
- ◆ High Efficiency up to 92%
- ◆ 300KHz Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Full Load Operation up to 80°C with Heat-Sink M-C421 Natural Convention
- ◆ Over Temperature/Voltage/Current Protection
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1



Mechanical Dimensions

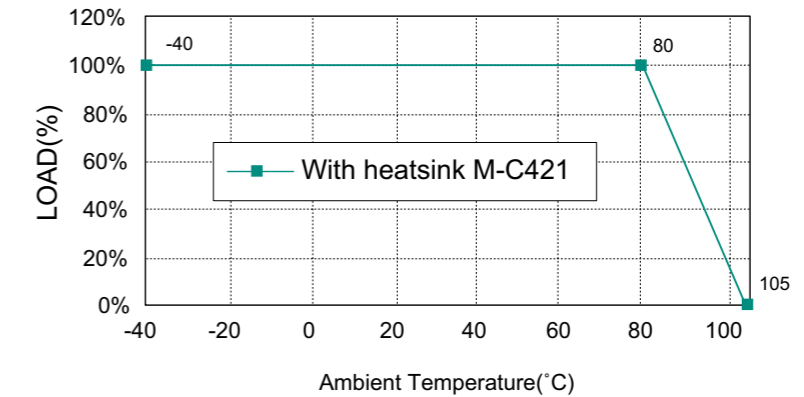
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQE50W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 10 A | 100 mA | 1528 mA | 90.5 | 10000µF |
| CQE50W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 10 A | 100 mA | 2277 mA | 91.5 | 10000µF |
| CQE50W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 4.16 A | 100 mA | 2261 mA | 91.5 | 4160µF |
| CQE50W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 3.33 A | 100 mA | 2287 mA | 91.5 | 3330µF |
| CQE50W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 2.08 A | 60 mA | 2311 mA | 90 | 2080µF |
| CQE50W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 1.04 A | 60 mA | 2311 mA | 88.5 | 1040µF |
| CQE50W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 10 A | 60 mA | 764 mA | 90 | 10000µF |
| CQE50W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 10 A | 60 mA | 1132 mA | 92 | 10000µF |
| CQE50W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 4.16 A | 60 mA | 1130 mA | 92 | 4160µF |
| CQE50W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 3.33 A | 60 mA | 1144 mA | 91 | 3330µF |
| CQE50W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 2.08 A | 60 mA | 1156 mA | 90.5 | 2080µF |
| CQE50W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 1.04 A | 60 mA | 1156 mA | 89 | 1040µF |

Derating Curve



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under voltage lockout | 24Vin |
| | 48Vin |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | PI Type |

OUTPUT SPECIFICATIONS

| | |
|--|-----------------------------|
| Voltage Accuracy: | ±1.5% max. |
| Transient Response: 75% to 100% Step Load Change | |
| Error Band | ±5% Vout |
| Recover Time | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (see note 3) | |
| 3.3V & 5V | 40mV RMS, 100mV pk-pk max. |
| 12V & 15V | 60mV RMS, 150mV pk-pk max. |
| 24V | 100mV RMS, 240mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-165% Nominal |
| Start up time | Output 20ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 10 ⁷ ohm min. |
| Isolation Resistance | |
| Isolation Capacitance | 1000pF typ |
| Switching Frequency | 300KHz typ. |
| Operating Case Temperature | -40°C to +125°C |
| Storage Temperature | -55°C to +125°C |
| Thermal Shutdown, Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF ... MIL-STD-217F, GB, 25°C, Full Load | XXS24, XXS48 800Khrs typ. |
| | Others 600Khrs typ. |
| Dimensions | 1.45 x 2.28 x 0.50 inches (36.8 x 57.9 x 12.7 mm) |
| Case Material | Aluminum with Non-Conducted |
| | Base |
| Weight | 63 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF aluminum and 1µF ceramic capacitor across output for 48Vout and with 10µF tantalum and 1µF ceramic capacitor for others.
4. Logic compatibility open collector ref to -Input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit

CQB60W-110S SERIES

60 WATT, INPUT RANGE 43-160 VDC

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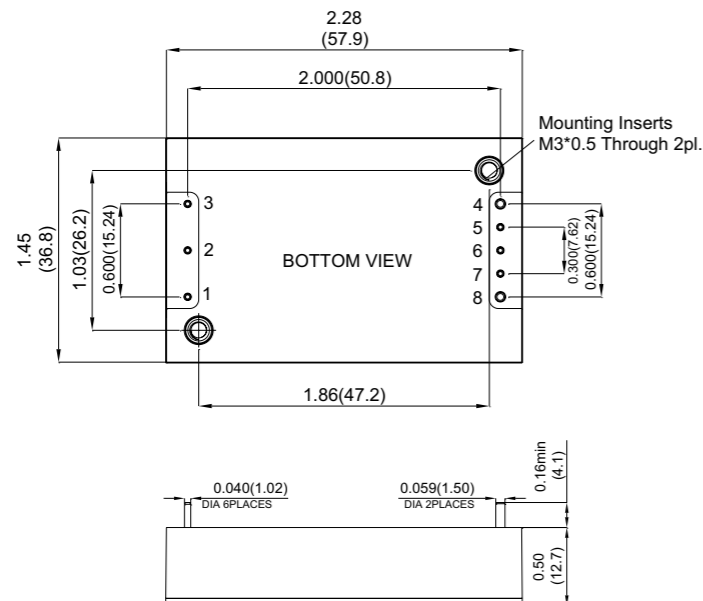
Features

- ◆ 60W Isolated Output
- ◆ Efficiency to 92%
- ◆ Low No Load Power Consumption
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature/Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Quarter Brick Size
- ◆ Operating Altitude 4000m
- ◆ Safety Standard: UL 60950-1 2nd (basic insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



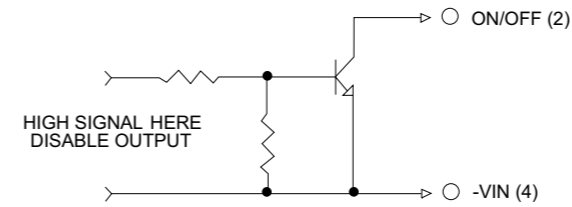
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25

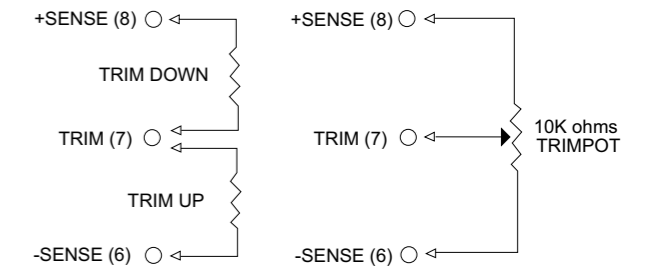


| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|--|
| Input Voltage Range | 43-160V |
| Input Surge Voltage (100ms max.) | 180Vdc max. |
| Under Voltage Lockout | Power up 42V Power down 38V See note 4 & 5 |
| Positive Logic Remote On/Off | PI Type |
| Input Filter | |

OUTPUT SPECIFICATIONS

| | |
|--|-----------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: | |
| 25% Step Load Change | < 250µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | |
| 5V | 40mV RMS, 100mV pk-pk max. |
| 12V/15V | 60mV RMS, 150mV pk-pk max. |
| 24V/28V | 100mV RMS, 240mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom | 115-140% |
| Current Limit | 110%-165% Nominal Output |
| Start up time | 15ms typ. |

GENERAL SPECIFICATIONS

| | |
|-----------------------------|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output2250VDC min. Input/Case2250VDC min. Output/Case1500VDC min. 10 ⁷ ohm min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 200KHz typ. |
| Operating Case Temperature | -40°C to +100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| Operating Altitude | 4000m |
| Safety | UL60950-1 2 nd (Basic insulation) |
| EMI | EN50155 (EN50121-3-2) with external filter |
| Shock/Vibration | EN50155 (EN61373) |
| Dimensions | 2.28 x 1.45 x 0.50 inches (57.9 x 36.8 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 61.5 g |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB60W-110S05 | 43-160 VDC | 5 VDC | 0 mA | 12 A | 5 mA | 600 mA | 91 | 6800µF |
| CQB60W-110S12 | 43-160 VDC | 12 VDC | 0 mA | 5 A | 5 mA | 593 mA | 92 | 3300µF |
| CQB60W-110S15 | 43-160 VDC | 15 VDC | 0 mA | 4 A | 5 mA | 606 mA | 90 | 3300µF |
| CQB60W-110S24 | 43-160 VDC | 24 VDC | 0 mA | 2.5 A | 5 mA | 606 mA | 90 | 1200µF |
| CQB60W-110S28 | 43-160 VDC | 28 VDC | 0 mA | 2.14 A | 5 mA | 606 mA | 90 | 1200µF |
| CQB60W-110S48 | 43-160 VDC | 48 VDC | 0 mA | 1.25 A | 5 mA | 613 mA | 89 | 470µF |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -Input
 Module On > 3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off > 3.5VDC to 75VDC or open circuit
6. Suffix "-C" to the model number with clear mounting Insert (3.2mm DIA.)
7. An external input capacitor 68µF for all models are recommended to reduce input ripple voltage.
8. Design to meet EN50155 and RIA12 refer to application note.

PKQ75 SERIES

50 - 75 WATT

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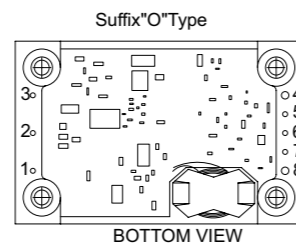
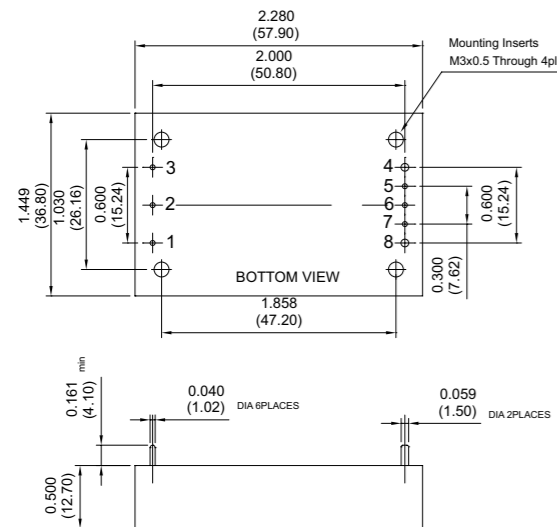
Features

- ◆ 50-75W Isolated Output
- ◆ Efficiency to 90%
- ◆ 300KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Quarter-Brick Size Meet Industrial Standard
- ◆ Open Frame Type Is Available
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval



Mechanical Dimensions

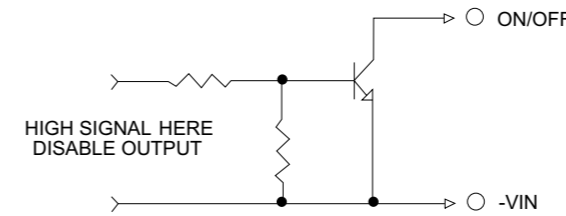
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



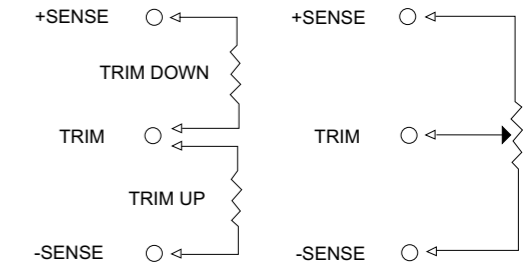
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| PKQ75-24S18 | 18-36 VDC | 1.8 VDC | 0.5 A | 25 A | 60 mA | 2259 mA | 83 | 25000µF |
| PKQ75-24S25 | 18-36 VDC | 2.5 VDC | 0.5 A | 25 A | 60 mA | 3064 mA | 85 | 25000µF |
| PKQ75-24S33 | 18-36 VDC | 3.3 VDC | 0.5 A | 20 A | 70 mA | 3125 mA | 88 | 20000µF |
| PKQ75-24S05 | 18-36 VDC | 5 VDC | 0.5 A | 15 A | 80 mA | 3472 mA | 90 | 15000µF |
| PKQ75-48S18 | 36-75 VDC | 1.8 VDC | 0.5 A | 25 A | 50 mA | 1116 mA | 84 | 25000µF |
| PKQ75-48S25 | 36-75 VDC | 2.5 VDC | 0.5 A | 25 A | 50 mA | 1514 mA | 86 | 25000µF |
| PKQ75-48S33 | 36-75 VDC | 3.3 VDC | 0.5 A | 20 A | 50 mA | 1563 mA | 88 | 20000µF |
| PKQ75-48S05 | 36-75 VDC | 5 VDC | 0.5 A | 15 A | 80 mA | 1736 mA | 90 | 15000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|---|
| Input Voltage Range | 24V.....18-36V 48V 36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. 48V 100Vdc max. |
| Under voltage lockout | 24Vin 48Vin |
| Positive Logic Remote On/Off | power up 17V power down 15.5V |
| Input Filter | 48Vin power up 34V power down 32.5V |

OUTPUT SPECIFICATIONS

| | |
|---|-------------------------------------|
| Voltage Accuracy | ±1% max. |
| Transient Response:75% -100% Step Load Change | |
| Error Band | ±5% Vout |
| Recover Time | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW | 40mV RMS, max. 100mV pk-pk, max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 20ms Typ. |

GENERAL SPECIFICATIONS

| | |
|---|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF Typ. |
| Switching Frequency | 300KHz Typ. |
| Operating Case Temperature | -40°C to +100°C |
| Storage Temperature | -40°C to +105°C |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-HDBK-217F, GB, 25°C, Full Load | 700 Khrs Typ. |
| Thermal Shutdown, Case Temp. | 100°C Typ. |
| Dimensions | 1.45 x 2.28 x 0.50 inches (36.8 x 57.9 x 12.7 mm) |
| Case Material (Standard) | Aluminum baseplate with plastic case |
| | Open Frame |
| Weight | Standard: 61.8 g, Open Frame: 39 g |

NOTE

1. Measured from high line to low line.
2. Measured from lo min. to lo max.
3. Logic compatibility open collector ref to -input
 Module On open Circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off
5. Suffix "O" to the model number with open frame type.
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)

CQB75W SERIES

75 WATT, 4:1 INPUT RANGE

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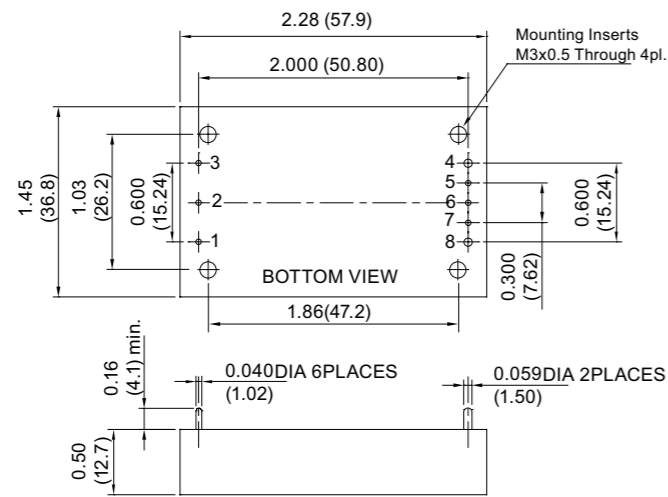
Features

- ◆ 75W Isolated Output
- ◆ Efficiency up to 87%
- ◆ 300KHz Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Industry Standard Quarter-Brick Package
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1



Mechanical Dimensions

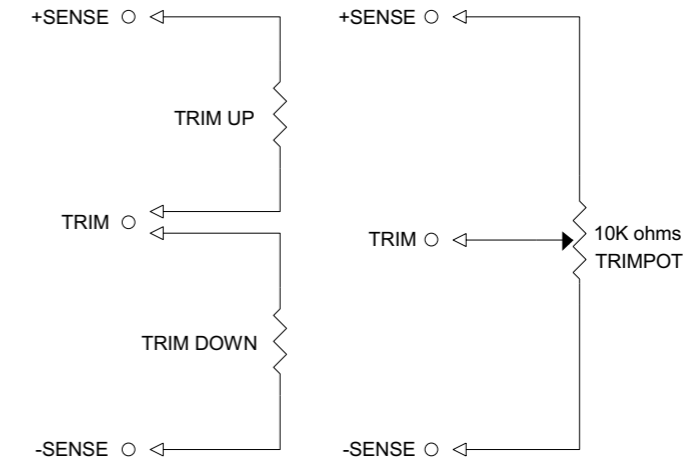
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB75W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 12 A | 50 mA | 2037 mA | 81 | 12000µF |
| CQB75W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 12 A | 50 mA | 2976 mA | 84 | 12000µF |
| CQB75W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 3634 mA | 86 | 6250µF |
| CQB75W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 3634 mA | 86 | 4400µF |
| CQB75W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 3.12 A | 50 mA | 3628 mA | 86 | 1500µF |
| CQB75W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 12 A | 30 mA | 1006 mA | 82 | 12000µF |
| CQB75W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 12 A | 30 mA | 1471 mA | 85 | 12000µF |
| CQB75W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 6.25 A | 30 mA | 1817 mA | 86 | 6250µF |
| CQB75W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 5 A | 30 mA | 1796 mA | 87 | 4400µF |
| CQB75W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 3.12 A | 30 mA | 1796 mA | 87 | 1500µF |

External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 24V..... 9-36V |
| | 48V..... 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under voltage lockout | 24Vin |
| | 48Vin |
| Positive Logic Remote On/Off | power up 8.8V |
| Input Filter | power down 8.0V |
| | power up 17V |
| | power down 16V |
| | See note 4 & 5 |
| | PI Type |

OUTPUT SPECIFICATIONS

| | |
|---|--------------------------|
| Voltage Accuracy: | ±1.5% max. |
| Transient Response : 75% to 100% Step Load Change | |
| Error Band | ±5% Vout |
| Recover Time | < 500µs |
| External Trim Adj. Range | ±10%°C |
| Ripple & Noise, 20MHz BW (note 3) | |
| | 3.3V & 5V |
| | 40mV RMS, max. |
| | 12V & 15V |
| | 100mV pk-pk, max. |
| | 60mV RMS, max. |
| | 24V |
| | 150mV pk-pk, max. |
| | 100mV RMS, max. |
| | 240mV pk-pk, max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 20ms typ. |

GENERAL SPECIFICATIONS

| | |
|------------------------------|---------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF Typ. |
| Switching Frequency | 300KHz, Typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Humidity | 95% RH max. Non condensing |
| Thermal Shutdown, Case Temp. | 105°C Typ. |
| Dimensions | 1.45 x 2.28 x 0.50 inches |
| | (36.8 x 57.9 x 12.7 mm) |
| Case Material | Aluminum Base-plate with |
| | Plastic Case |
| Weight | 63 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -Input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.8VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.8VDC
 Module Off >3.5VDC to 75Vdc or open circuit
6. Suffix "-C" to the model number with clear mounting Insert (3.1mm DIA.)

CQB100W SERIES

100 WATT, 4:1 INPUT RANGE

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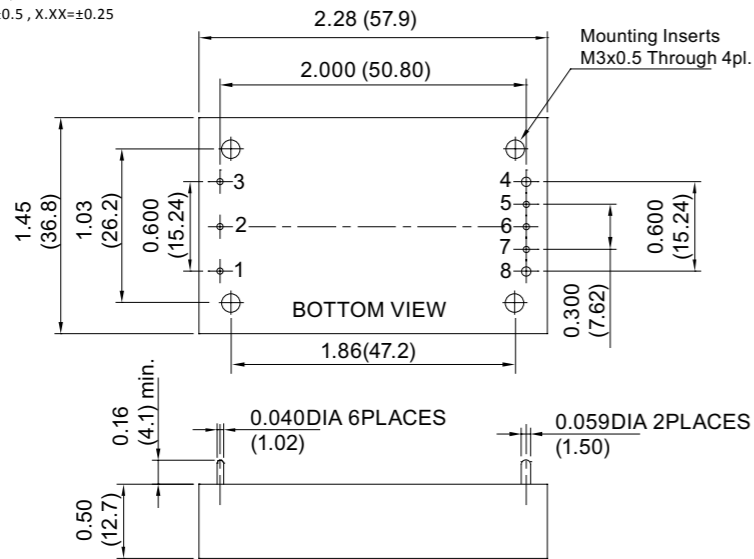
Features

- ◆ 100W Isolated Output
- ◆ Quarter-Brick Package
- ◆ 4 : 1 Input Range
- ◆ Efficiency to 88%
- ◆ Regulated Output
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ 1500VDC Isolation
- ◆ Safety Meets UL60950-1



Mechanical Dimensions

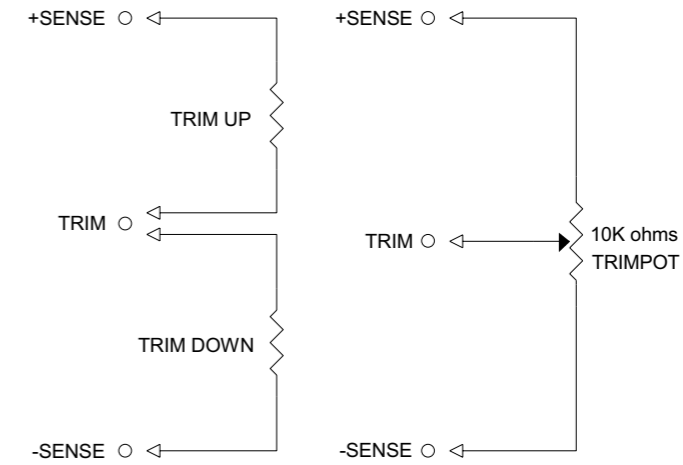
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB100W-24S3V3 | 9-36 VDC | 3.3VDC | 0 mA | 30 A | 120 mA | 4797 mA | 86 | 10000µF |
| CQB100W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 20 A | 120 mA | 4817 mA | 86.5 | 10000µF |
| CQB100W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 8.3 A | 80 mA | 4798 mA | 86.5 | 2200µF |
| CQB100W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 6.7 A | 80 mA | 4841 mA | 86.5 | 2200µF |
| CQB100W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 4.17 A | 80 mA | 4793 mA | 87 | 2200µF |
| CQB100W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 30 A | 60 mA | 2344 mA | 88 | 10000µF |
| CQB100W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 20 A | 60 mA | 2367 mA | 88 | 10000µF |
| CQB100W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 8.3 A | 30 mA | 2358 mA | 88 | 2200µF |
| CQB100W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 6.7 A | 30 mA | 2379 mA | 88 | 2200µF |
| CQB100W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 4.17 A | 30 mA | 2369 mA | 88 | 2200µF |

External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|----------------------|-----------------------|
| Input Voltage Range | 24V 9-36V | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under voltage lockout | 24Vin | 48Vin |
| Input Filter | Pi Type | See note 4 & 5 |
| Positive Logic Remote On/Off | | |

OUTPUT SPECIFICATIONS

| | |
|--|------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 75% to 100% Step Load Change | |
| Error Band | 3.3V±7% Vout, Others±5% Vout |
| Recover Time | < 500µs |
| External Trim Adj. Range (note 6) | ±10% |
| Ripple and Noise, 20MHz BW (see note 3). | |
| 3.3V & 5V | 40mV RMS, 100mV pk-pk max. |
| 12V & 15V | 60mV RMS, 150mV pk-pk max. |
| 24V | 100mV RMS, 240mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, %Vo nom. | 115-140% |
| Current Limit | 120ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ Ohms min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 48Vin 250KHz typ. 24Vin 220KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature Range | -40°C to +105°C |
| Thermal Shutdown, Case Temp. | 110°C typ. |
| Dimensions | 1.45 x 2.28 x 0.50 inches (36.8 x 57.9 x 12.7 mm) |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 600Khrs typ. |
| Case Material | Aluminum Base-plate with Plastic Case |
| Weight | 66 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to min. load.
3. The output noise is measured with 10µF tantalum capacitor and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -Input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or Open Circuit
6. Trim-up connect a resistor between the trim pin and +Sense
 Trim-down connect a resistor between the trim pin and -Sense
7. Suffix "-C" to the model number with clear mounting insert(3.2mm DIA.)
8. An external input capacitor 47µF for 48Vin models and 100µF for 24Vin models are recommended to reduce input ripple voltage.

CQB100-110S SERIES

100 WATT, INPUT RANGE 66-160 VDC

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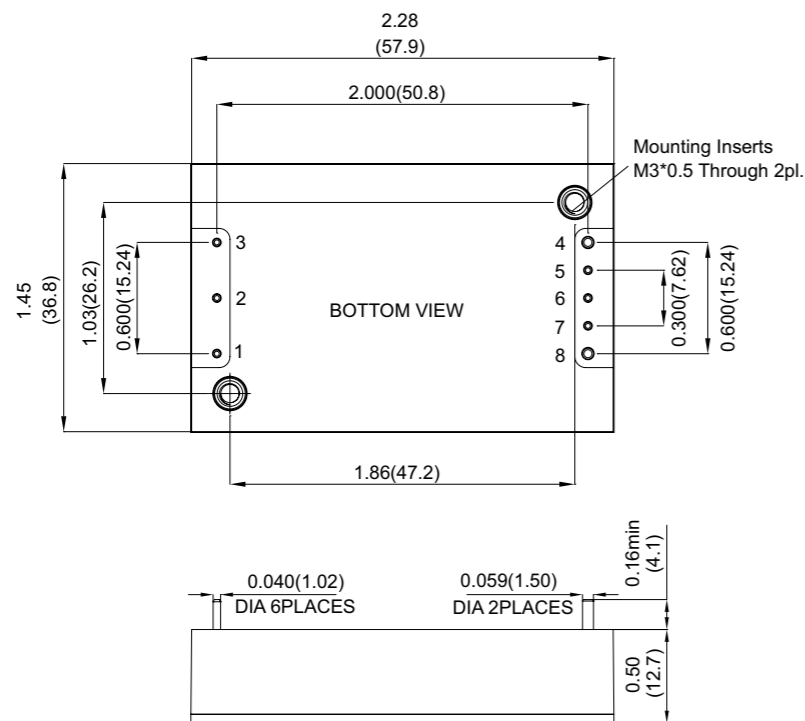
Features

- ◆ 100W Isolated Output
- ◆ Efficiency to 93%
- ◆ 200KHz Switching Frequency
- ◆ 3 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Quarter Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Except 3.3Vout)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



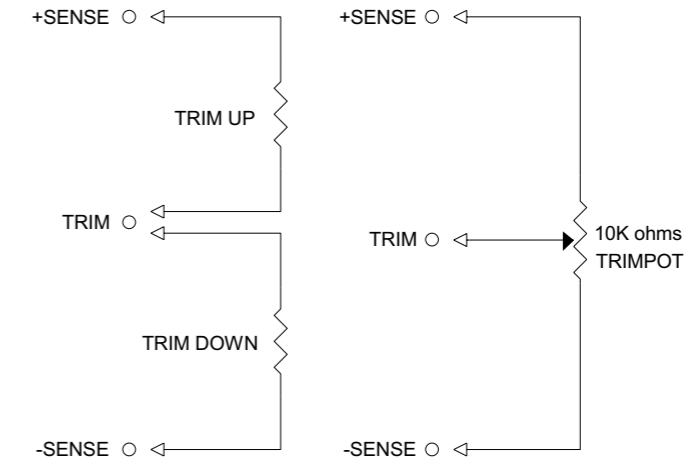
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------------------|
| Input Voltage Range | 66-160V |
| Input Surge Voltage (100ms max.) | 180Vdc max. |
| Under Voltage Lockout | power up 62V power down 56V |
| Positive Logic Remote On/Off: | |
| Logic Compatibility | Open Collector ref. to -Input |
| Module On | > 3.5Vdc to 75Vdc or Open Circuit |
| Module Off | < 1.8Vdc |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: | |
| 25% Step Load Change | < 200µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | |
| 3.3 & 5V | 40mV RMS, 100mV pk-pk max. |
| 12V | 60mV RMS, 150mV pk-pk max. |
| 24V | 100mV RMS, 240mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-180% Nominal Output |
| Start up time | 45ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 2250VDC min. Input/Case 2250VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 200KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 105°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-HDBK-217F, GB, 25°C, Full Load | CQB100-110S05: 240Khrs CQB100-110S3V3: 400Khrs CQB100-110S12: 320Khrs CQB100-110S24: 320Khrs |
| Safety (Except 3.3 Vout) | UL60950-1 2 nd (Basic insulation) |
| EMC (note 7) | EN50155 (EN50121-3-2) with External Filter EN50155 (EN61373) |
| Shock/Vibration | EN50155 (EN60068-2-1) |
| Environmental | |
| Dimensions | 2.28 x 1.45 x 0.50 inches (57.9 x 36.8 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 61.5 g |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|-------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB100-110S3V3 | 66-160 VDC | 3.3 VDC | 0 mA | 25 A | 40 mA | 833 mA | 90 | 10000µF |
| CQB100-110S05 | 66-160 VDC | 5.0 VDC | 0 mA | 20 A | 30 mA | 983 mA | 92.5 | 10000µF |
| CQB100-110S12 | 66-160 VDC | 12 VDC | 0 mA | 8.4 A | 40 mA | 985 mA | 93 | 8800µF |
| CQB100-110S24 | 66-160 VDC | 24 VDC | 0 mA | 4.2 A | 60 mA | 996 mA | 92 | 1500µF |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.8VDC
 Module Off > 3.5VDC to 75VDC or open circuit
5. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)
6. An external input capacitor 120µF for all models are recommended to reduce input ripple voltage.
7. Design meet EN50155 and RIA12 refer to application note.

CQB150W SERIES

150 WATT, 4:1 INPUT RANGE

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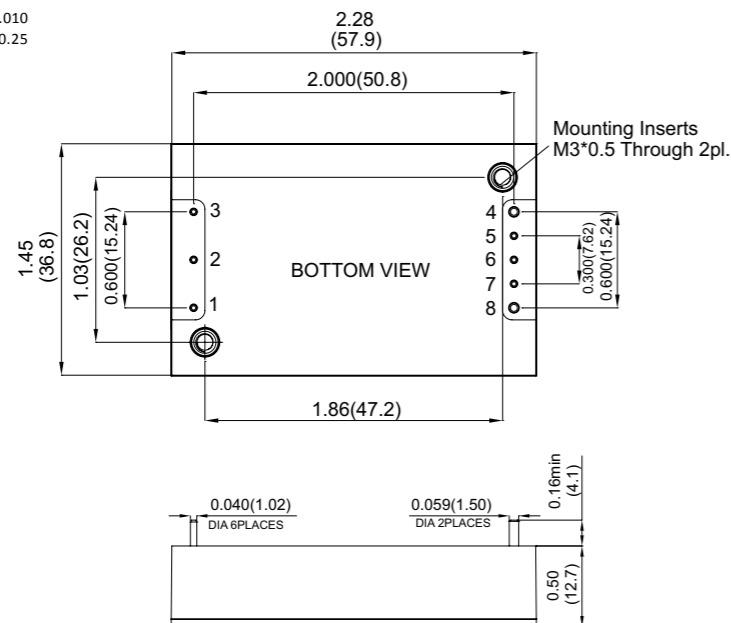
Features

- ◆ 150W Isolated Output
- ◆ Efficiency to 90%
- ◆ Fixed Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Low No Load Power Consumption
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Quarter Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1



Mechanical Dimensions

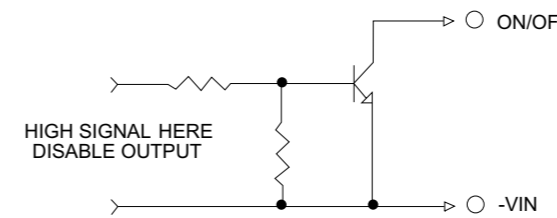
All Dimensions in Inches (mm)
Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
Millimeters: X.X=±0.5, X.XX=±0.25



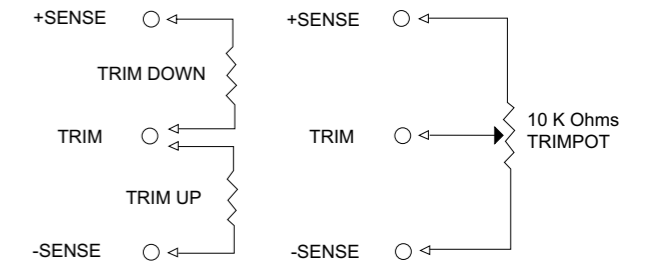
| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB150W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 30 A | 10 mA | 7.02 A | 89 | 30000µF |
| CQB150W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 12.5 A | 10 mA | 7.02 A | 89 | 12500µF |
| CQB150W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 6.3 A | 10 mA | 7.08 A | 89 | 6300µF |
| CQB150W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 5.4 A | 10 mA | 7.08 A | 89 | 5400µF |
| CQB150W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 3.2 A | 10 mA | 7.19 A | 89 | 1000µF |
| CQB150W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 30 A | 10 mA | 3.47 A | 90 | 30000µF |
| CQB150W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 12.5 A | 10 mA | 3.47 A | 90 | 12500µF |
| CQB150W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 6.3 A | 10 mA | 3.50 A | 90 | 6300µF |
| CQB150W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 5.4 A | 10 mA | 3.50 A | 90 | 5400µF |
| CQB150W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 3.2 A | 10 mA | 3.56 A | 90 | 1000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------------|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under voltage lockout | 24Vin power up 8.8V |
| | 48Vin power down 8.0V |
| | power up 17V |
| | power down 16V |
| Positive Logic Remote On/Off | see note 4 & 5 |
| Input Filter | PI Type |

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------|
| Voltage Accuracy: | ±1.5% max |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW | |
| 5V | 40mV RMS, 100mV pk-pk max. |
| 12V | 60mV RMS, 150mV pk-pk max. |
| 24V & 28V | 100mV RMS, 280mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-160% Nominal Output |
| Start up time | 60ms typ. |

GENERAL SPECIFICATIONS

| | |
|------------------------------------|---|
| Efficiency | See Table |
| Isolation Voltage : | |
| CQB150W-24SXX and CQB150W-48SXX: | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1500pF typ. |
| Switching Frequency | 300KHz typ. |
| Operating Ambient Temperature | -40°C to +105°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temperature | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 1.45 x 0.50 inches (57.9 x 36.8 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 68 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF aluminum and 1µF ceramic capacitor across output for 48Vout and with 10µF tantalum and 1µF ceramic capacitor for others.
4. Logic compatibility open collector ref to -Input
Module On >3.5VDC to 75VDC or open circuit
Module Off < 1.2Vdc
5. Suffix "N" to the model number with negative logic remote On/Off
Module On < 1.2VDC
Module Off >3.5VDC to 75VDC or open circuit
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)
7. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.

CQB150W-110S SERIES

150 WATT, INPUT RANGE 43-160 VDC

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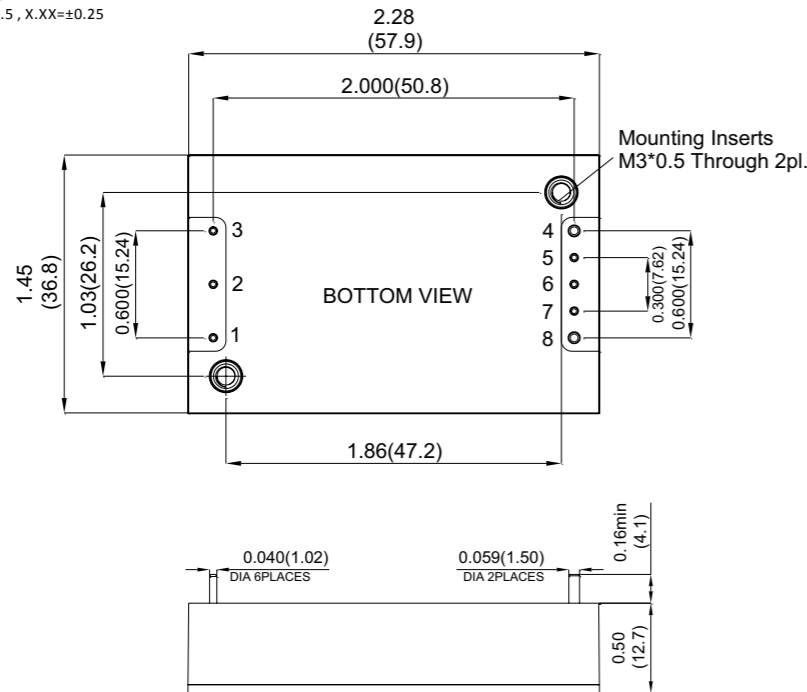
Features

- ◆ 150W Isolated Output
- ◆ Efficiency to 91%
- ◆ Fixed Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Low No Load Power Consumption
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Quarter Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Basic Insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



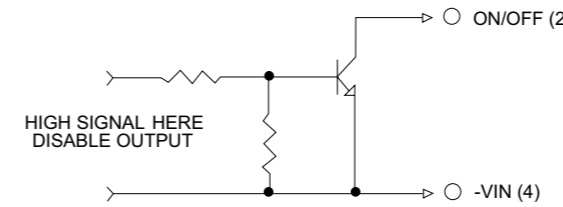
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

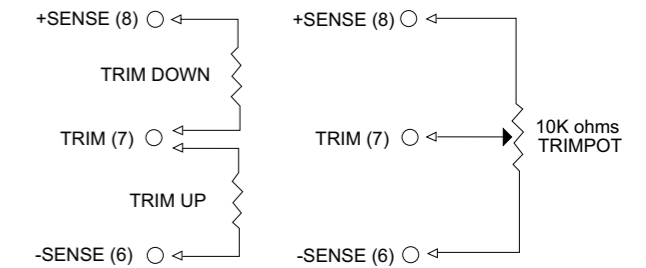


| PIN CONNECTION | |
|----------------|---------------|
| PIN | Single Output |
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range 43-160V
 Input Surge Voltage (100ms max.) 200Vdc max.
 Under voltage lockout power up 42V
 power down 38V

Positive Logic Remote On/Off (see note 4 & 5)
 Input Filter PI Type

OUTPUT SPECIFICATIONS

Voltage Accuracy: ±1.5% max.
 Transient Response: < 500µs
 25% Step Load Change < 500µs
 External Trim Adj. Range ±10%
 Ripple & Noise, 20MHz BW
 5V 40mV RMS, 100mV pk-pk max.
 12V 60mV RMS, 150mV pk-pk max.
 24V & 28V 100mV RMS, 280mV pk-pk max.
 48V 200mV RMS, 480mV pk-pk max.
 Temperature Coefficient ±0.03%/°C
 Short Circuit Protection Continuous
 Line Regulation (note 1) ±0.2% max.
 Load Regulation (note 2) ±0.2% max.
 Over Voltage Protection trip Range, % Vo nom. 115-140%
 Current Limit 110%-160% Nominal Output
 Start up time 60ms typ.

GENERAL SPECIFICATIONS

Efficiency See Table
 Isolation Voltage : Input/Output2250VDC min.
 Input/Case 2250VDC min.
 Output/Case 2250VDC min.
 Isolation Resistance 10⁷ ohm min.
 Isolation Capacitance 1000pF typ.
 Switching Frequency 300KHz typ.
 Operating Ambient Temperature -40°C to +105°C
 Storage Temperature -55°C to +105°C
 Thermal Shutdown, Case Temperature 110°C typ.
 Humidity 95% RH max. Non condensing
 Dimensions 2.28 x 1.45 x 0.50 inches
 (57.9 x 36.8 x 12.7 mm)
 Safety UL60950-1 2nd (Basic Insulation)
 EMC (note 8) EN50155 (EN50121-3-2)
 with External Filter
 EN50155 (EN61373)
 EN50155 (EN60068-2-1)
 Shock/Vibration Aluminum Base Plate with
 Environmental Plastic Case
 Case Material 68 g
 Weight

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -Input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2Vdc
5. Suffix "N" to the Model Number with Negative Logic Remote On/Off
 Module On < 1.2Vdc
 Module Off >3.5Vdc to 75Vdc or Open Circuit
6. Suffix "-C" to the Model Number with Clear Mounting Insert (3.2mm DIA.)
7. An external input capacitor 220uF for all models are recommended to reduce input ripple voltage
8. Design meet EN50155 and RIA12 refer to application note.

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB150W-110S05 | 43-160 VDC | 5 VDC | 0 mA | 30 A | 10 mA | 1.50 A | 91 | 10000µF |
| CQB150W-110S12 | 43-160 VDC | 12 VDC | 0 mA | 12.5 A | 10 mA | 1.50 A | 91 | 8800µF |
| CQB150W-110S24 | 43-160 VDC | 24 VDC | 0 mA | 6.3 A | 10 mA | 1.51 A | 90 | 2200µF |
| CQB150W-110S28 | 43-160 VDC | 28 VDC | 0 mA | 5.4 A | 10 mA | 1.51 A | 91 | 2200µF |
| CQB150W-110S48 | 43-160 VDC | 48 VDC | 0 mA | 3.2 A | 10 mA | 1.53 A | 91 | 2200µF |

CQB150-300S SERIES

150 WATT, INPUT RANGE 180-425 VDC

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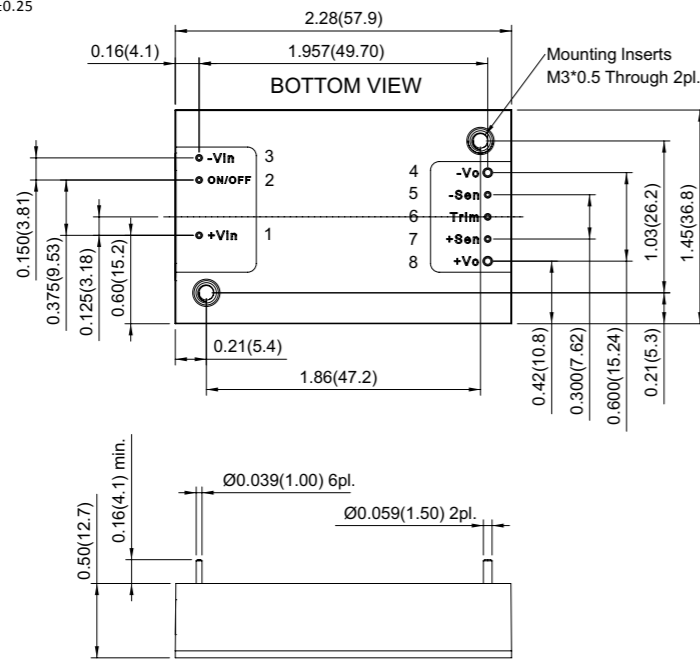
Features

- ◆ 150W Isolated Output
- ◆ Efficiency to 88%
- ◆ Fixed Switching Frequency
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Low No Load Power Consumption
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Quarter Brick Size meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL/C-UL 60950 Certified
- ◆ Fully Isolated 3000VAC



Mechanical Dimensions

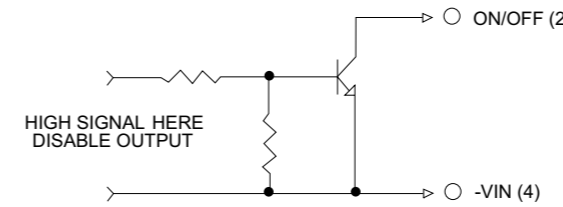
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25



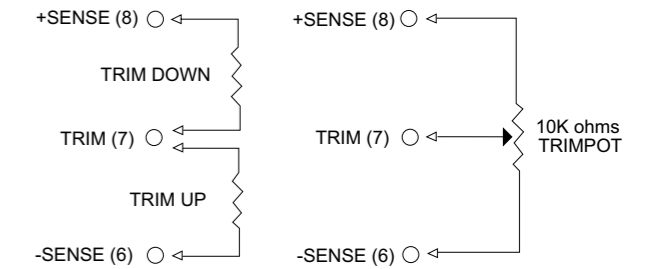
| PIN | Function |
|-----|-----------|
| 1 | +V Input |
| 2 | On/Off |
| 3 | -V Input |
| 4 | -V Output |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CQB150-300S3V3 | 180-425 VDC | 3.3 VDC | 0 mA | 30 A | 10 mA | 0.4 A | 85 | 10000µF |
| CQB150-300S05 | 180-425 VDC | 5 VDC | 0 mA | 30 A | 10 mA | 0.6 A | 85 | 10000µF |
| CQB150-300S12 | 180-425 VDC | 12 VDC | 0 mA | 12.5 A | 10 mA | 0.6 A | 86 | 8800µF |
| CQB150-300S15 | 180-425 VDC | 15 VDC | 0 mA | 10 A | 10 mA | 0.6 A | 86 | 8800µF |
| CQB150-300S24 | 180-425 VDC | 24 VDC | 0 mA | 6.3 A | 10 mA | 0.6 A | 86 | 8800µF |
| CQB150-300S28 | 180-425 VDC | 28 VDC | 0 mA | 5.4 A | 10 mA | 0.56 A | 88 | 2200µF |
| CQB150-300S48 | 180-425 VDC | 48 VDC | 0 mA | 3.2 A | 10 mA | 0.56 A | 88 | 2200µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|-------------------------------|--|
| Input Voltage Range | 300V..... 180-425V |
| Input over voltage protection | Module on.....428V Module off.....450V |
| Under voltage lockout | 300Vin power up 175V 300Vin power down.....160V |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | PI Type |

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------|
| Voltage Accuracy: | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW | |
| 3.3V & 5V | 100mV pk-pk, max. |
| 12V & 15V | 60mV RMS, 150mV pk-pk max. |
| 24V & 28V | 100mV RMS, 280mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-160% Nominal Output |
| Start up time | 60ms typ. |

GENERAL SPECIFICATIONS

| | |
|------------------------------------|---|
| Efficiency | See Table |
| Isolation Voltage : | |
| Isolation Voltage | Input/Output.....3000VAC min. Input/Case.....2500VAC min. Output/Case.....500VAC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Switching Frequency | 300KHz typ. |
| Operating Ambient Temperature | -40°C to +105°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temperature | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 1.45 x 0.50 inches (57.9 x 36.8 x 12.7 mm) |
| Case Material | Aluminum Base Plate with Plastic Case |
| Weight | 68 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -Input
Module On >3.5VDC to 75VDC or open circuit
Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
Module On < 1.2VDC
Module Off >3.5Vdc to 75Vdc or Open Circuit
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)
7. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.

CHB50 SERIES

33-50 WATT

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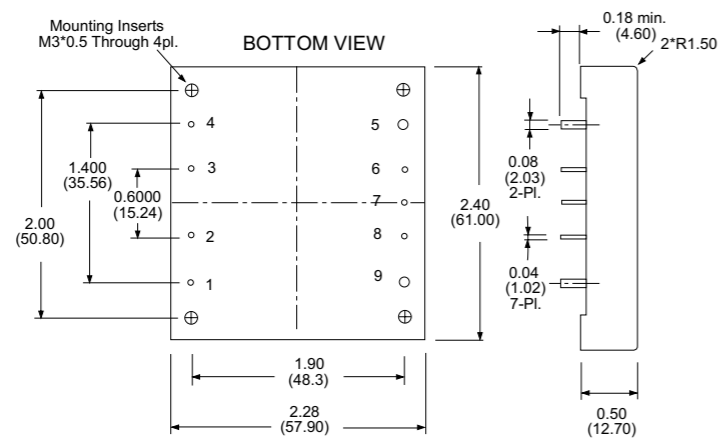
Features

- ◆ 33W-50W Isolated Output
- ◆ Efficiency to 89%
- ◆ 300/400KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2006/95/EC, 93/68/EEC, and 89/336/EEC
- ◆ Safety UL60950-1, EN60950-1 and IEC60950-1



Mechanical Dimensions

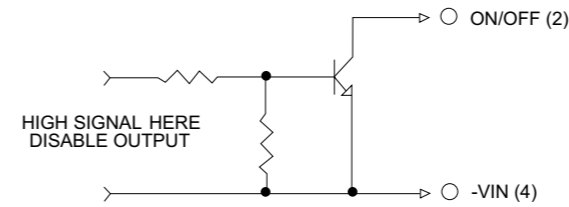
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25



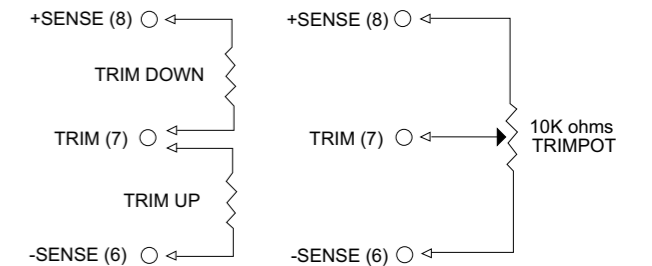
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB50-12S33 | 9-18 VDC | 3.3 VDC | 0 mA | 10 A | 50 mA | 3481 mA | 79 | 10000µF |
| CHB50-12S05 | 9-18 VDC | 5 VDC | 0 mA | 10 A | 50 mA | 5020 mA | 83 | 10000µF |
| CHB50-12S12 | 9-18 VDC | 12 VDC | 0 mA | 4.16 A | 50 mA | 4781 mA | 87 | 4000µF |
| CHB50-12S15 | 9-18 VDC | 15 VDC | 0 mA | 3.33 A | 50 mA | 4781 mA | 87 | 2000µF |
| CHB50-12S24 | 9-18 VDC | 24 VDC | 0 mA | 2.08 A | 50 mA | 4781 mA | 87 | 1500µF |
| CHB50-24S33 | 18-36 VDC | 3.3 VDC | 0 mA | 10 A | 50 mA | 1698 mA | 81 | 10000µF |
| CHB50-24S05 | 18-36 VDC | 5 VDC | 0 mA | 10 A | 50 mA | 2450 mA | 85 | 10000µF |
| CHB50-24S12 | 18-36 VDC | 12 VDC | 0 mA | 4.16 A | 50 mA | 2363 mA | 88 | 10000µF |
| CHB50-24S15 | 18-36 VDC | 15 VDC | 0 mA | 3.33 A | 50 mA | 2363 mA | 88 | 4000µF |
| CHB50-24S24 | 18-36 VDC | 24 VDC | 0 mA | 2.08 A | 50 mA | 2363 mA | 88 | 2000µF |
| CHB50-48S33 | 36-75 VDC | 3.3 VDC | 0 mA | 10 A | 50 mA | 848 mA | 81 | 10000µF |
| CHB50-48S05 | 36-75 VDC | 5 VDC | 0 mA | 10 A | 50 mA | 1240 mA | 84 | 10000µF |
| CHB50-48S12 | 36-75 VDC | 12 VDC | 0 mA | 4.16 A | 50 mA | 1181 mA | 88 | 10000µF |
| CHB50-48S15 | 36-75 VDC | 15 VDC | 0 mA | 3.33 A | 50 mA | 1181 mA | 88 | 4000µF |
| CHB50-48S24 | 36-75 VDC | 24 VDC | 0 mA | 2.08 A | 50 mA | 1168 mA | 89 | 2000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | | |
|----------------------------------|----------------------|----------------------|-------------------------|
| Input Voltage Range | 12V 9-18V | 24V 18-36V | 48V 36-75V |
| Input Surge Voltage (100ms max.) | 12V 25Vdc max. | 24V 50Vdc max. | 48V 100Vdc max. |
| Under Voltage Lockout: | 12Vin | power up >8.8V | power down >8V |
| | 24Vin | power up >17V | power down >16V |
| | 48Vin | power up >34V | power down >32.5V |
| Positive Logic Remote On/Off | See note 3 & 4 | | |

OUTPUT SPECIFICATIONS

| | |
|---|--------------------------|
| Voltage Accuracy | ±1.0% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range°C | ±10%/°C |
| Ripple & Noise, 20MHz BW(see note 5) | 3.3V & 5V |
| | 20mV RMS max. |
| | 75mV pk-pk max. |
| | 30mV RMS max. |
| | 12V & 15V |
| | 100mV pk-pk max. |
| | 100mV RMS max. |
| | 24V |
| | 240mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (see note 1) | ±0.2% max. |
| Load Regulation (see note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-150% Nominal Output |
| Start up time | 5ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 1000pF typ. |
| Isolation Capacitance | (12/24)Vin 400KHz typ. |
| Isolation Resistance | 48Vin 300KHz typ. |
| Switching Frequency | |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 100°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBFMIL-STD-217F, GB, 25°C, Full Load | 1000Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches |
| | (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 88 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -Input
- Module On open circuit
- Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off.
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
6. Suffix "-C" to the model number with clear mounting Insert (3.2mm DIA.)
7. ON/OFF Pin is not directly applied voltage, please refer to remote on / off control circuit.

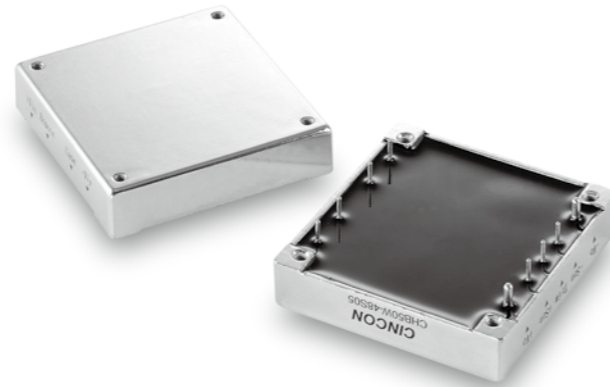
CHB50W SERIES

33-50 WATT, 4:1 INPUT RANGE

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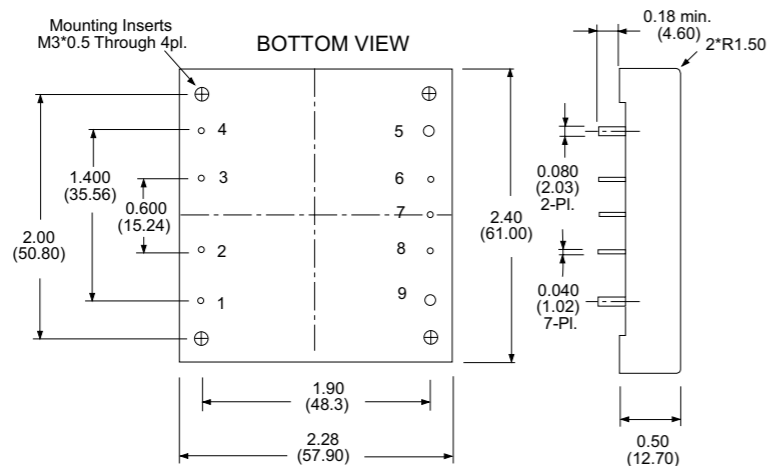
Features

- ◆ 33W-50W Isolated Output
- ◆ Efficiency to 87%
- ◆ 300KHz Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Shield Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval (Except 28 Vout)
- ◆ Safety UL60950-1, EN60950-1 and IEC60950-1



Mechanical Dimensions

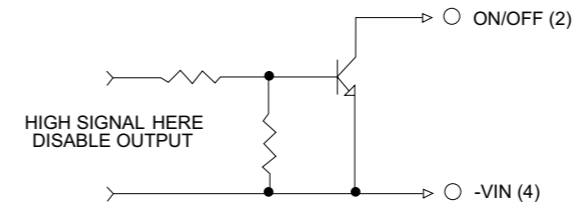
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



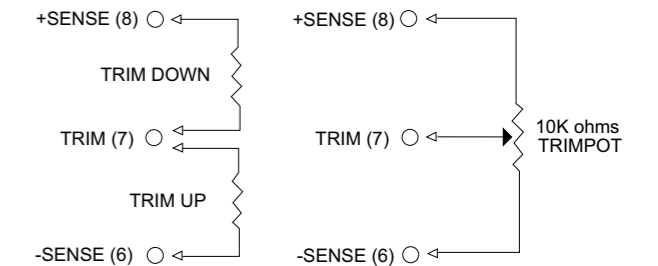
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB50W-24S33 | 9-36 VDC | 3.3 VDC | 0 mA | 10 A | 50 mA | 1740 mA | 79 | 10000µF |
| CHB50W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 10 A | 50 mA | 2570 mA | 81 | 10000µF |
| CHB50W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 4.16 A | 50 mA | 2510 mA | 83 | 4160µF |
| CHB50W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 3.33 A | 50 mA | 2448 mA | 85 | 3330µF |
| CHB50W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 2.08 A | 50 mA | 2476 mA | 84 | 2080µF |
| CHB50W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 1.78 A | 50 mA | 2510 mA | 83 | 1780µF |
| CHB50W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 1.04 A | 50 mA | 2506 mA | 83 | 1040µF |
| CHB50W-48S33 | 18-75 VDC | 3.3 VDC | 0 mA | 10 A | 50 mA | 848 mA | 81 | 10000µF |
| CHB50W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 10 A | 50 mA | 1255 mA | 83 | 10000µF |
| CHB50W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 4.16 A | 50 mA | 1223 mA | 85 | 4160µF |
| CHB50W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 3.33 A | 50 mA | 1196 mA | 87 | 3330µF |
| CHB50W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 2.08 A | 50 mA | 1209 mA | 86 | 2080µF |
| CHB50W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 1.78 A | 50 mA | 1223 mA | 85 | 1780µF |
| CHB50W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 1.04 A | 50 mA | 1238 mA | 84 | 1040µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|----------------------|-----------------------|
| Input Voltage Range | 24V 9-36V | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under Voltage Lockout: | 24Vin | 48Vin |
| Positive Logic Remote On/Off | power up 8.8V | power down 8V |
| Input Filter | power up 17V | power down 16V |
| | See note 3 & 4 | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|----------------------------------|
| Voltage Accuracy (note 7) | ±1.0% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 5) | 40mV RMS max., 100mV pk-pk max. |
| 3.3V & 5V | 60mV RMS max., 150mV pk-pk max. |
| 12V & 15V | 100mV RMS max., 240mV pk-pk max. |
| 24V | 100mV RMS max., 280mV pk-pk max. |
| 28V | 200mV RMS max., 480mV pk-pk max. |
| 48V | ±0.03%/°C |
| Temperature Coefficient | Continuous |
| Short Circuit Protection | ±0.2% max. |
| Line Regulation (note 1 & 7) | ±0.2% max. |
| Load Regulation (note 2 & 7) | 115-140% |
| Over Voltage Protection Trip Range, % Vo nom. | 110% -160% Nominal Output |
| Current Limit | 5ms typ. |
| Start up time | |

GENERAL SPECIFICATIONS

| | |
|--|--------------------------------|
| Efficiency | See Table |
| Isolation Voltage | nput/Output..... 1500VDC min. |
| | Input/Case..... 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 10 ⁷ ohm min. |
| Isolation Resistance | 1000pF typ. |
| Isolation Capacitance | 300KHz typ. |
| Switching Frequency | -40°C to 100°C |
| Operating Case Temperature | -55°C to +105°C |
| Storage Temperature | 100°C typ. |
| Thermal Shutdown Case Temp. | 95% RH max. Non condensing |
| Humidity | 1000Khrs typ. |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 2.28 x 2.40 x 0.50 inches |
| Dimensions | (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 94 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off.
 Module On < 0.8VDC
 Module Off >3.5VDC to 75VDC or open circuit
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 1µF ceramic cap. only)
6. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)
7. Require a 47µF aluminum capacitor connected between +Vout and -Vout for 48Vout models.

CHB75 SERIES

49.5-75 WATT

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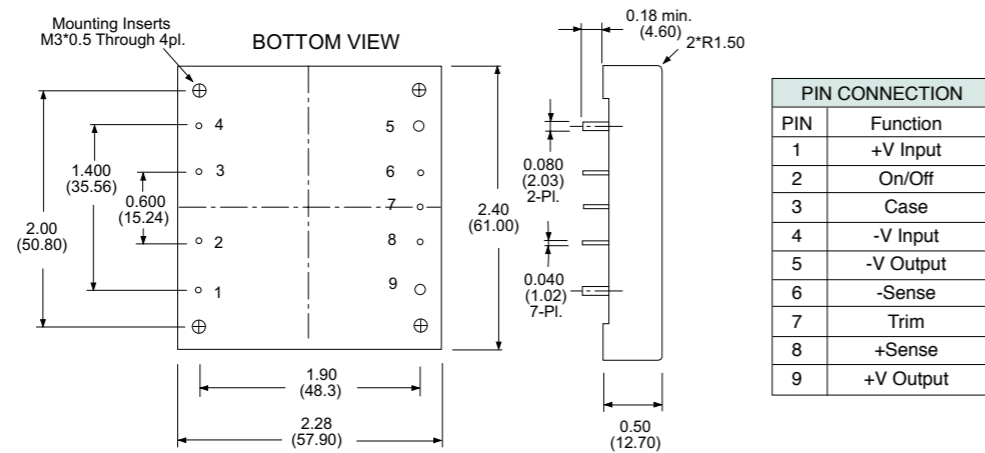
Features

- ◆ 49.5W-75W Isolated Output
- ◆ Efficiency to 89%
- ◆ 300/400KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2006/95/EC, 93/68/EEC, and 89/336/EEC
- ◆ Safety UL60950-1, EN60950-1 and IEC60950-1



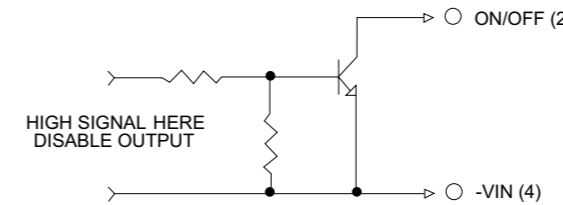
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

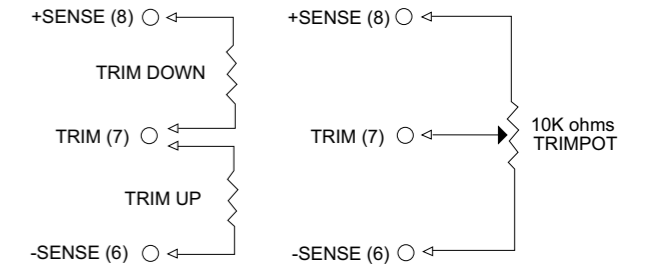


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB75-12S33 | 9-18 VDC | 3.3 VDC | 0 mA | 15 A | 50 mA | 5290 mA | 78 | 10000µF |
| CHB75-12S05 | 9-18 VDC | 5 VDC | 0 mA | 15 A | 50 mA | 7530 mA | 83 | 10000µF |
| CHB75-12S12 | 9-18 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 7183 mA | 87 | 10000µF |
| CHB75-12S15 | 9-18 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 7267 mA | 86 | 4000µF |
| CHB75-12S24 | 9-18 VDC | 24 VDC | 0 mA | 3.13 A | 50 mA | 7183 mA | 87 | 2000µF |
| CHB75-24S33 | 18-36 VDC | 3.3 VDC | 0 mA | 15 A | 50 mA | 2578 mA | 80 | 10000µF |
| CHB75-24S05 | 18-36 VDC | 5 VDC | 0 mA | 15 A | 50 mA | 3720 mA | 84 | 10000µF |
| CHB75-24S12 | 18-36 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 3551 mA | 88 | 10000µF |
| CHB75-24S15 | 18-36 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 3551 mA | 88 | 4000µF |
| CHB75-24S24 | 18-36 VDC | 24 VDC | 0 mA | 3.13 A | 50 mA | 3551 mA | 88 | 2000µF |
| CHB75-48S33 | 36-75 VDC | 3.3 VDC | 0 mA | 15 A | 50 mA | 1273 mA | 81 | 10000µF |
| CHB75-48S05 | 36-75 VDC | 5 VDC | 0 mA | 15 A | 50 mA | 1860 mA | 84 | 10000µF |
| CHB75-48S12 | 36-75 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 1755 mA | 89 | 10000µF |
| CHB75-48S15 | 36-75 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 1775 mA | 88 | 4000µF |
| CHB75-48S24 | 36-75 VDC | 24 VDC | 0 mA | 3.13 A | 50 mA | 1755 mA | 89 | 2000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|-------|------------------------------------|
| Input Voltage Range | 12V | 9-18V |
| | 24V | 18-36V |
| | 48V | 36-75V |
| | | |
| Input Surge Voltage (100ms max.) | 12V | 25Vdc max. |
| | 24V | 50Vdc max. |
| | 48V | 100Vdc max. |
| | | |
| Under Voltage Lockout : | 12Vin | power up >8.8V power down >8V |
| | 24Vin | power up >17V power down >16V |
| | 48Vin | power up >34V power down >32.5V |
| | | |
| Positive Logic Remote On/Off | | See note 3 & 4 |
| Input Filter | | Pi Type |

OUTPUT SPECIFICATIONS

| | | |
|---|--------------------------|------------------------------------|
| Voltage Accuracy | ±1.0% max. | |
| Transient Response:25% Step Load Change | < 500µs. | |
| External Trim Adj. Range | ±10% | |
| Ripple & Noise, 20MHz BW (see note 5) | 3.3V & 5V | 20mV RMS max. 75mV pk-pk max. |
| | 12V & 15V | 30mV RMS max. 100mV pk-pk max. |
| | 24V | 100mV RMS max. 240mV pk-pk max. |
| | | |
| Temperature Coefficient | ±0.03%/°C | |
| Short Circuit Protection | Continuous | |
| Line Regulation (see note1) | ±0.2% max. | |
| Load Regulation (see note2) | ±0.2% max. | |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% | |
| Current Limit | 110%-150% Nominal Output | |
| Start up time | 5ms typ. | |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | (12/24)Vin 400KHz typ. |
| | 48Vin 300KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 100°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 1000Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 92 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -Input
 Module On open circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote on/off.
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
6. Suffix "-C" to the model number with clear mounting Insert (3.2mm DIA.)
7. On/Off Pin is not directly applied voltage, please refer to remote On / Off control circuit.

CHB75W SERIES

49.5-75 WATT, 4:1 INPUT RANGE

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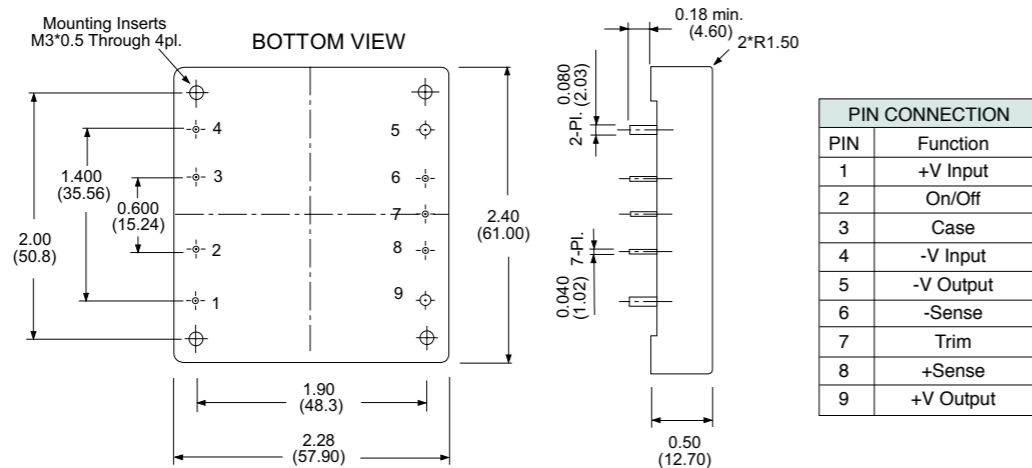
Features

- ◆ 49.5W-75W Isolated Output
- ◆ Efficiency to 85%
- ◆ 300KHz Switching Frequency
- ◆ 4 : 1 Wide Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval (Except 28 Vout)
- ◆ Safety UL60950-1, EN60950-1, and IEC60950-1



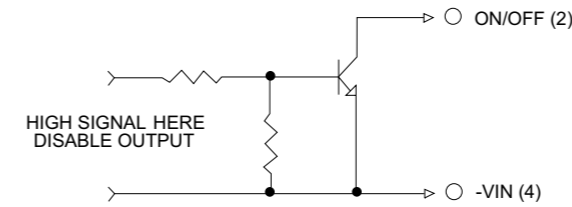
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

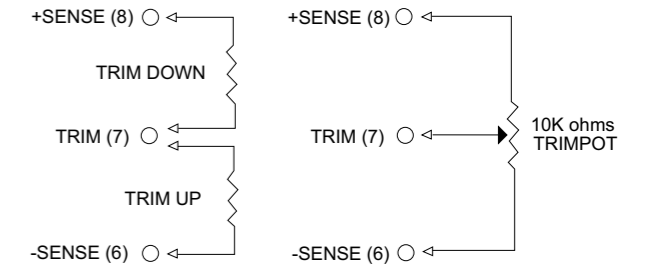


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB75W-24S33 | 9-36 VDC | 3.3 VDC | 0 mA | 15 A | 50 mA | 2611 mA | 79 | 15000µF |
| CHB75W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 15 A | 50 mA | 3811 mA | 82 | 15000µF |
| CHB75W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 3765 mA | 83 | 6250µF |
| CHB75W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 3720 mA | 84 | 5000µF |
| CHB75W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 3.12 A | 50 mA | 3720 mA | 84 | 3120µF |
| CHB75W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 2.67 A | 50 mA | 3720 mA | 84 | 2670µF |
| CHB75W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 1.56 A | 50 mA | 3811 mA | 82 | 1560µF |
| CHB75W-48S33 | 18-75 VDC | 3.3 VDC | 0 mA | 15 A | 50 mA | 1289 mA | 80 | 15000µF |
| CHB75W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 15 A | 50 mA | 1883 mA | 83 | 15000µF |
| CHB75W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 6.25 A | 50 mA | 1860 mA | 84 | 6250µF |
| CHB75W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 5 A | 50 mA | 1838 mA | 85 | 5000µF |
| CHB75W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 3.12 A | 50 mA | 1835 mA | 85 | 3120µF |
| CHB75W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 2.67 A | 50 mA | 1835 mA | 85 | 2670µF |
| CHB75W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 1.56 A | 50 mA | 1860 mA | 84 | 1560µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin |
| | 48Vin |
| Positive Logic Remote On/Off | See note 3 & 4 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|-------------------------------------|
| Voltage Accuracy | ±1.0% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (see note 5) | |
| 3.3V & 5V | 40mV RMS max., 100mV pk-pk max. |
| 12V & 15V | 60mV RMS max., 150mV pk-pk max. |
| 24V | 100mV RMS max., 240mV pk-pk max. |
| 28V | 100mV RMS max., 280mV pk-pk max. |
| 48V | 200mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1 & 7) | ±0.2% max. |
| Load Regulation (note 2 & 7) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-160% Nominal Output |
| Start up time | 5ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 300KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 100°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 1000Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 94 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote on/off
 Module On < 0.8VDC
 Module Off >3.5VDC to 75VDC or open circuit
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 1µF ceramic cap. only)
6. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)
7. Require a 47µF aluminum capacitor connected between +Vout and -Vout for 48Vout models.

CHE75W SERIES

49.5-75 WATT, 4:1 INPUT RANGE

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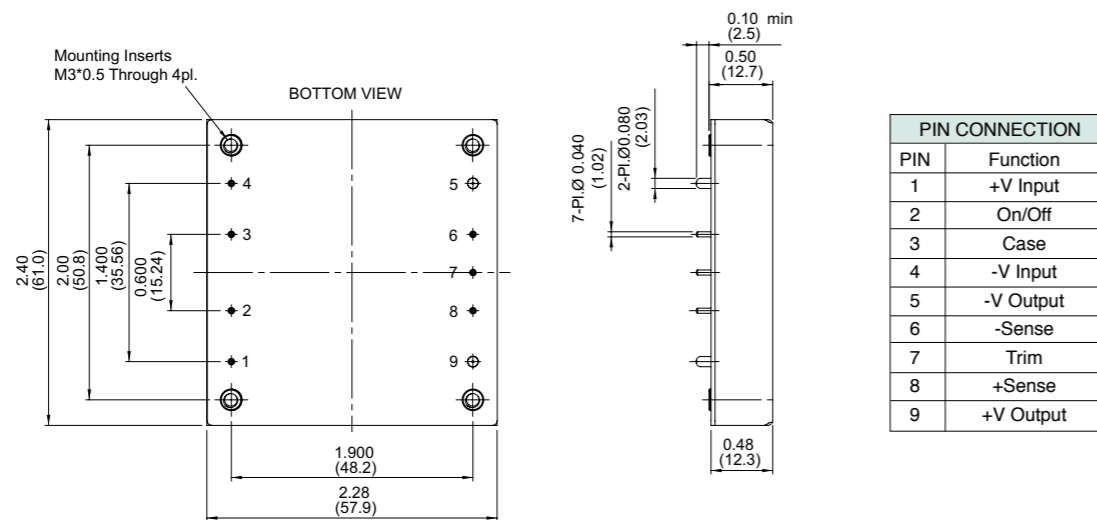
Features

- ◆ 75W Isolated Output
- ◆ Half-Brick Size, Six-Sided Shield Metal Case
- ◆ High Efficiency up to 92.5%
- ◆ Regulated Outputs
- ◆ 4 : 1 Input Range
- ◆ 250KHz Switching Frequency
- ◆ Continuous Short Circuit Protection
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature/Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Full Load Operation up to 65°C with Heat-Sink M-C091 Natural Convection
- ◆ No Tantalum Capacitor Inside
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1



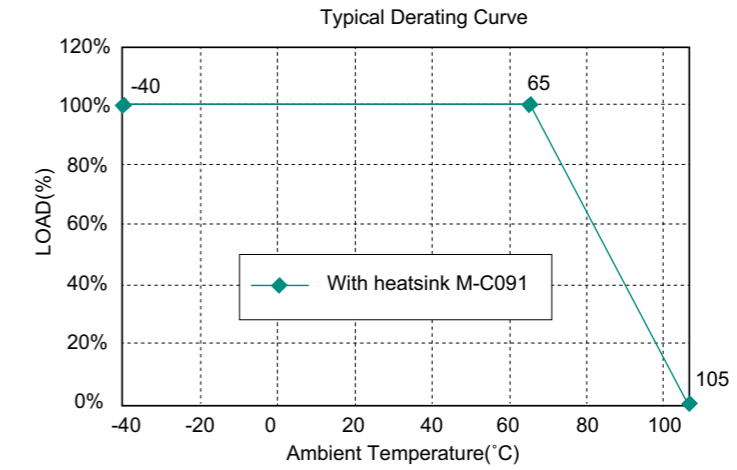
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHE75W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 20A | 150 mA | 3.11 A | 88.5 | 20000µF |
| CHE75W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 15 A | 150 mA | 3.43 A | 91 | 15000µF |
| CHE75W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 6.25 A | 150 mA | 3.41 A | 91.5 | 6250µF |
| CHE75W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 5 A | 150 mA | 3.41 A | 91.5 | 5000µF |
| CHE75W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 3.12 A | 70 mA | 3.47 A | 90 | 3120µF |
| CHE75W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 1.56 A | 70 mA | 3.51 A | 89 | 1560µF |
| CHE75W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 20 A | 80 mA | 1.54 A | 89 | 20000µF |
| CHE75W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 15 A | 80 mA | 1.70 A | 92 | 15000µF |
| CHE75W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 6.25 A | 80 mA | 1.70 A | 92 | 6250µF |
| CHE75W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 5 A | 70 mA | 1.69 A | 92.5 | 5000µF |
| CHE75W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 3.12 A | 70 mA | 1.73 A | 90.5 | 3120µF |
| CHE75W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 1.56 A | 70 mA | 1.74 A | 90 | 1560µF |

Derating Curve



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|---|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under voltage lockout | 24Vin 8.8V power up 8.0V power down |
| | 48Vin 17V power up 16V power down |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | PI Type |

OUTPUT SPECIFICATIONS

| | |
|---|--|
| Voltage Accuracy: | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (see note 3) | |
| 3.3V & 5V | 40mV RMS, 100mV pk-pk max. |
| 12V & 15V | 60mV RMS, 120mV pk-pk max. |
| 24V | 100mV RMS, 240mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 3.3V & 5V & 48V ... 10ms typ. 12V & 15V & 24V....15ms typ. |

GENERAL SPECIFICATIONS

| | |
|------------------------------|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 250KHz typ. |
| Operating Case Temperature | -40°C to 105°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum with Non-Conducted Base |
| Weight | 95 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (24V & 48V: 10µF aluminum and 1µF ceramic capacitor across output.)
4. Logic compatibility open collector refer to -Vin
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit

CHB75 Dual SERIES

75 WATT, DUAL OUTPUTS

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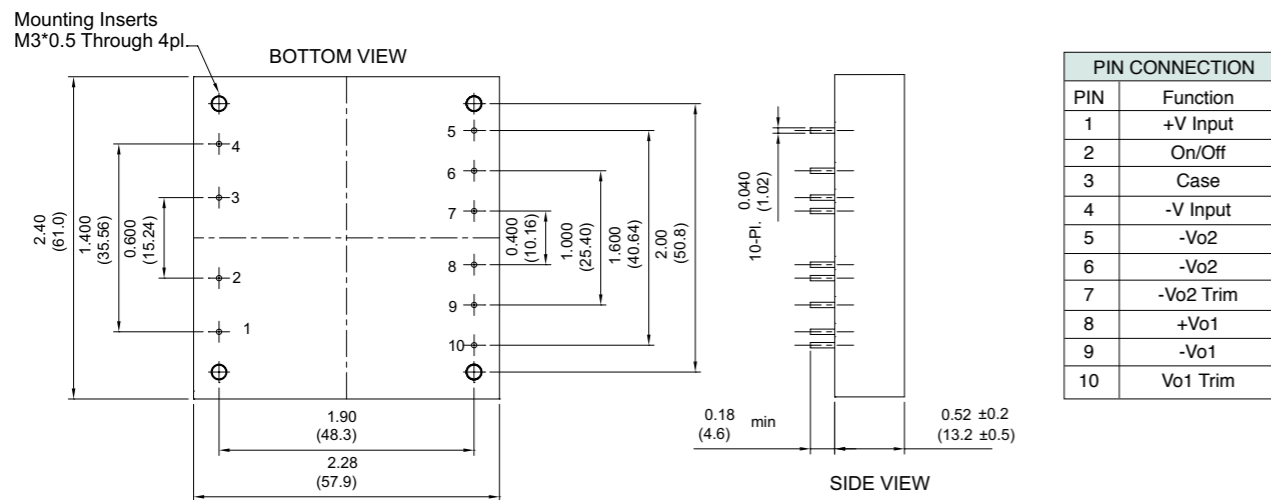
Features

- ◆ 75W Isolated Output
- ◆ Efficiency to 84%
- ◆ 400KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ Total Power 75W with 15A Maximum Per Channel
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval



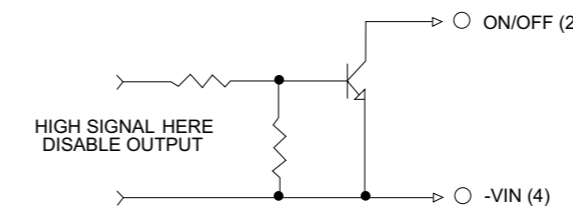
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25

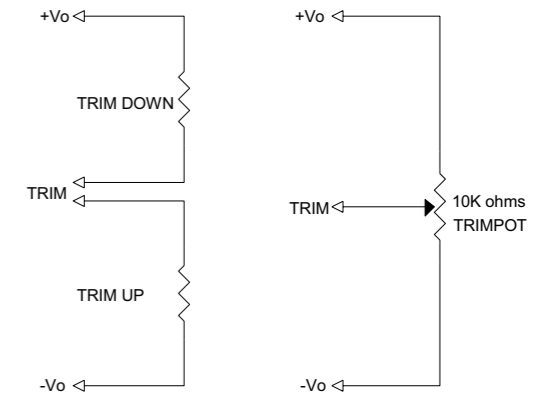


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|-----------------|---------------|----------------|----------------|------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB75-24D05-3V3 | 18-36 VDC | VO1= 5 V | 0 A | 15 A | 50 mA | 3765 mA | 83% | 15000µF |
| | | VO2= 3.3 V | 0 A | 15 A | | | | |
| CHB75-24D05-2V5 | 18-36 VDC | VO1= 5 V | 0 A | 15 A | 50 mA | 3765 mA | 83% | 15000µF |
| | | VO2= 2.5 V | 0 A | 15 A | | | | |
| CHB75-48D05-3V3 | 36-75 VDC | VO1= 5 V | 0 A | 15 A | 30 mA | 1860 mA | 84% | 15000µF |
| | | VO2= 3.3 V | 0 A | 15 A | | | | |
| CHB75-48D05-2V5 | 36-75 VDC | VO1= 5 V | 0 A | 15 A | 30 mA | 1860 mA | 84% | 15000µF |
| | | VO2= 2.5 V | 0 A | 15 A | | | | |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|----------------------|------------------------|
| Input Voltage Range | 24V 18-36V | 48V 36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin | 48Vin |
| Positive Logic Remote On/Off | power up 17V | power down 15.5V |
| Input Filter | power up 34V | power down 32.5V |

See note 4 & 5
Pi Type

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------------|
| Voltage Accuracy | ±2% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range, Each Output | ±5% |
| Ripple & Noise, 20MHz BW (note 6) | 40mV RMS max. 100mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit (note 3) | 110%-140% Nominal Output |
| Start up time | 20ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output1500VDC min. Input/Case1500VDC min. Output/Case1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 400KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-HDBK-217F, GB, 25°C, Full Load | 700 Khrs typ. |
| Thermal Shutdown Range Case Temp. | 100°C typ. |
| Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 108 g |

NOTE


1. Measured from high line to low line.
2. Measured from full load to min. load.
3. Measured with output current on output1 (Vo1)
4. Logic compatibility open collector refer to -Input
Module On open circuit
Module Off < 0.8VDC
5. Suffix "N" to the model number with negative logic remote On/Off.
6. The output noise is measured with 10µF tantalum and 1µF ceramic capacitor across output.
7. Suffix "-C" to the model number with clear mounting insert (3.2mm DIA.)

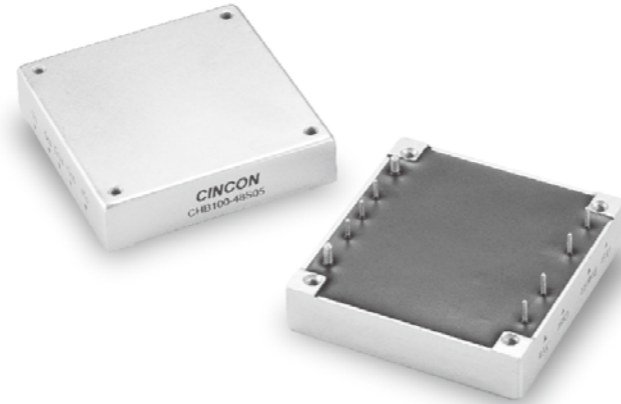
CHB100 SERIES

66-100 WATT

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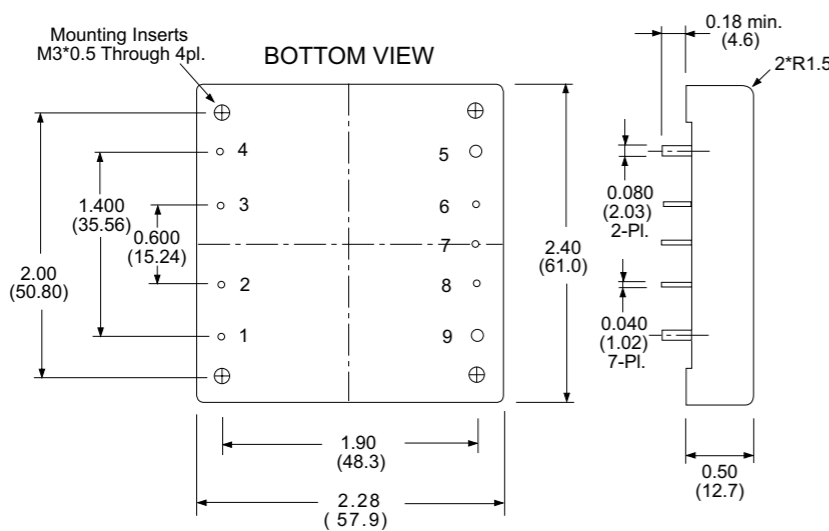
Features

- ◆ 66W-100W Isolated Output
- ◆ Efficiency to 89%
- ◆ 500KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval
- ◆ Without Tantalum Capacitor Inside (V2.X Only, with )



Mechanical Dimensions

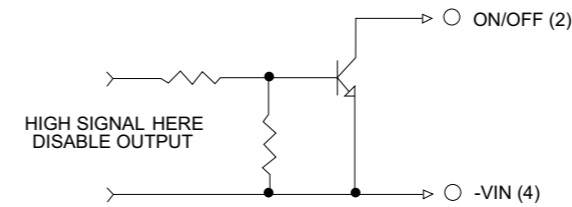
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



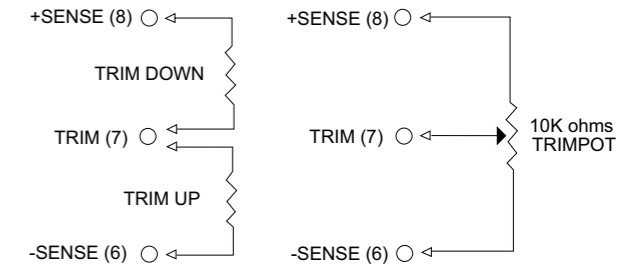
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB100-24S33 | 18-36 VDC | 3.3 VDC | 0 mA | 20 A | 50 mA | 3313 mA | 83 | 20000µF |
| CHB100-24S05 | 18-36 VDC | 5 VDC | 0 mA | 20 A | 50 mA | 4960 mA | 84 | 20000µF |
| CHB100-24S12 | 18-36 VDC | 12 VDC | 0 mA | 8.3 A | 50 mA | 4770 mA | 87 | 8300µF |
| CHB100-24S15 | 18-36 VDC | 15 VDC | 0 mA | 6.7 A | 50 mA | 4758 mA | 88 | 6700µF |
| CHB100-24S24 | 18-36 VDC | 24 VDC | 0 mA | 4.17 A | 50 mA | 4793 mA | 87 | 4170µF |
| CHB100-48S33 | 36-75 VDC | 3.3 VDC | 0 mA | 20 A | 50 mA | 1676 mA | 82 | 20000µF |
| CHB100-48S05 | 36-75 VDC | 5 VDC | 0 mA | 20 A | 50 mA | 2422 mA | 86 | 20000µF |
| CHB100-48S12 | 36-75 VDC | 12 VDC | 0 mA | 8.3 A | 50 mA | 2331 mA | 89 | 8300µF |
| CHB100-48S15 | 36-75 VDC | 15 VDC | 0 mA | 6.7 A | 50 mA | 2352 mA | 89 | 6700µF |
| CHB100-48S24 | 36-75 VDC | 24 VDC | 0 mA | 4.17 A | 50 mA | 2369 mA | 88 | 4170µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|--|
| Input Voltage Range | 24V.....18-36V 48V.....36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. 48V 100Vdc max. |
| Under Voltage Lockout: | |
| 24Vin | power up >17V power down >16V |
| 48Vin | power up >34V power down >32.5V |
| Positive Logic Remote On/Off | See note 3 & 4 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|------------------------------------|
| Voltage Accuracy | ±1.0% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 5) | |
| 3.3V & 5V | 40mV RMS max. 100mV pk-pk max. |
| 12V & 15V | 60mV RMS max. 150mV pk-pk max. |
| 24V | 100mV RMS max. 240mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 5ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 500KHz typ. |
| Operating Case Temperature | -40°C to +100°C |
| Storage Temperature | -40°C to +105°C |
| Thermal Shutdown Case Temp. | 100°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 900Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 95 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -Input
 Module On open circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off.
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
6. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)

CHB100-110S SERIES

100 WATT, INPUT RANGE 66-160 VDC

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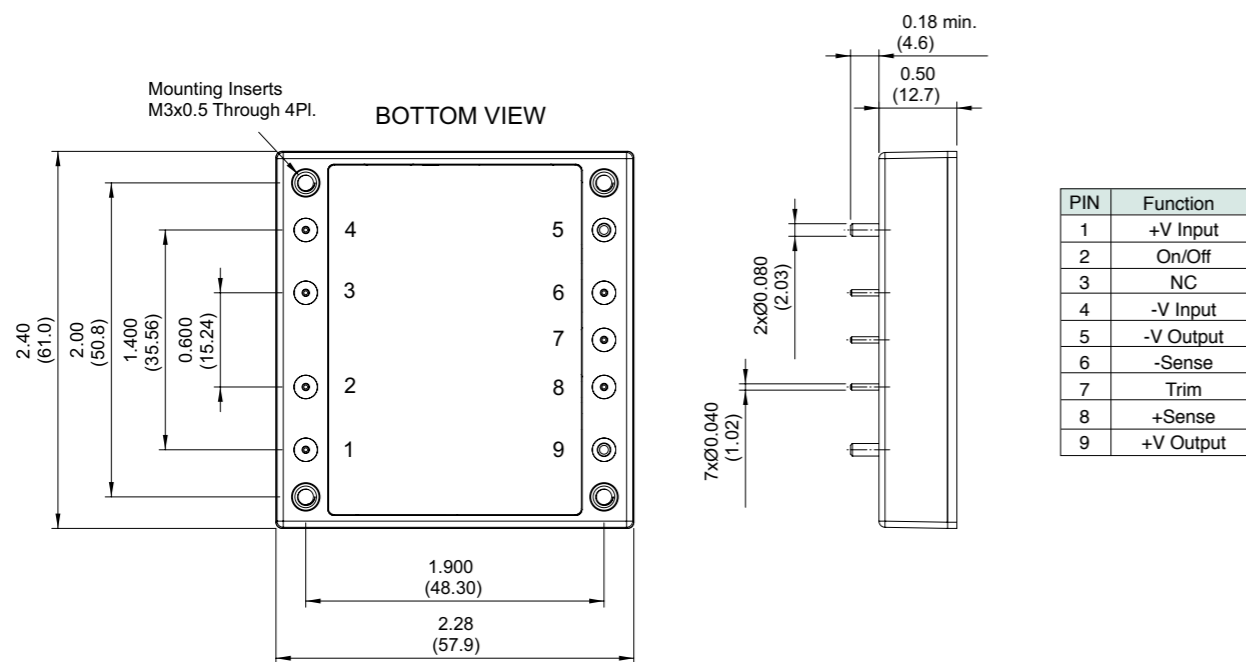
Features

- ◆ 100W Isolated Output
- ◆ Efficiency to 86%
- ◆ Low No Load Input Power
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Half Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Basic Insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



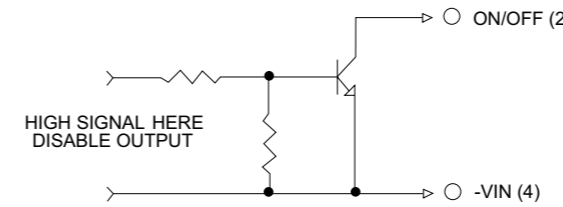
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25

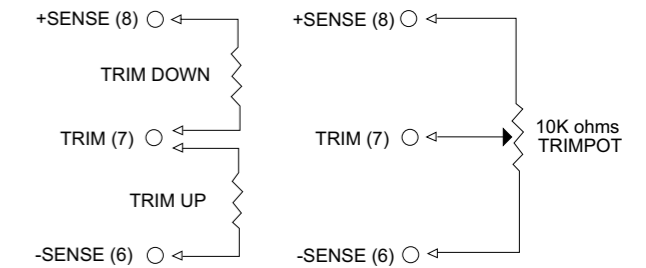


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB100-110S12 | 66-160 VDC | 12 VDC | 0 mA | 8.3 A | 5 mA | 1060 mA | 86 | 8300µF |
| CHB100-110S15 | 66-160 VDC | 15 VDC | 0 mA | 6.7 A | 5 mA | 1070 mA | 85 | 4170µF |
| CHB100-110S24 | 66-160 VDC | 24 VDC | 0 mA | 4.17 A | 5 mA | 1070 mA | 85 | 4170µF |
| CHB100-110S48 | 66-160 VDC | 48 VDC | 0 mA | 2.08 A | 5 mA | 1070 mA | 85 | 2080µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range 66-160V
 Input Surge Voltage (100ms max.) 180Vdc max.
 Under voltage lockout power up 62V power down 56V

Positive Logic Remote On/Off:
 Logic Compatibility Open Collector ref to -Input
 Module On Open Circuit
 Module Off < 1.8Vdc
 Input Filter PI Type

OUTPUT SPECIFICATIONS

Voltage Accuracy ±1.5% max.
 Transient Response: < 500µs
 25% Step Load Change
 External Trim Adj. Range ±10%
 Ripple & Noise, 20MHz BW(note 3)
 12V, 15V 60mVRMS, 150mVpk-pk max.
 24V 100mVRMS, 240mVpk-pk max.
 48V 200mVRMS, 480mVpk-pk max.
 Temperature Coefficient ±0.03%/°C
 Short Circuit Protection Continuous
 Line Regulation (note 1) ±0.2% max.
 Load Regulation (note 2) ±0.2% max.
 Over Voltage Protection trip Range, % Vo nom. 115-140%
 Current Limit 110%-150% Nominal Output
 Start up time 120ms typ.

GENERAL SPECIFICATIONS

Efficiency See Table
 Isolation Voltage Input/Output3000Vrms min.
 Input/Case.....1500Vrms min.
 Output/Case.....500Vrms min.
 Isolation Resistance 10⁹ ohm min.
 Isolation Capacitance 500pF typ.
 Switching Frequency 250KHz typ.
 Operating Case Temperature -40°C to +100°C
 Storage Temperature -55°C to +105°C
 Thermal Shutdown, Case Temp. 105°C typ.
 Humidity 95% RH max. Non condensing
 Safety UL60950-1, EN50155
 EMI EN55022 Class A & Class B with external filter
 Shock/Vibration EN50155 (EN61373)
 Environmental EN50155 (EN60068-2-1)
 Dimensions 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm)
 Case Material Aluminum Baseplate with Plastic Case
 Weight 90 g

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 1µF ceramic cap. only).
4. An external input capacitor 47µF for all models are recommended to reduce input ripple voltage.
5. Require a 47µF aluminum capacitor connected between +Vout and -Vout for 48Vout models.

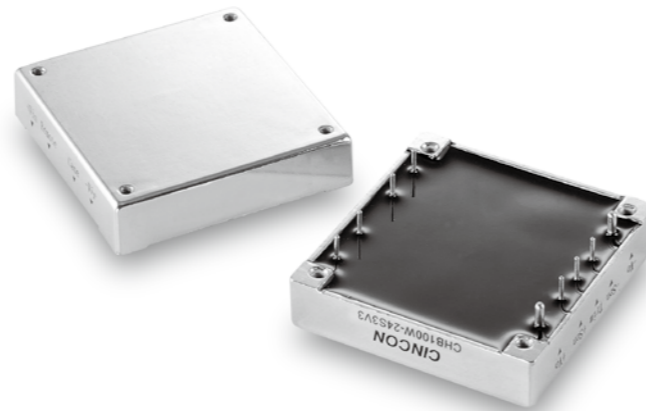
CHB100W SERIES

66 - 100 WATT, 4:1 INPUT RANGE

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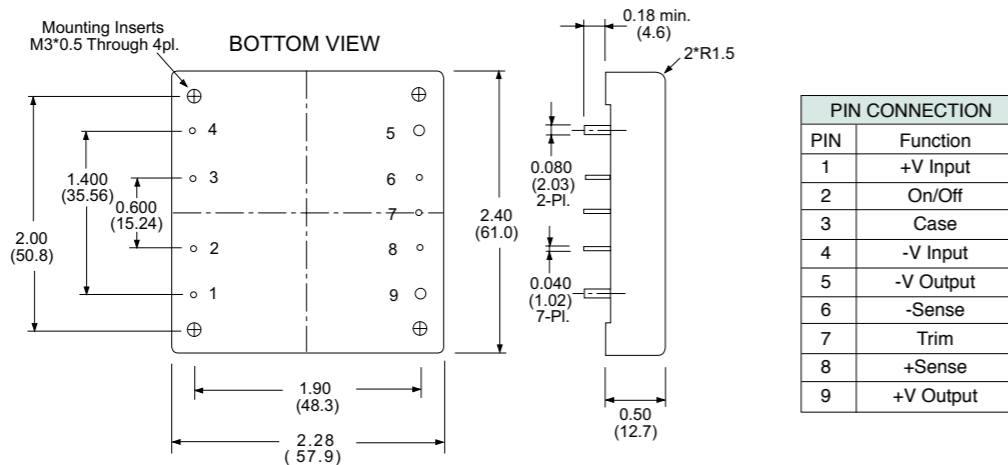
Features

- ◆ 66W-100W Isolated Output
- ◆ Efficiency to 89%
- ◆ 250KHz Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval (Except 28 Vout)



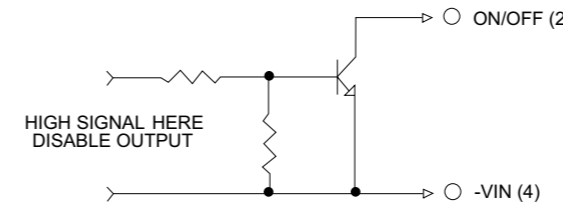
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

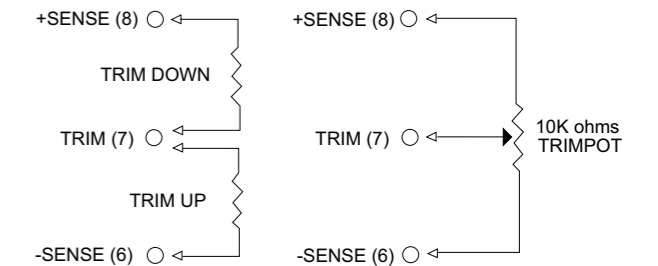


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB100W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 20 A | 35 mA | 3333 mA | 82.5 | 20000µF |
| CHB100W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 20 A | 35 mA | 4931 mA | 84.5 | 20000µF |
| CHB100W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 8.3 A | 35 mA | 4854 mA | 85.5 | 8300µF |
| CHB100W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 6.7 A | 35 mA | 4813 mA | 87 | 6700µF |
| CHB100W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 4.17 A | 35 mA | 4766 mA | 87.5 | 1800µF |
| CHB100W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 3.57 A | 50 mA | 4845 mA | 86 | 2200µF |
| CHB100W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 2.08 A | 35 mA | 5042 mA | 82.5 | 470µF |
| CHB100W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 20 A | 30 mA | 1667 mA | 82.5 | 20000µF |
| CHB100W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 20 A | 30 mA | 2422 mA | 86 | 20000µF |
| CHB100W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 8.3 A | 30 mA | 2371 mA | 87.5 | 8300µF |
| CHB100W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 6.7 A | 30 mA | 2379 mA | 88 | 6700µF |
| CHB100W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 4.17 A | 30 mA | 2343 mA | 89 | 2200µF |
| CHB100W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 3.57 A | 50 mA | 2422 mA | 86 | 2200µF |
| CHB100W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 2.08 A | 30 mA | 2462 mA | 84.5 | 470µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin |
| | 48Vin |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|-------------------------------------|
| Voltage Accuracy (note 7) | ±1.5% max. |
| Voltage Accuracy for 28V Models | ±1.0% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note3) | |
| 3.3V & 5V | 40mV RMS max., 100mV pk-pk max. |
| 12V & 15V | 60mV RMS max., 150mV pk-pk max. |
| 24V | 100mV RMS max., 240mV pk-pk max. |
| 28V | 100mV RMS max., 280mV pk-pk max. |
| 48V | 200mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110% -140% Nominal Output |
| Start up time | 25ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output, Input/Case, Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1500pF typ. |
| Switching Frequency | 250KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 105°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBFMIL-HDBK-217F, GB, 25°C, Full Load | 700Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 95 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 0.1µF ceramic cap. only)
4. Logic Compatibility open collector ref to -input
 Module On >3.5VDC or open circuit
 Module Off <1.8VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On <1.8VDC
 Module Off >3.5VDC or open circuit
6. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)
7. Require a 47µF aluminum capacitor connected between +Vout and -Vout for 48Vout models.

CHE100/CHE100W SERIES

100 WATT, 2:1/4:1 INPUT RANGE

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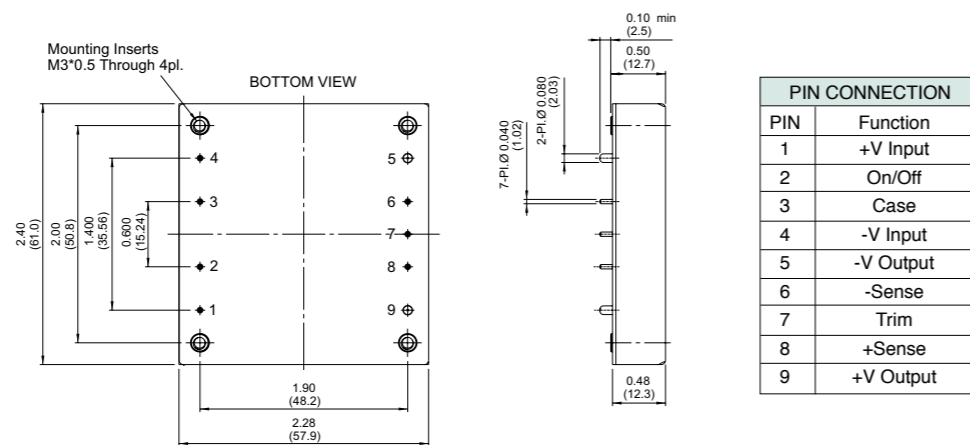
Features

- ◆ 100W Isolated Output
- ◆ Half-Brick Size, Six-Sided Shield Metal Case
- ◆ High Efficiency to 93%
- ◆ 2 : 1 / 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ 250KHz Switching Frequency
- ◆ Continuous Short Circuit Protection
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature/Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Full Load Operation up to 60°C with Heat-Sink M-C091 Natural Convention
- ◆ No Tantalum Capacitor Inside
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1



Mechanical Dimensions

All Dimensions in Inches (mm)
Tolerance Inches: X.XX±0.02, X.XXX±0.010
Millimeters: X.X±0.5, X.XX±0.25



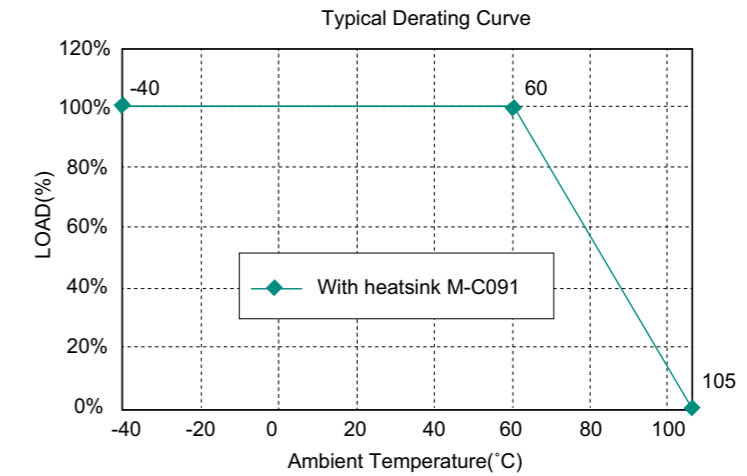
CHE100 Series

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|-------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHE100-24S24 | 18-36VDC | 24 VDC | 0 mA | 4.2 A | 100 mA | 4.57 A | 92 | 4200µF |

CHE100W Series

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|-------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHE100W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 25 A | 200 mA | 3.94 A | 87 | 25000µF |
| CHE100W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 20 A | 150 mA | 4.66 A | 89.5 | 20000µF |
| CHE100W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 8.4 A | 200 mA | 4.62 A | 90.5 | 8400µF |
| CHE100W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 6.7 A | 200 mA | 4.62 A | 90.5 | 6700µF |
| CHE100W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 4.2 A | 100 mA | 4.76 A | 89 | 4200µF |
| CHE100W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 2.1 A | 100 mA | 4.76 A | 88.5 | 2100µF |
| CHE100W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 25 A | 130 mA | 1.96 A | 88 | 25000µF |
| CHE100W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 20 A | 130 mA | 2.28 A | 92 | 20000µF |
| CHE100W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 8.4 A | 100 mA | 2.26 A | 93 | 8400µF |
| CHE100W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 6.7 A | 100 mA | 2.26 A | 92.5 | 6700µF |
| CHE100W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 4.2 A | 100 mA | 2.32 A | 91 | 4200µF |
| CHE100W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 2.1 A | 100 mA | 2.32 A | 90.5 | 2100µF |

Derating Curve



Specifications

All Specifications Typical At Nominal Line, Fill Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|---|
| Input Voltage Range | 24V 9-36V 48V 18-75V CHE100-24SXX 18-36V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. 48V 100Vdc max. |
| Under voltage lockout | 24Vin power up 8.8V power down 8.0V CHE100-24SXX/48Vin power up 17V power down 16V see note 4 & 5 |
| Positive Logic Remote On/Off | PI Type |
| Input Filter | |

OUTPUT SPECIFICATIONS

| | |
|---|--|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW | 3.3V & 5V 12V & 15V 24V 48V 40mV RMS, 100mV pk-pk max. 60mV RMS, 120mV pk-pk max. 100mV RMS, 240mV pk-pk max. 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation ¹ | ±0.2% max. |
| Load Regulation ² | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 10ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 250KHz typ. |
| Operating Case Temperature | -40°C to 105°C. |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temperature | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | XXS05: 750Khrs typ. Others: 880Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum with Non-Conducted Base |
| Weight | 95 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
(24V & 48V: 10µF aluminum and 1µF ceramic capacitor across output.)
4. Logic compatibility open collector refer to -Vin
Module On >3.5VDC to 75VDC or open circuit
Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote on/off
Module On < 1.2VDC
Module Off >3.5VDC to 75VDC or open circuit

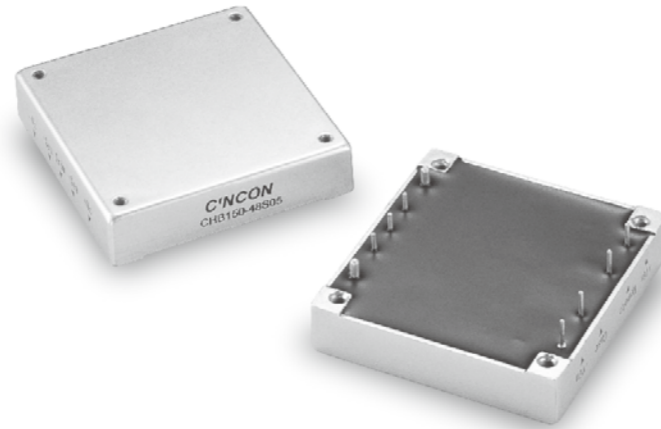
CHB150 SERIES

99-150 WATT

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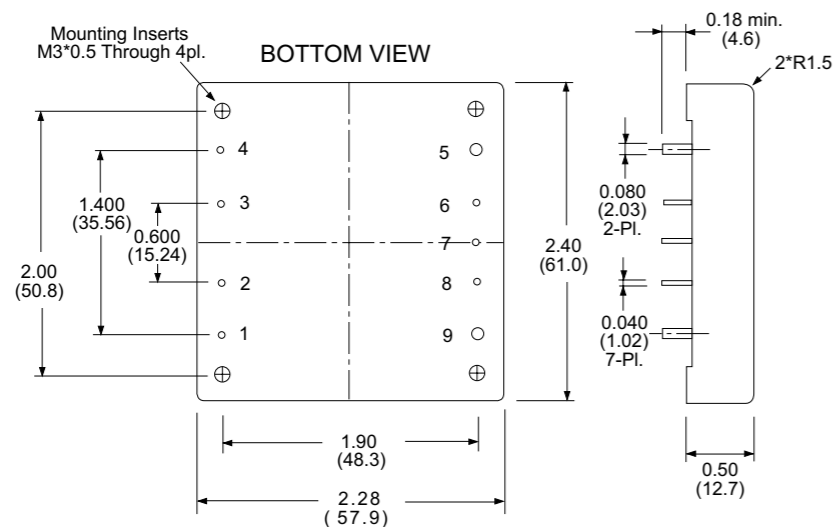
Features

- ◆ 99W-150W Isolated Output
- ◆ Efficiency to 89%
- ◆ 500KHz Switching Frequency
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Five-Sided Metal Case
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval
- ◆ Without Tantalum Capacitor Inside (V2.X Only, with TC Label)



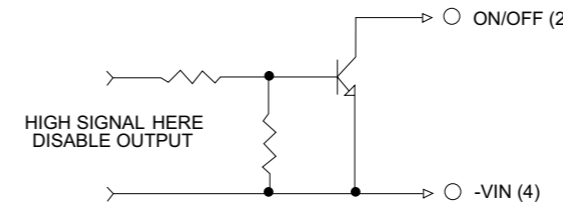
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

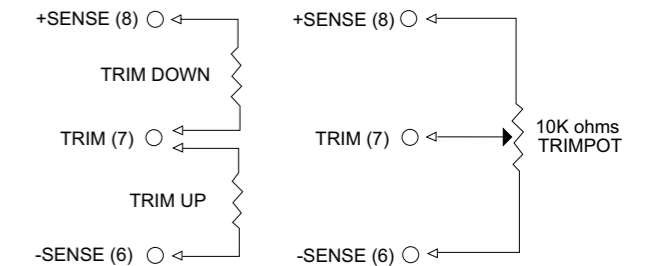


| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 48V..... 36-75V |
| Input Surge Voltage (100ms max.) | 48V 100Vdc max. |
| Under Voltage Lockout | power up 34V |
| | power down.....32.5V |
| | See note 3 & 4 |
| Positive Logic Remote On/Off | Pi Type |
| Input Filter | |

OUTPUT SPECIFICATIONS

| | |
|---|--------------------------|
| Voltage Accuracy | ±1.0% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 5) | |
| 3.3V & 5V | 40mV RMS max. |
| | 100mV pk-pk max. |
| 12V & 15V | 60mV RMS max. |
| | 150mV pk-pk max. |
| 24V | 100mV RMS max. |
| | 240mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 5ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 10 ⁷ ohm min. |
| Isolation Resistance | |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 500KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -40°C to +105°C |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 900Khrs typ. |
| Thermal Shutdown Case Temp. | 100°C typ. |
| Dimensions | 2.28 x 2.40 x 0.50 inches |
| | (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum |
| Weight | 100 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector ref to -Input
 Module On open circuit
 Module Off < 0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off.
5. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
6. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB150-48S33 | 36-75 VDC | 3.3 VDC | 0 mA | 30 A | 25 mA | 2.5 A | 82 | 30000µF |
| CHB150-48S05 | 36-75 VDC | 5 VDC | 0 mA | 30 A | 25 mA | 3.6 A | 86 | 30000µF |
| CHB150-48S12 | 36-75 VDC | 12 VDC | 0 mA | 12.5 A | 25 mA | 3.5 A | 89 | 12500µF |
| CHB150-48S15 | 36-75 VDC | 15 VDC | 0 mA | 10 A | 25 mA | 3.5 A | 89 | 10000µF |
| CHB150-48S24 | 36-75 VDC | 24 VDC | 0 mA | 6.25 A | 25 mA | 3.5 A | 89 | 6250µF |

CHB150W SERIES

99-150 WATT, 4:1 INPUT RANGE

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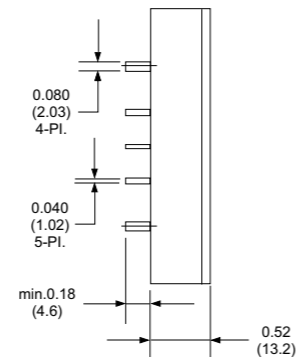
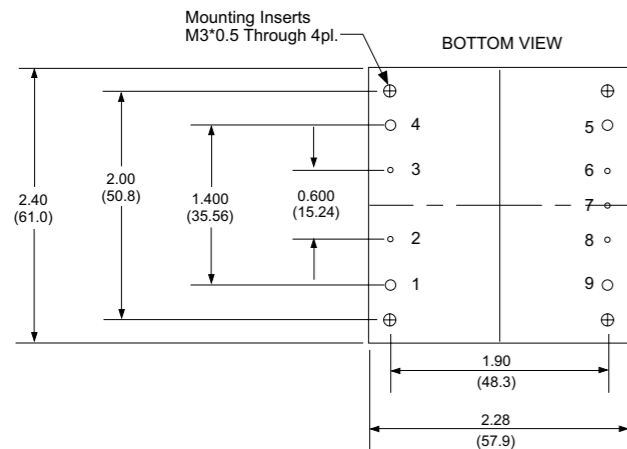
Features

- ◆ 99W-150W Isolated Output
- ◆ Efficiency to 91%
- ◆ 250KHz Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval (Except 28&48 Vout)



Mechanical Dimensions

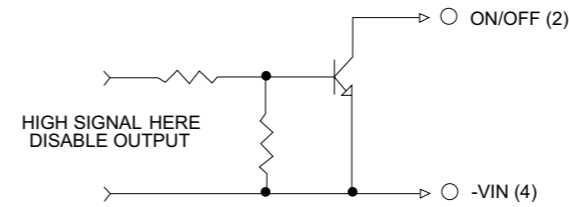
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



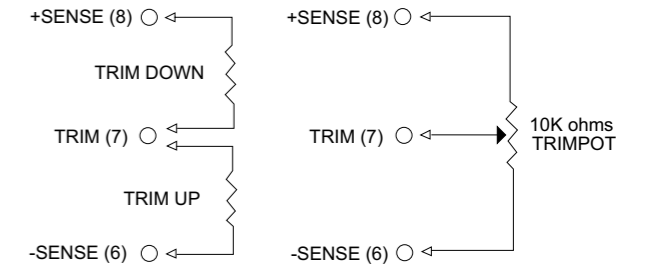
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB150W-24S3V3 | 9-36 VDC | 3.3 VDC | 0 mA | 30 A | 200 mA | 4741 mA | 87 | 30000µF |
| CHB150W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 30 A | 200 mA | 7184 mA | 87 | 30000µF |
| CHB150W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 12.5 A | 100 mA | 7102 mA | 88 | 12500µF |
| CHB150W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 10 A | 100 mA | 7184 mA | 87 | 10000µF |
| CHB150W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 6.5 A | 100 mA | 7386 mA | 88 | 1800µF |
| CHB150W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 5.4 A | 100 mA | 7325 mA | 86 | 1800µF |
| CHB150W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 3.12 A | 200 mA | 7428 mA | 84 | 1000µF |
| CHB150W-48S3V3 | 18-75 VDC | 3.3 VDC | 0 mA | 30 A | 100 mA | 2344 mA | 88 | 30000µF |
| CHB150W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 30 A | 100 mA | 3472 mA | 90 | 30000µF |
| CHB150W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 12.5 A | 50 mA | 3434 mA | 91 | 12500µF |
| CHB150W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 10 A | 50 mA | 3472 mA | 90 | 10000µF |
| CHB150W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 6.5 A | 50 mA | 3611 mA | 90 | 2200µF |
| CHB150W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 5.4 A | 50 mA | 3580 mA | 88 | 2200µF |
| CHB150W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 3.12 A | 100 mA | 3633 mA | 86 | 1000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------|
| Input Voltage Range | 24V 9-36V |
| | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin |
| | 48Vin |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|-------------------------------------|
| Voltage Accuracy (note 7) | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | |
| 3.3V & 5V | 40mV RMS max., 100mV pk-pk max. |
| 12V & 15V | 60mV RMS max., 150mV pk-pk max. |
| 24V | 100mV RMS max., 240mV pk-pk max. |
| 28V | 100mV RMS max., 280mV pk-pk max. |
| 48V | 200mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-140% Nominal Output |
| Start up time | 25ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output, Input/Case, Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 250KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF ... MIL-HDBK-217F, GB, 25°C, Full Load | 400Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 112 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -input
 Module On > 3.5VDC or open circuit
 Module Off < 1.8VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.8VDC
 Module Off > 3.5VDC or open circuit
6. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)
7. Require a 47µF aluminum capacitor connected between +vout and -vout for 48Vout models.

CHB150-110S SERIES

150 WATT, INPUT RANGE 66-160 VDC

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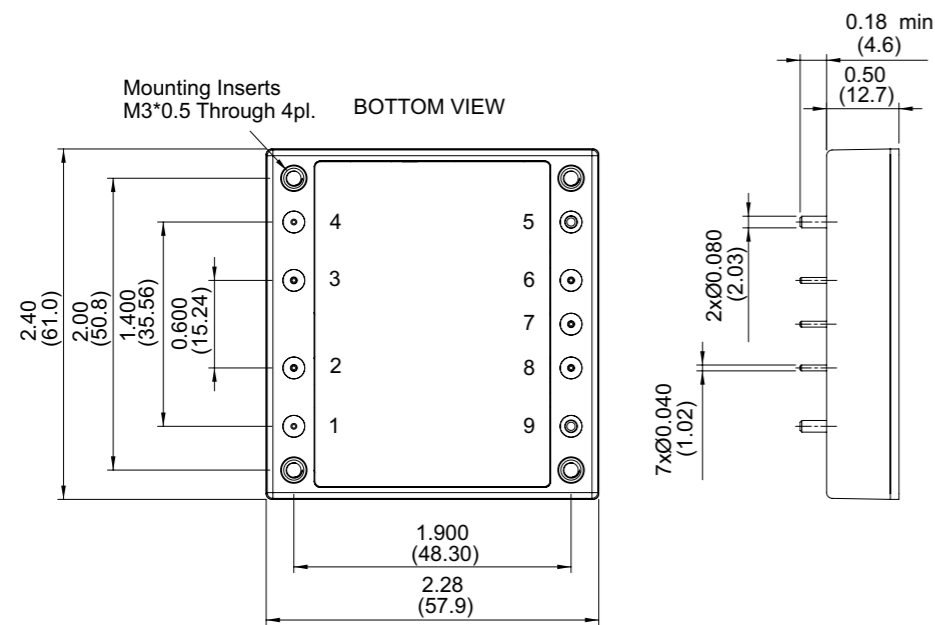
Features

- ◆ 150W Isolated Output
- ◆ Efficiency to 92.5%
- ◆ 200KHz Switching Frequency
- ◆ 3 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Half-Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Basic Insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



Mechanical Dimensions

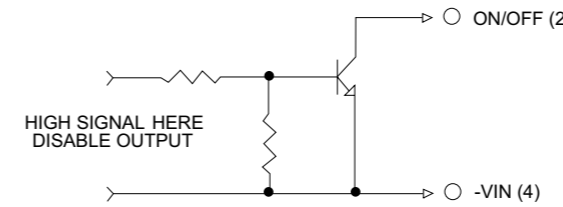
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX±0.02, X.XXX±0.010
 Millimeters: X.X±0.5, X.XX±0.25



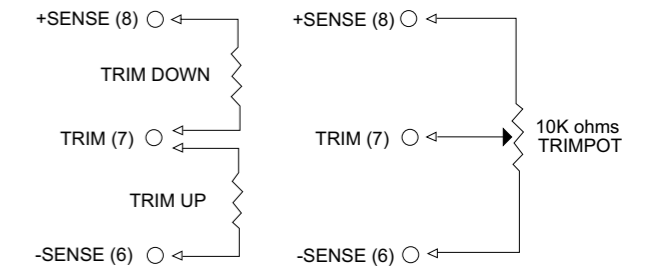
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB150-110S05 | 66-160 VDC | 5 VDC | 0 mA | 30 A | 40 mA | 1474 mA | 92.5 | 10000µF |
| CHB150-110S12 | 66-160 VDC | 12 VDC | 0 mA | 12.5 A | 40 mA | 1474 mA | 92.5 | 5600µF |
| CHB150-110S24 | 66-160 VDC | 24 VDC | 0 mA | 6.5 A | 60 mA | 1541 mA | 92 | 2200µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range 66-160V
 Input Surge Voltage (100ms max.) 180Vdc max.
 Under Voltage Lockout power up 62V power down 56V

Positive Logic Remote On/Off:
 Logic Compatibility Open Collector ref to -Input
 Module On > 3.5Vdc to 75Vdc or Open Circuit
 Module Off < 1.8Vdc
 Input Filter Pi Type

OUTPUT SPECIFICATIONS

Voltage Accuracy ±1.5% max.
 Transient Response: 25% Step Load Change Error Band ±5% Vout Recover Time < 200µs
 External Trim Adj. Range ±10%
 Ripple & Noise, 20MHz BW (note 3)
 5V 40mV RMS, 100mV pk-pk max.
 12V 60mV RMS, 150mV pk-pk max.
 24V 100mV RMS, 240mV pk-pk max.
 Temperature Coefficient ±0.03%/°C
 Short Circuit Protection Continuous
 Line Regulation (note 1) ±0.2% max.
 Load Regulation (note 2) ±0.2% max.
 Over Voltage Protection Trip Range, % Vo nom. 115-140%
 Current Limit 110%-180% Nominal Output
 Start up time 45ms typ.

GENERAL SPECIFICATIONS

Efficiency See Table
 Isolation Voltage Input/Output, Input/Case 2250VDC min. Output/Case 1500VDC min.
 Isolation Resistance 10⁷ ohm min.
 Isolation Capacitance 1000pF typ.
 Switching Frequency 200KHz typ.
 Operating Case Temperature -40°C to 100°C
 Storage Temperature -55°C to +105°C
 Thermal Shutdown Case Temp. 105°C typ.
 Humidity 95% RH max. Non condensing
 MTBF.....MIL-HDBK-217F, GB, 25°C, Full Load CHB150-110S05: 240Khrs
 CHB150-110S12: 320Khrs
 CHB150-110S24: 320Khrs
 UL60950-1 2nd (Basic Insulation)
 Safety EN50155 (EN50121-3-2) with External Filter
 EMC (note 7) EN50155 (EN61373)
 Shock/Vibration EN50155 (EN60068-2-1)
 Environmental Dimensions 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7 mm)
 Case Material Aluminum Baseplate with Plastic Case
 Weight 90 g

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output Ripple and Noise measured with 10µF tantalum and 1µF ceramic apacitor across output.
4. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.8VDC
 Module Off > 3.5VDC to 75VDC or open circuit
5. Suffix "C" to the model number with clear mounting insert (3.2mm DIA.)
6. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.
7. Design meet EN50155 and RIA12 refer to application note.

CHB150W8 SERIES

150 WATT, INPUT RANGE 9-75 VDC

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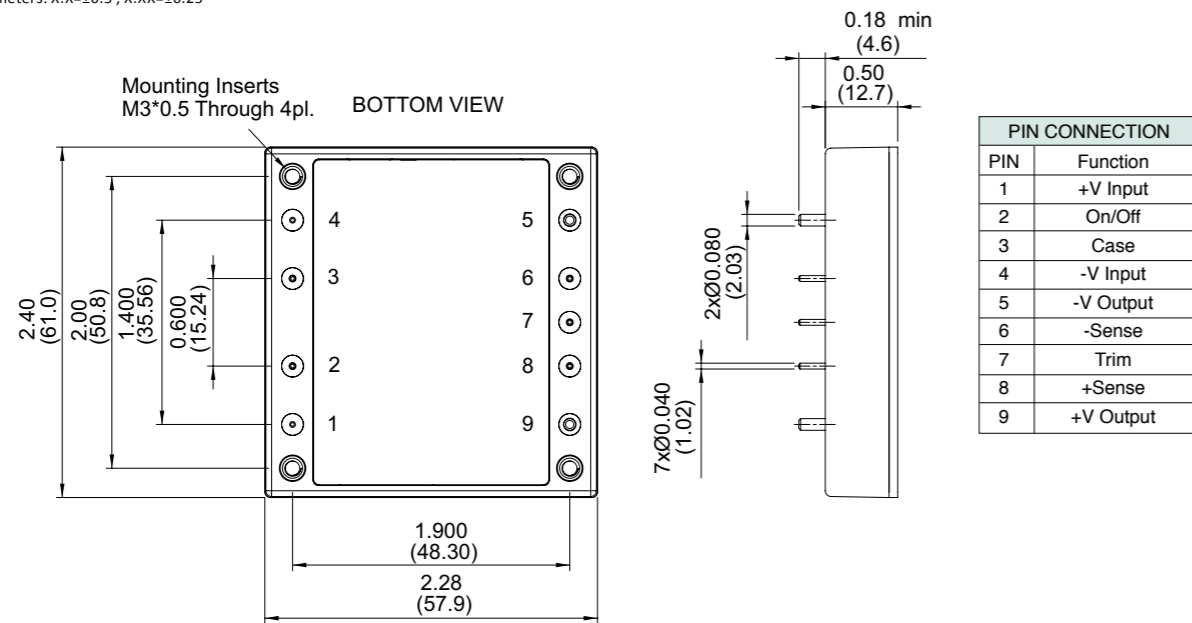
Features

- ◆ 150W Isolated Output
- ◆ Efficiency to 92.5%
- ◆ Fixed Switching Frequency
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Standard Half-Brick Package
- ◆ Fully Isolated 1500VDC



Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

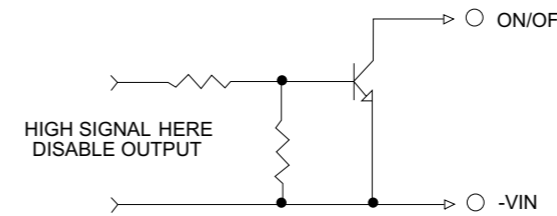


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | | | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|---------------------|---------------|-----------|--------|------|------|-----------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | (2) | (1) | (3) | |
| CHB150W8-36S05 | 9-75 VDC | 5 VDC | 0 mA | 30 A ⁽⁵⁾ | 150 mA | 4.71 A | 88 | 88.5 | 88.5 | 10000µF |
| CHB150W8-36S12 | 9-75 VDC | 12 VDC | 0 mA | 12.5 A | 150 mA | 4.53 A | 92 | 92 | 91 | 5000µF |
| CHB150W8-36S15 | 9-75 VDC | 15 VDC | 0 mA | 10 A | 150 mA | 4.50 A | 92 | 92.5 | 92.5 | 5000µF |
| CHB150W8-36S24 | 9-75 VDC | 24 VDC | 0 mA | 6.25 A | 60 mA | 4.66 A | 89.5 | 89.5 | 89 | 2000µF ⁽⁴⁾ |
| CHB150W8-36S28 | 9-75 VDC | 28 VDC | 0 mA | 5.35 A | 60 mA | 4.62 A | 90 | 90 | 89.5 | 1500µF ⁽⁴⁾ |
| CHB150W8-36S48 | 9-75 VDC | 48 VDC | 0 mA | 3.13 A | 60 mA | 4.64 A | 90.5 | 90 | 89.5 | 1000µF ⁽⁴⁾ |

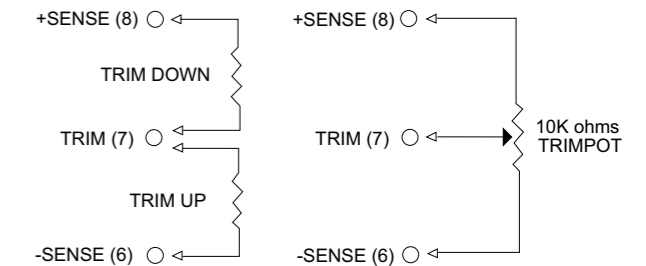
NOTE:

- Nominal Input Voltage 36 VDC
- Measured at 24Vin
- Measured at 48Vin
- The output terminal of 24, 28, 48Vout models required a minimum capacitor 100µF to maintain specified regulation.
- CHB150W8-36S05 Vin=9-12V, Output Current =0.8*Io max.

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|--|
| Operating Input Voltage Range | 36V 9-75V |
| Input Surge Voltage (100ms max.) | 100Vdc max |
| Under Voltage Lockout | power up 9.5V power down 8.0V See note 4 & 5 |
| Positive Logic Remote On/Off | LC Type |
| Input Filter | |

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 6) | ±10% |
| Ripple & Noise, 20MHz BW | |
| 5V | 40mV RMS, 100mV pk-pk max. |
| 12V & 15V | 60mV RMS, 120mV pk-pk max. |
| 24V & 28V | 100mV RMS, 280mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 105%-200% Nominal Output |
| Start up time | 110ms typ. |

GENERAL SPECIFICATIONS

| | |
|------------------------------------|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case1500VDC min. Output/Case1500VDC min. 10 ⁷ ohm min. |
| Isolation Resistance | |
| Isolation Capacitance | 5V/12V/15V 3500pF typ. 24V/28V/48V 2500pF typ. 200KHz typ. |
| Switching Frequency | |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temperature | 110°C Typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 2.40 x 0.5 inches (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 109 g |

NOTE

- Measured from high line to low line.
- Measured from full load to zero load.
- Output ripple and noise measured with 1µF tantalum (for 48Vout with 10µF aluminum) and 1µF ceramic capacitor across output.
- Logic compatibility open collector ref. to -input
Module On >3.5VDC to 75VDC or open circuit
Module Off < 1.2VDC
- Suffix "N" to the model number with negative logic remote On/Off
Module On < 1.2VDC
Module Off >3.5VDC to 75VDC or open circuit
- The input external capacitor recommend to parallel with 330µF ESR< 0.7Ω to reduce the input ripple voltage.

CHB200 SERIES

165-200 WATT

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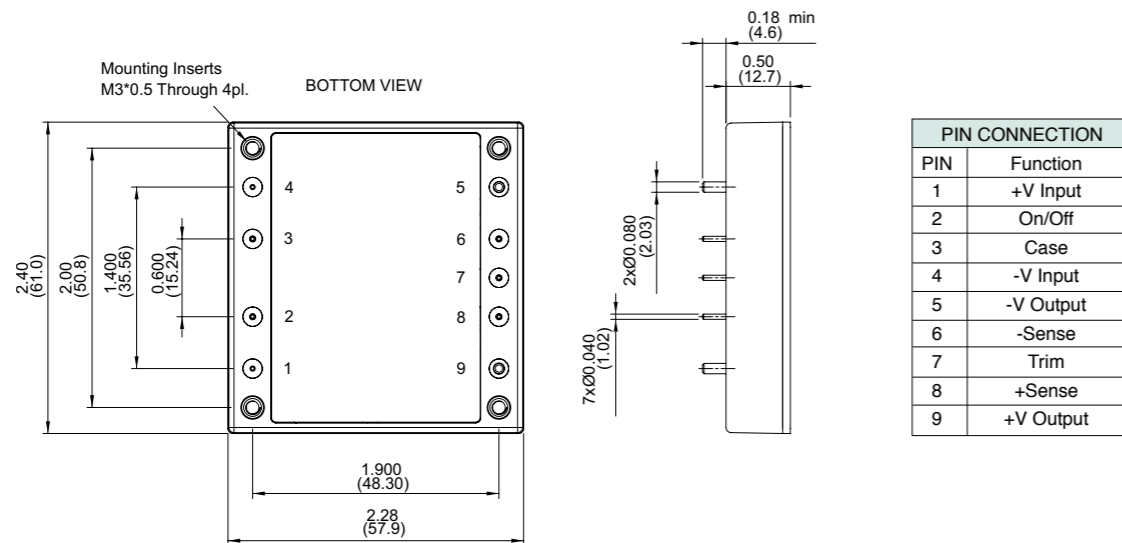
Features

- ◆ 165W-200W Isolated Output
- ◆ Efficiency to 93%
- ◆ Fixed Switching Frequency
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Standard Half-Brick Package
- ◆ Fully Isolated 1500VDC
- ◆ No Tantalum Capacitor Inside



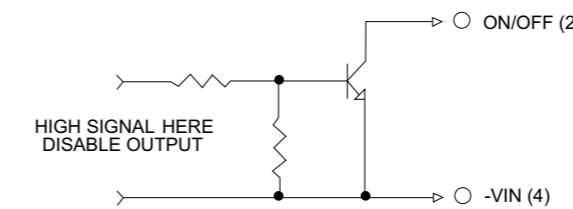
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

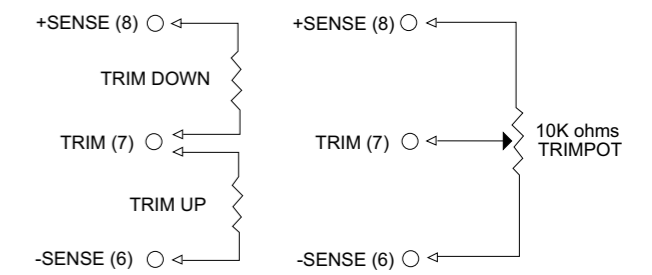


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB200-24S3V3 | 18-36 VDC | 3.3 VDC | 0 mA | 50 A | 140 mA | 7.64 A | 90 | 10000µF |
| CHB200-24S05 | 18-36 VDC | 5 VDC | 0 mA | 40 A | 240 mA | 9.16 A | 91 | 10000µF |
| CHB200-24S12 | 18-36 VDC | 12 VDC | 0 mA | 16.7 A | 230 mA | 9.03 A | 92.5 | 10000µF |
| CHB200-24S24 | 18-36 VDC | 24 VDC | 0 mA | 8.3 A | 40 mA | 9.12 A | 91 | 2200µF |
| CHB200-24S48 | 18-36 VDC | 48 VDC | 0 mA | 4.2 A | 70 mA | 9.23 A | 91 | 2000µF |
| CHB200-48S3V3 | 36-75 VDC | 3.3 VDC | 0 mA | 50 A | 80 mA | 3.80 A | 90.5 | 10000µF |
| CHB200-48S05 | 36-75 VDC | 5 VDC | 0 mA | 40 A | 120 mA | 4.55 A | 91.5 | 10000µF |
| CHB200-48S12 | 36-75 VDC | 12 VDC | 0 mA | 16.7 A | 90 mA | 4.49 A | 93 | 10000µF |
| CHB200-48S24 | 36-75 VDC | 24 VDC | 0 mA | 8.3 A | 50 mA | 4.56 A | 91 | 2200µF |
| CHB200-48S48 | 36-75 VDC | 48 VDC | 0 mA | 4.2 A | 60 mA | 4.59 A | 91.5 | 2000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|----------------------|--|
| Input Voltage Range | 24V 18-36V | 48V 36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under voltage lockout | 24Vin | 48Vin |
| | | power up 17V |
| | | power down 16V |
| | | power up 35V |
| | | power down 33V |
| Positive Logic Remote On/Off: | | |
| Logic Compatibility | Module On | Open Collector ref to -Input > 3.5Vdc to 75Vdc or Open Circuit |
| | Module Off | < 1.2Vdc |
| Input Filter | | PI Type |

OUTPUT SPECIFICATIONS

| | |
|---|--|
| Voltage Accuracy: | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 5) | ±10% |
| Ripple & Noise, 20MHz BW | |
| 3.3V & 5V | 40mV RMS, 100mV pk-pk max., 60mV RMS, 120mV pk-pk max. |
| 12V | 100mV RMS, 240mV pk-pk max. |
| 24V | 200mV RMS, 480mV pk-pk, max. |
| 48V | ±0.03%/°C |
| Temperature Coefficient | Continuous |
| Short Circuit Protection | ±0.2% max. |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | 115-140% |
| Over Voltage Protection trip Range, % Vo nom. | 105% -140% Nominal Output |
| Current Limit | 150ms typ. |
| Start up time | |

GENERAL SPECIFICATIONS

| | |
|-----------------------------|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 10 ⁷ ohm min. |
| Isolation Resistance | 1000pF typ. |
| Isolation Capacitance | 3V3 200KHz typ. |
| Switching Frequency | 5V 300KHz typ. |
| | 12V&24V&48V . 330kHz typ. |
| Operating Case Temperature | -4°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 114 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit
5. Trim-upconnect a resistor between the trim pin and +Sense.
 Trim-downconnect a resistor between the trim pin and -Sense.
6. The input terminal recommend to parallel with 100µF for 48Vin and 220µF for 24Vin ESR< 0.7Ω to reduce the input ripple voltage.

CHB200W SERIES

132-200 WATT, 4:1 INPUT RANGE

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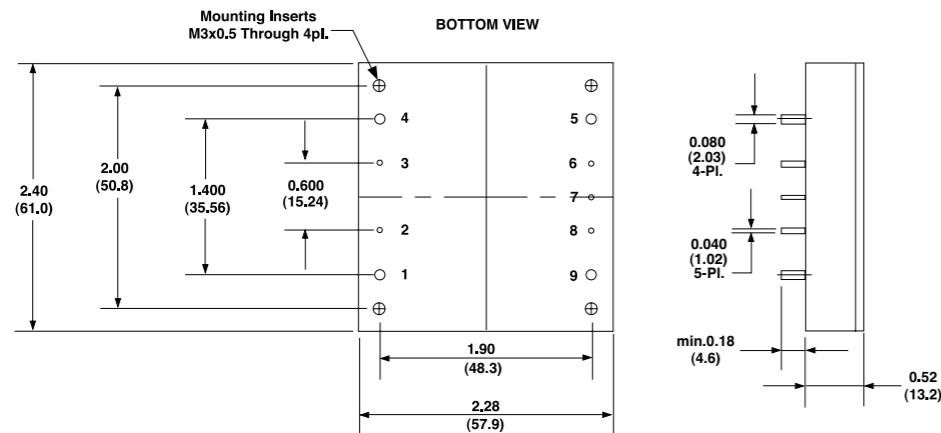
Features

- ◆ 132W-200W Isolated Output
- ◆ Half Brick Package
- ◆ 4 : 1 Input Range
- ◆ Regulated Output
- ◆ Efficiency to 89%
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off Control
- ◆ 1500VDC Isolation
- ◆ Continuous Short Circuit Protection
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval (Except 28 Vout)



Mechanical Dimensions

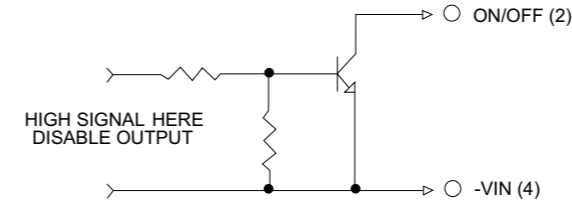
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



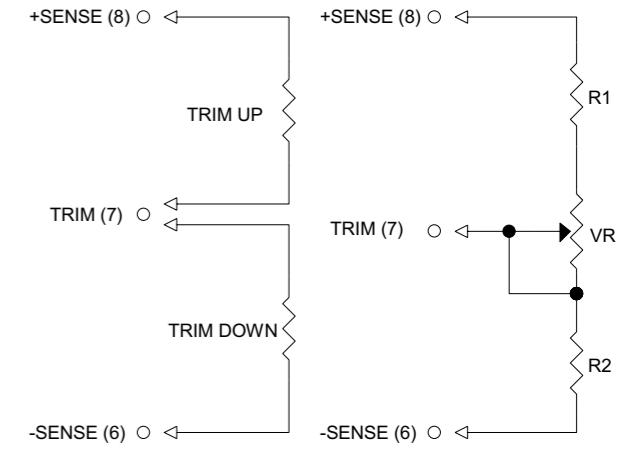
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB200W-24S3V3 | 10-36 VDC | 3.3VDC | 0 mA | 50 A | 130 mA | 7.90 A | 87 | 10000µF |
| CHB200W-24S05 | 10-36 VDC | 5.0VDC | 0 mA | 40 A | 150 mA | 9.58 A | 87 | 10000µF |
| CHB200W-24S12 | 10-36 VDC | 12 VDC | 0 mA | 16.7 A | 50 mA | 9.71 A | 86 | 2200µF |
| CHB200W-24S15 | 10-36 VDC | 15 VDC | 0 mA | 13.3 A | 50 mA | 9.56 A | 87 | 2200µF |
| CHB200W-24S24 | 10-36 VDC | 24 VDC | 0 mA | 8.3 A | 45 mA | 9.54 A | 87 | 2200µF |
| CHB200W-24S28 | 10-36 VDC | 28 VDC | 0 mA | 7.14 A | 55 mA | 9.41 A | 88.5 | 2200µF |
| CHB200W-24S48 | 10-36 VDC | 48 VDC | 0 mA | 4.2 A | 60 mA | 9.77 A | 86 | 2200µF |
| CHB200W-48S3V3 | 18-75 VDC | 3.3VDC | 0 mA | 40 A | 80 mA | 3.13 A | 88 | 10000µF |
| CHB200W-48S05 | 18-75 VDC | 5.0VDC | 0 mA | 40 A | 80 mA | 4.68 A | 89 | 10000µF |
| CHB200W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 16.7 A | 60 mA | 4.74 A | 88 | 2200µF |
| CHB200W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 13.3 A | 60 mA | 4.72 A | 88 | 2200µF |
| CHB200W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 8.3 A | 60 mA | 4.72 A | 88 | 2200µF |
| CHB200W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 7.14 A | 50 mA | 4.68 A | 89 | 2200µF |
| CHB200W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 4.2 A | 50 mA | 4.83 A | 87 | 2200µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|-------------------------------------|-----------------------------------|
| Input Voltage Range | 24V 10-36V | 48V 18-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin | 48Vin |
| Positive Logic Remote On/Off | 9.5V power up 8.5V power down | 17V power up 16V power down |
| Input Filter | See note 4 & 5 | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|----------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 6) | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | 3.3V & 5V |
| | 40mV RMS max., 100mV pk-pk max. |
| | 12V & 15V |
| | 60mV RMS max., 150mV pk-pk max. |
| | 24V |
| | 100mV RMS max., 240mV pk-pk max. |
| | 28V |
| | 100mV RMS max., 280mV pk-pk max. |
| | 48V |
| | 150mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110%-150% Nominal Output |
| Start up time | 120ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output..... 1500VDC min. Input/Case..... 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 2000pF typ. |
| Switching Frequency | 250KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 600Khrs typ. |
| Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 114 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output. (48V: 10µF aluminum and 1µF ceramic capacitor across output)
4. Logic compatibility open collector ref to -Input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit
6. Trim-up connect a resistor between the trim pin and +sense
 Trim-down connect a resistor between the trim pin and -sense
7. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA.)
8. An external input capacitor 470µF for 24Vin or 47µF for 48Vin models are recommended to reduce input ripple voltage.

CHB300W SERIES

300 WATT, 4:1 INPUT RANGE

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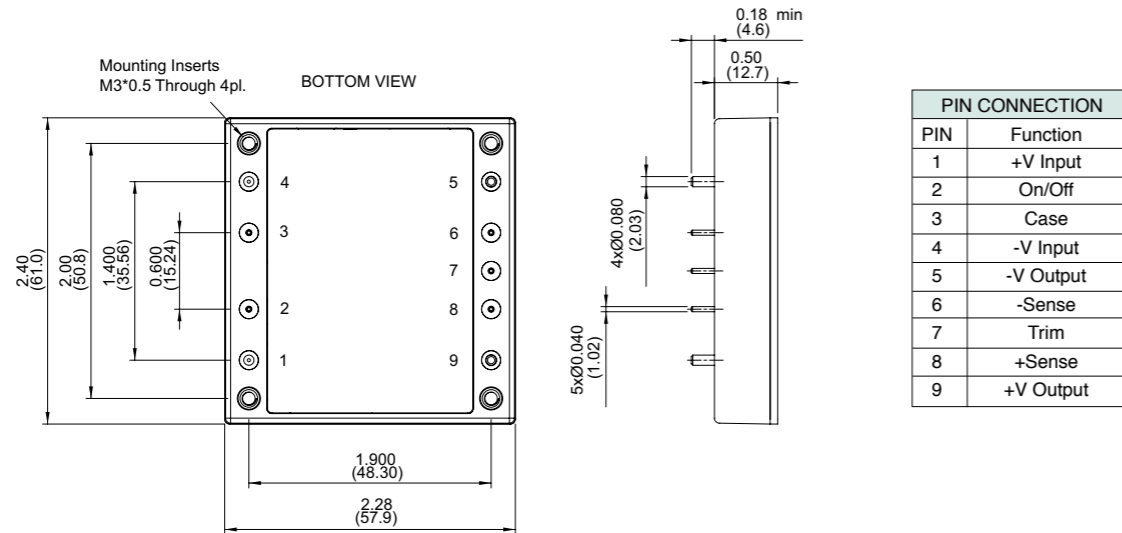
Features

- ◆ 300W Isolated Output
- ◆ Efficiency to 92%
- ◆ Fixed Switching Frequency
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Standard Half-Brick Package
- ◆ Fully Isolated 1500VDC
- ◆ CE Mark Meets 2004/108/EC
- ◆ Safety Meets UL60950-1, EN60950-1 and IEC60950-1



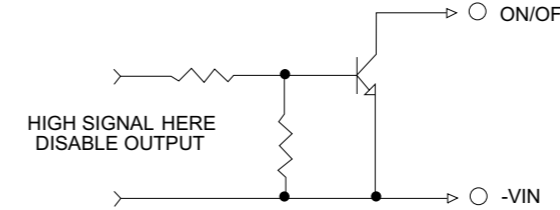
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

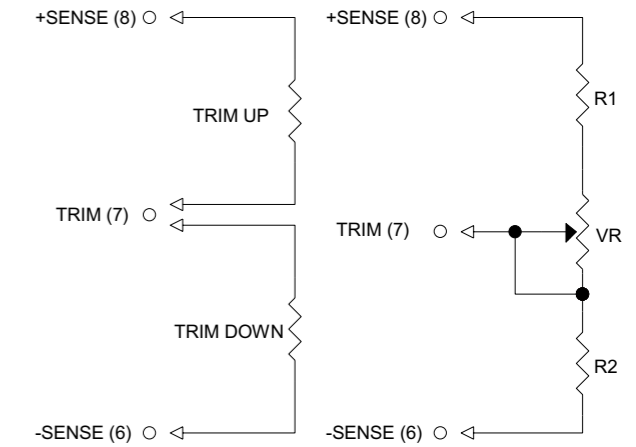


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB300W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 60 A | 200 mA | 14.12 A | 88.5 | 470-10000µF |
| CHB300W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 25 A | 200 mA | 13.74 A | 91 | 330-10000µF |
| CHB300W-24S15 | 9-36 VDC | 15 VDC | 0 mA | 20 A | 250 mA | 13.74 A | 91 | 0-10000µF |
| CHB300W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 12.5 A | 80 mA | 14.20 A | 88 | 220-4700µF |
| CHB300W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 10.7 A | 80 mA | 14.12 A | 88.5 | 220-4700µF |
| CHB300W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 6.25 A | 100 mA | 14.20 A | 88 | 220-2200µF |
| CHB300W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 60 A | 100 mA | 6.94 A | 90 | 0-10000µF |
| CHB300W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 25 A | 100 mA | 6.94 A | 90 | 0-10000µF |
| CHB300W-48S15 | 18-75 VDC | 15 VDC | 0 mA | 20 A | 130 mA | 6.80 A | 92 | 0-10000µF |
| CHB300W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 12.5 A | 60 mA | 6.98 A | 89 | 0-4700µF |
| CHB300W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 10.7 A | 60 mA | 6.94 A | 89.5 | 0-4700µF |
| CHB300W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 6.25 A | 80 mA | 7.02 A | 89 | 220-2200µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|------------------------------|
| Input Voltage Range | 4V 9-36V |
| | 48V 18-75V |
| | 24V 50Vdc max. |
| | 48V 100Vdc max. |
| Input Surge Voltage (100ms max.) | power up 8.8V |
| | power down 8.0V |
| Under Voltage Lockout | 24Vin |
| | 48Vin |
| power up 17V | |
| power down 16V | |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Input Filter | 24SXX and 48S15..... LC Type |
| Other 48SXX | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|-----------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 6) | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | |
| 5.0V | 40mV RMS, 100mV pk-pk max. |
| 12V | 60mV RMS, 120mV pk-pk max. |
| 15V | 80mV RMS, 200mV pk-pk max. |
| 24V & 28V | 100mV RMS, 280mV pk-pk max. |
| 48V | 200mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 120%-160% Nominal Output |
| Start up time | 120ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--------------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 2000pF typ. |
| Switching Frequency | 220KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temperature | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 600Khrs |
| Dimensions | 2.28 x 2.40 x 0.50 inches |
| | (57.9 x 61.0 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 114 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. The output ripple and noise measurement with 10µF tantalum (for 24S05 with 330µF tantalum, 24S12 with 100µF tantalum and 48Vout with 10µF aluminum) and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref. to -input
 Module On >3.5VDC to 75VDC or open circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off.
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit
6. Trim-up.....connect a resistor between the trim pin and +sense.
 Trim-down.....connect a resistor between the trim pin and -sense.
7. The input terminal recommend to parallel with 1000µF for 24Vin, 470µF for 48S15 model and 220µF for other 48Vin models ESR< 0.7Ω to reduce the input ripple voltage.
8. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA)

CHB300W-110S SERIES

300 WATT, INPUT RANGE 43-160 VDC

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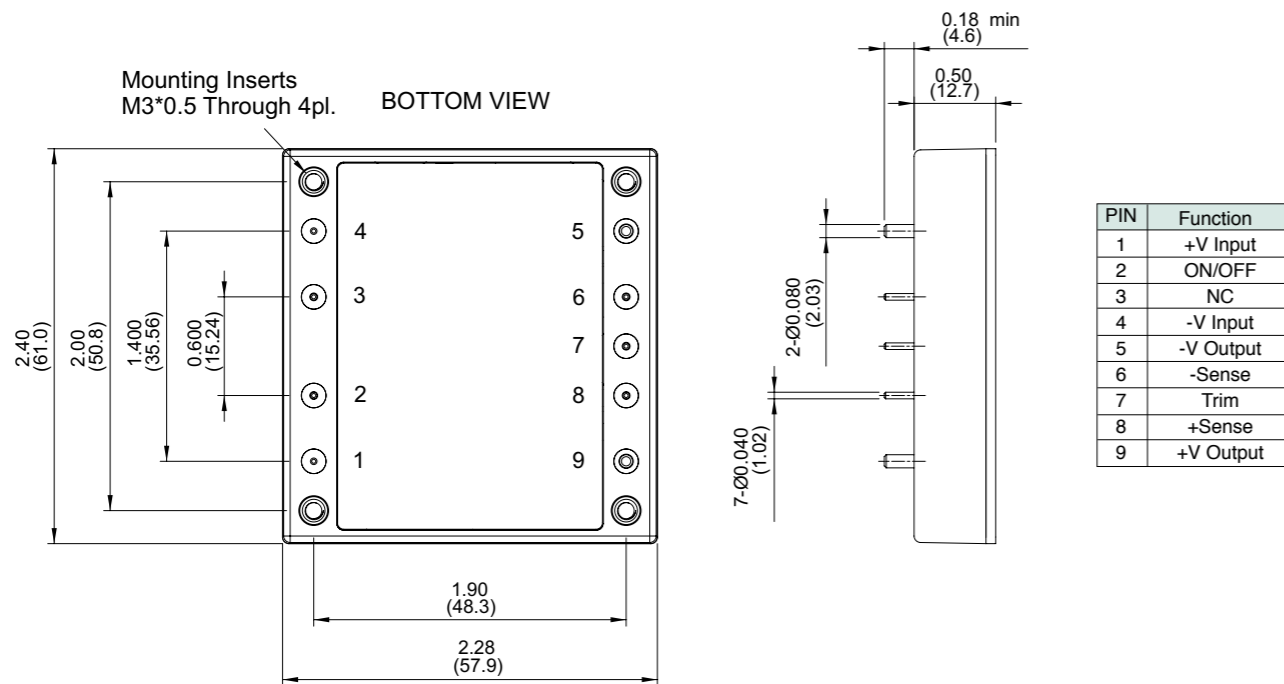
Features

- ◆ 300W Isolated Output
- ◆ Efficiency to 90%
- ◆ Fixed Switching Frequency
- ◆ 4 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Low No Load Power Consumption
- ◆ Half-Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Basic Insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)



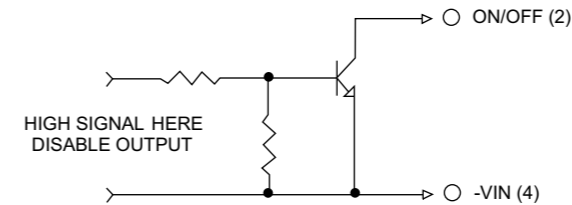
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

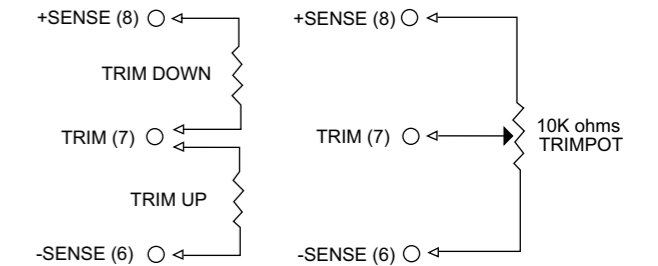


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|----------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB300W-110S05 | 43-160 VDC | 5 VDC | 0 mA | 60 A | 20 mA | 3.1 A | 89 | 2200µF |
| CHB300W-110S12 | 43-160 VDC | 12 VDC | 0 mA | 25 A | 20 mA | 3.1 A | 90 | 1000µF |
| CHB300W-110S24 | 43-160 VDC | 24 VDC | 0 mA | 12.5 A | 20 mA | 3.1 A | 89 | 560µF |
| CHB300W-110S28 | 43-160 VDC | 28 VDC | 0 mA | 10.7 A | 20 mA | 3.1 A | 89 | 470µF |
| CHB300W-110S48 | 43-160 VDC | 48 VDC | 0 mA | 6.25 A | 20 mA | 3.1 A | 89 | 220µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|-----------------------------------|
| Input Voltage Range | 43-160V |
| Input Surge Voltage (100ms max.) | 200Vdc max. |
| Under Voltage Lockout | power up 42V power down 38V |
| Positive Logic Remote On/Off | See note 4 & 5 |
| Logic Compatibility | Open Collector ref to -Input |
| Module On | > 3.5Vdc to 75Vdc or Open Circuit |
| Module Off | < 1.8Vdc |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|---|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: | |
| 25% Step Load Change | Error Band ±5% Vout Recover Time < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple & Noise, 20MHz BW (note 3) | |
| 5V | 60mV RMS, 100mV pk-pk max. |
| 12V | 80mV RMS, 150mV pk-pk max. |
| 24V | 120mV RMS, 240mV pk-pk max. |
| 28V | 140mV RMS, 280mV pk-pk max. |
| 48V | 220mV RMS, 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 105%-40% Nominal Output |

GENERAL SPECIFICATIONS

| | |
|-----------------------------|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output, Input/Case 2250VDC min. Output/Case 2250VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 1000pF typ. |
| Switching Frequency | 300KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp. | 105°C typ. |
| Humidity | 95% RH max. Non condensing |
| Safety | UL60950-1 2 nd (Basic Insulation) |
| EMC (note 7) | EN50155 (EN50121-3-2) with External Filter EN50155 (EN61373) |
| Shock/Vibration | EN50155 (EN60068-2-1) |
| Environmental Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Logic compatibility open collector ref to -input
 Module On >3.5VDC to 75VDC or Open Circuit
 Module Off < 1.2VDC
5. Suffix "N" to the model number with negative logic remote On/Off
 Module On < 1.2VDC
 Module Off >3.5VDC to 75VDC or open circuit
6. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.
7. Design meet EN50155 and RIA12 refer to application note.

CHB300-300S SERIES

300 WATT, INPUT RANGE 180-425 VDC

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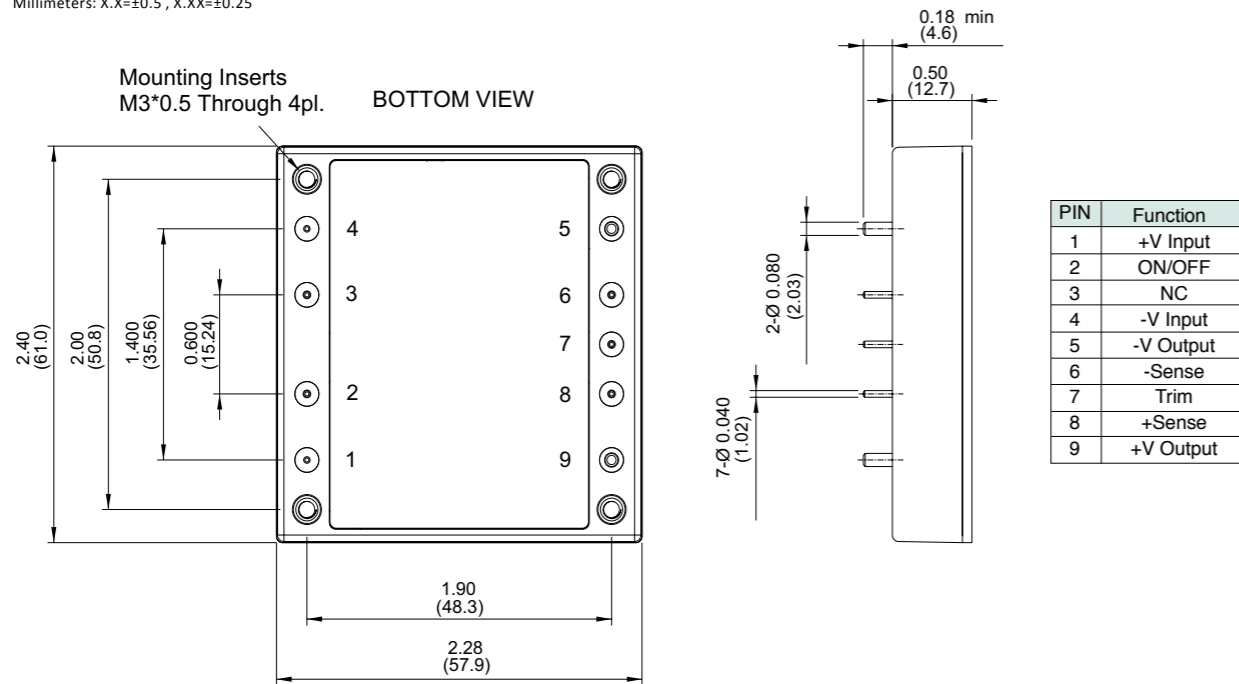
Features

- ◆ 300W Isolated Output
- ◆ Efficiency to 89%
- ◆ Fixed Switching Frequency
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Half-Brick Size Meet Industrial Standard
- ◆ UL/C-UL 60950 Certified
- ◆ Fully Isolated 3000VAC
- ◆ Off-Line Systems Using PFC Front-Ends



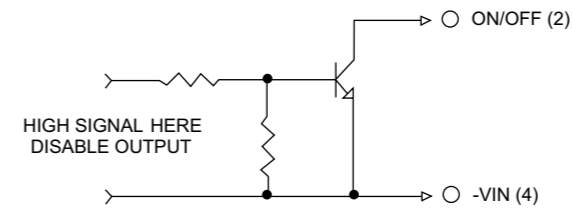
Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

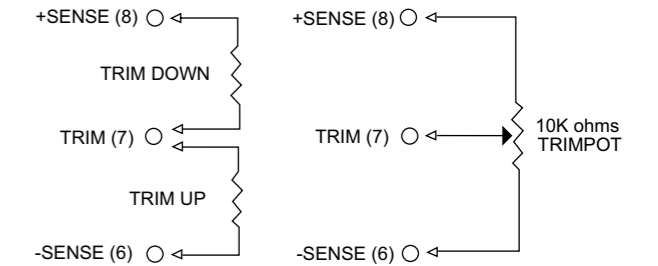


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB300-300S05 | 180-425 VDC | 5 VDC | 0 mA | 60 A | 100 mA | 1.92 A | 87 | 4700µF |
| CHB300-300S12 | 180-425 VDC | 12 VDC | 0 mA | 25 A | 100 mA | 1.92 A | 87 | 4000µF |
| CHB300-300S24 | 180-425 VDC | 24 VDC | 0 mA | 12.5 A | 100 mA | 1.87 A | 89 | 3000µF |
| CHB300-300S28 | 180-425 VDC | 28 VDC | 0 mA | 10.7 A | 100 mA | 1.87A | 89 | 1000µF |
| CHB300-300S48 | 180-425 VDC | 48 VDC | 0 mA | 6.25 A | 100 mA | 1.87 A | 89 | 1000µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|-------------------------------|--|
| Input Voltage Range. | 300V..... 180-425V |
| Input over voltage protection | Module on.....440V Module off.....450V |
| Under voltage lockout | 300Vin power up 175V 300Vin power down.....160V |
| Positive Logic Remote On/Off | See note 5 & 6 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|--|-------------------------------------|
| Voltage Accuracy : | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range (4) | ±10%/°C |
| Load share Accuracy | ±10% at 50% to 100%Full Load |
| Ripple & Noise, 20MHz BW (3) | |
| 5V | 75mV RMS max., 150mV pk-pk max |
| 12V | 120mV RMS max., 240mV pk-pk max. |
| 24V | 150mV RMS max., 470mV pk-pk max. |
| 28V | 150mV RMS max., 470mV pk-pk max. |
| 48V | 200mV RMS max., 740mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (1) | ±0.2% max. |
| Load Regulation (2) | ±0.5% max. |
| Over Voltage Protection trip Range, % Vo nom | 115-140% |
| Current Limit | 105%-140% Nominal Output |

GENERAL SPECIFICATIONS

| | |
|------------------------------|--|
| Efficiency. | See Table |
| Isolation Voltage | Input/Output..... 3000VAC min. Input/Case.....2500VAC min. Output/Case.....500VAC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Switching Frequency | 200KHz, Typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp. | 105°C Typ. |
| Humidity | 95% RH max. Non condensing |
| Dimensions | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 1µF ceramic capacitor across output
4. Logic compatibility.....open collector refer to -Vin
Module On.....>3.5VDC to 75VDC or open circuit
Module On.....>1.2VDC
5. Suffix "N" to the model number with negative logic remote on/off
Module On.....>1.2VDC
Module On.....>3.5VDC to 75VDC or open circuit

CHB350 SERIES

231-350 WATT

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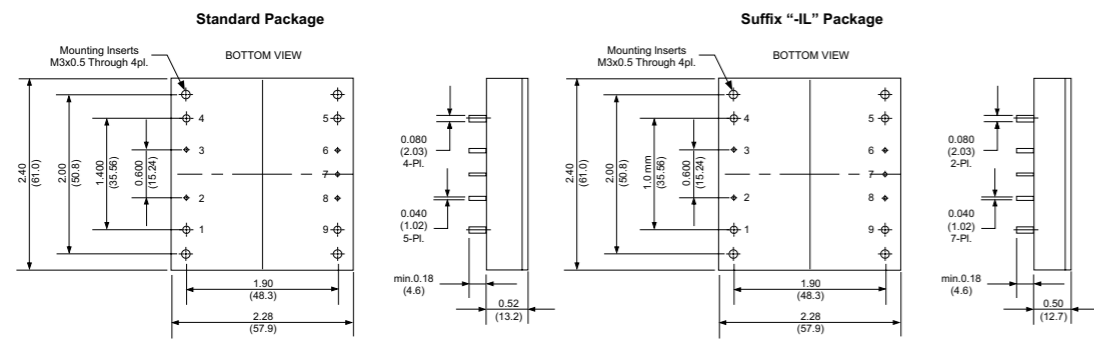
Features

- ◆ 231W-350W Isolated Output
- ◆ Efficiency to 92.5%
- ◆ Fixed Switching Frequency
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Standard Half-Brick Package
- ◆ Fully Isolated 1500VDC
- ◆ UL60950-1 Approval
- ◆ High Power Density 123W/in³



Mechanical Dimensions

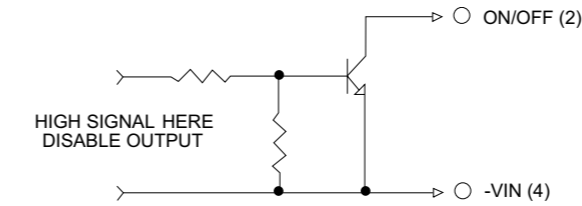
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



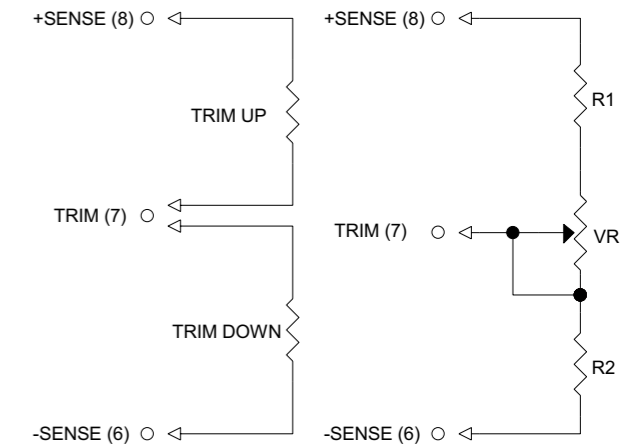
| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | +V Input |
| 2 | On/Off |
| 3 | Case |
| 4 | -V Input |
| 5 | -V Output |
| 6 | -Sense |
| 7 | Trim |
| 8 | +Sense |
| 9 | +V Output |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CHB350-24S3V3 | 18-36 VDC | 3.3 VDC | 0 mA | 70 A | 140 mA | 10.94 A | 88 | 10000µF |
| CHB350-24S05 | 18-36 VDC | 5 VDC | 0 mA | 70 A | 260 mA | 16.39 A | 89 | 10000µF |
| CHB350-24S12 | 18-36 VDC | 12 VDC | 0 mA | 29.2 A | 250 mA | 16.13 A | 90.5 | 10000µF |
| CHB350-24S24 | 18-36 VDC | 24 VDC | 0 mA | 14.6 A | 60 mA | 16.40 A | 89 | 10000µF |
| CHB350-24S28 | 18-36 VDC | 28 VDC | 0 mA | 12.5 A | 60 mA | 16.11 A | 90.5 | 7000µF |
| CHB350-24S48 | 18-36 VDC | 48 VDC | 0 mA | 7.3 A | 60 mA | 16.22 A | 90 | 2200µF |
| CHB350-48S3V3 | 36-75 VDC | 3.3 VDC | 0 mA | 70 A | 90 mA | 5.41 A | 89 | 10000µF |
| CHB350-48S05 | 36-75 VDC | 5 VDC | 0 mA | 70 A | 130 mA | 8.01 A | 91 | 10000µF |
| CHB350-48S12 | 36-75 VDC | 12 VDC | 0 mA | 29.2 A | 100 mA | 7.89 A | 92.5 | 10000µF |
| CHB350-48S24 | 36-75 VDC | 24 VDC | 0 mA | 14.6 A | 60 mA | 7.98 A | 91.5 | 10000µF |
| CHB350-48S28 | 36-75 VDC | 28 VDC | 0 mA | 12.5 A | 60 mA | 7.93 A | 92 | 7000µF |
| CHB350-48S48 | 36-75 VDC | 48 VDC | 0 mA | 7.3 A | 60 mA | 7.93 A | 92 | 2200µF |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|---|
| Input Voltage Range | 24V 18-36V 48V 36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. 48V 100Vdc max. |
| Under Voltage Lockout | 24Vin 17V power up 16V power down 33V |
| Positive Logic Remote On/Off | See note 4 |
| Logic Compatibility | Open Collector ref to -Input |
| Module on | >3.5Vdc to 75Vdc or Open Circuit |
| Module off | < 1.2Vdc |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|---|--|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 6) | ±10% |
| Ripple & Noise, 20MHz BW | 3.3V & 5V 40mV RMS max., 100mV pk-pk max. 12V 60mV RMS max., 120mV pk-pk max. 24V & 28V 100mV RMS max., 280mV pk-pk max. 48V 150mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 105%-40% Nominal Output |
| Start up time | 175ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. Input/Case 1500VDC min. Output/Case 1500VDC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 2000pF typ. |
| Switching Frequency | 3V3 & 5V 300KHz typ. 12V & 24V & 28V & 48V 330KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown Case Temp | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF..... MIL-STD-217F, GB, 25°C, Full Load | 700Khrs typ. |
| Dimensions Standard | 2.28 x 2.40 x 0.52 inches (57.9 x 61.0 x 13.2 mm) 2.28 x 2.40 x 0.50 inches (57.9 x 61.0 x 12.7mm) |
| Suffix "-IL" (note 6) | Aluminum Baseplate with Plastic Case |
| Case Material | 114 g |
| Weight | |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. Suffix "N" to the model number with negative logic remote On/Off
Module On < 1.2VDC
Module Off >3.5VDC to 75VDC or open circuit
5. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA)
6. Suffix "-IL" to the model number with thin input pin models (pin1 and pin4 =1.0mm) 48Vin models only.
7. Trim-up.....connect a resistor between the trim pin and +sense.
Trim-down.....connect a resistor between the trim pin and -sense.
8. The input terminal recommend to parallel with 220µF for 48Vin and 470µF for 24Vin ESR< 0.7Ω to reduce the input ripple voltage.

CFB200 SERIES

100-200 WATT

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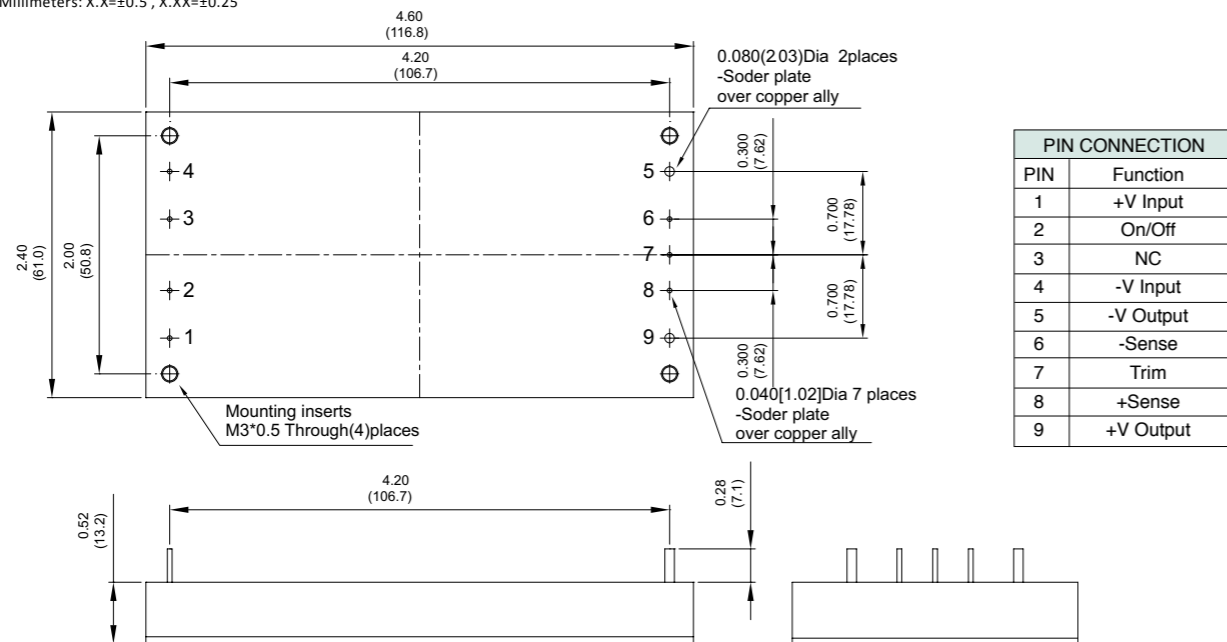
Features

- ◆ 100W-200W Isolated Output
- ◆ Efficiency to 90%
- ◆ 2 : 1 Input Range
- ◆ 350KHz Switching Frequency
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ Industry Standard Full-Brick Package
- ◆ UL60950-1 and IEC60950-1 Approval



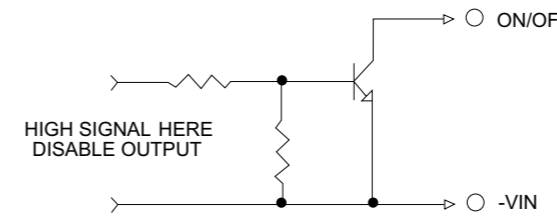
Mechanical Dimensions

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA
All Dimensions in Inches (mm)
Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
Millimeters: X.X=±0.5, X.XX=±0.25

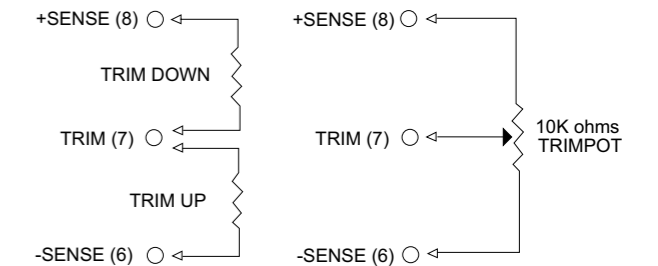


| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | % EFF. |
|--------------|---------------|----------------|----------------|---------------|-----------|--------|
| | | | | NO LOAD | FULL LOAD | |
| CFB200-48S33 | 36-75 VDC | 3.3 VDC | 40 A | 25 mA | 3.5 A | 79 |
| CFB200-48S05 | 36-75 VDC | 5 VDC | 40 A | 25 mA | 5 A | 83 |
| CFB200-48S12 | 36-75 VDC | 12 VDC | 17 A | 25 mA | 5 A | 85 |
| CFB200-48S15 | 36-75 VDC | 15 VDC | 13.3 A | 25 mA | 5 A | 85 |
| CFB200-48S24 | 36-75 VDC | 24 VDC | 8.33 A | 25 mA | 5 A | 85 |
| CFB200-48S28 | 36-75 VDC | 28 VDC | 7.14 A | 25 mA | 4.7 A | 89 |
| CFB200-48S48 | 36-75 VDC | 48 VDC | 4.2 A | 25 mA | 4.7 A | 90 |

Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|------------------------------|------------------------|
| Input Voltage Range | 48V 36-75V |
| Undervoltage lockout | power up 34V |
| | power down 32.5V |
| Positive Logic Remote On/Off | See note 3, 4 |
| Input Filter | Pi Type |

OUTPUT SPECIFICATIONS

| | |
|--|-----------------------------|
| Voltage Accuracy | ±1.0% max. |
| Transient Response 25% Step Load Change | < 500µs |
| External Trim Adj. Range | ±10% |
| Ripple and Noise, 20MHz BW, 2.5V & 3.3V & 5V | 40mV RMS. max. |
| | 100mV p-p max. |
| | 60mV RMS. max. |
| | 150mV p-p max. |
| | 100mV/150mV/200mV RMS. max. |
| | 240mV/280mV/480mV p-p max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.2% max. |
| Over Voltage Protection trip Range, % Vo nom | 115-140% |
| Current Limit | 110%-150% Nominal Output |

GENERAL SPECIFICATIONS

| | |
|------------------------------|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500 VDC min. |
| | Input/Case 1500 VDC min. |
| | Output/Case 1500 VDC min. |
| | 10 ⁷ ohms min. |
| Isolation Resistance | |
| Switching Frequency | 350KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -40°C to +105°C |
| Thermal Shutdown, Case Temp. | 100°C Typ. |
| Dimensions | 4.60 × 2.40 × 0.52 inches (116.8 × 61.0 × 13.2 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 193 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Logic compatibility open collector Ref. to -Input
Module On Open Circuit
Module Off <0.8VDC
4. Suffix "N" to the model number with negative logic remote On/Off.

CFB200-110S SERIES

200 WATT, INPUT RANGE 66-160 VDC

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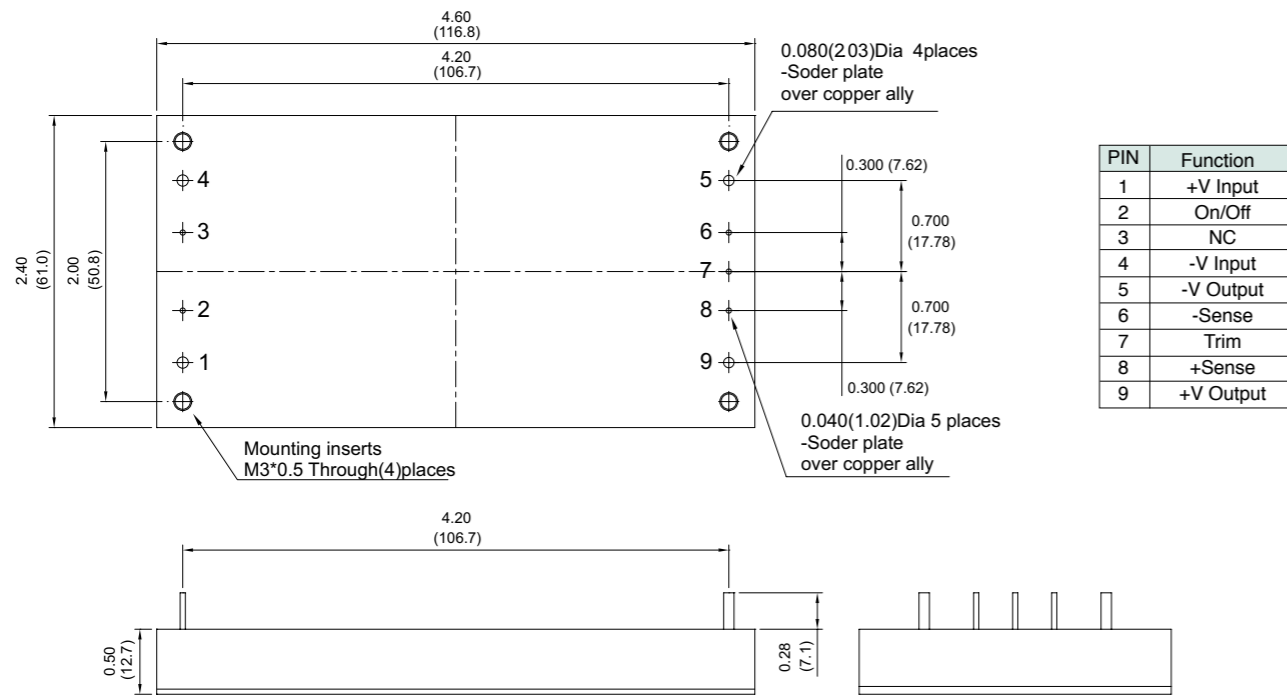
Features

- ◆ 200W Isolated Output
- ◆ Efficiency to 86%
- ◆ Low No Load Input Power
- ◆ 2 : 1 Input Range
- ◆ Regulated Outputs
- ◆ Remote On/Off
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Continuous Short Circuit Protection
- ◆ Full Brick Size
- ◆ Safety Standard: UL 60950-1 2nd (Basic Insulation)
- ◆ EMC: EN 50155 (EN 50121-3-2), External Filter Required
- ◆ Shock & Vibration: EN 50155 (EN 61373)

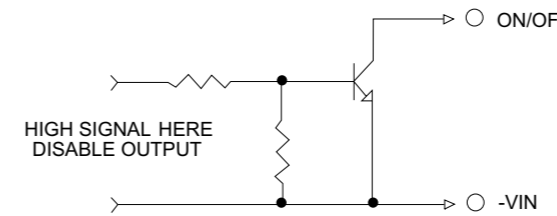


Mechanical Dimensions

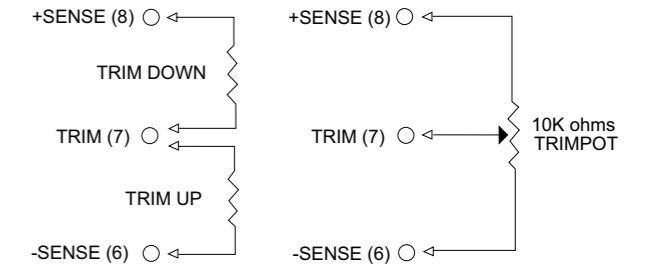
All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



Remote On/Off Control



External Output Trim



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range: 66-160V
 Input Surge Voltage (100ms max.): 180Vdc max.
 Under voltage lockout: power up 62V, power down 56V

Positive Logic Remote On/Off:
 Logic Compatibility: Open Collector ref to -Input
 Module On: Open Circuit
 Module Off: < 1.8Vdc
 Input Filter: PI Type

OUTPUT SPECIFICATIONS

Voltage Accuracy: ±1.5% max.
 Transient Response: < 500µs
 25% Step Load Change: < 500µs
 External Trim Adj. Range: ±10%
 Ripple & Noise, 20MHz BW (note 3):
 12V, 15V: 60mV RMS, 150mVpk-pk max.
 24V: 100mV RMS, 240mVpk-pk max.
 48V: 200mV RMS, 480mVpk-pk max.
 Temperature Coefficient: ±0.03%/°C
 Short Circuit Protection: Continuous
 Line Regulation (note 1): ±0.2% max.
 Load Regulation (note 2): ±0.2% max.
 Over Voltage Protection trip Range,% Vo nom.: 115-140%
 Current Limit: 110%-150% Nominal Output
 Start up time: 120ms typ.

GENERAL SPECIFICATIONS

Efficiency: See Table
 Isolation Voltage input/case: 3000Vrms min.
 output/case: 1500Vrms min.
 Isolation Resistance: 500Vrms min.
 Isolation Capacitance: 10⁹ ohm min.
 Switching Frequency: 500pF typ.
 Operating Case Temperature: 250KHz typ.
 Storage Temperature: -40°C to 100°C
 Thermal Shutdown, Case Temp.: 105°C typ.
 Humidity: 95% RH max. Non condensing
 Safety: UL60950-1, EN50155
 EMI: with external filter to meet EN55022 Class A & Class B
 Shock/Vibration: EN50155 (EN61373)
 Environmental: EN50155 (EN60068-2-1)
 Dimensions: 4.60 x 2.40 x 0.52 inches (116.8 x 61.0 x 13.2 mm)
 Case Material: Aluminum Baseplate with Plastic Case
 Weight: 220 g

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. An external input capacitor 68µF for all models are recommended to reduce input ripple voltage.

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CFB200-110S12 | 66-160 VDC | 12 VDC | 0 mA | 16.6 A | 25 mA | 2140 mA | 85 | 10000µF |
| CFB200-110S15 | 66-160 VDC | 15 VDC | 0 mA | 13.3 A | 25 mA | 2114 mA | 86 | 4700µF |
| CFB200-110S24 | 66-160 VDC | 24 VDC | 0 mA | 8.3 A | 25 mA | 2114 mA | 86 | 4700µF |
| CFB200-110S48 | 66-160 VDC | 48 VDC | 0 mA | 4.16 A | 25 mA | 2114 mA | 86 | 2200µF |

CFB400W SERIES

400 WATT, 4:1 INPUT RANGE

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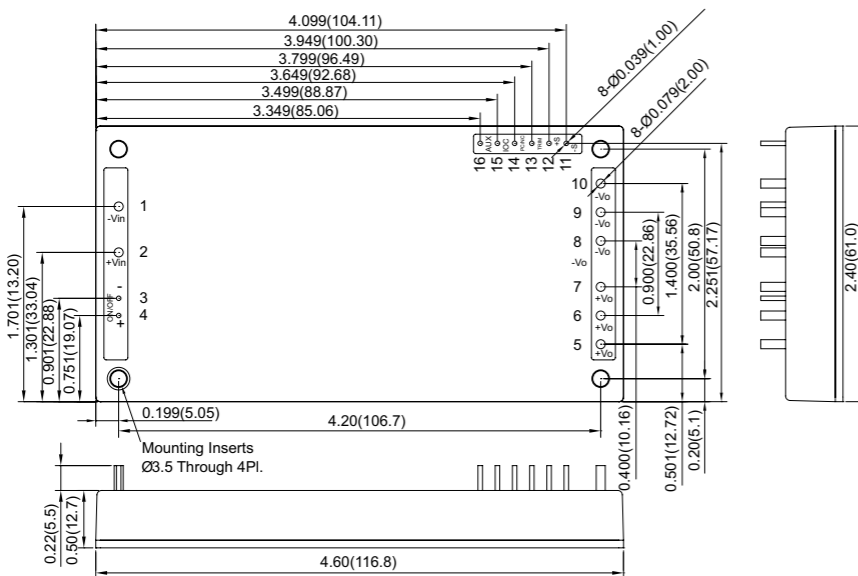
Features

- ◆ 400W Isolated Output
- ◆ Efficiency to 90%
- ◆ Fixed Switching Frequency
- ◆ Input Under Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Full-Brick Size
- ◆ Fully Isolated 1500VDC
- ◆ Without Tantalum Capacitor Inside
- ◆ CE Mark Meets 2004/108/EC
- ◆ UL60950-1 Approval



Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | -V Input |
| 2 | +V Input |
| 3 | -On/Off |
| 4 | +On/Off |
| 5-7 | +V Output |
| 8-10 | -V Output |
| 11 | -Sense |
| 12 | +Sense |
| 13 | Trim |
| 14 | PC/NC |
| 15 | IOG |
| 16 | AUX |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|-----------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CFB400W-24S05 | 9-36 VDC | 5 VDC | 0 mA | 80 A | 600 mA | 19.05 A | 87.5 | 10000µF |
| CFB400W-24S12 | 9-36 VDC | 12 VDC | 0 mA | 33.3 A | 120 mA | 19.36 A | 86 | 10000µF |
| CFB400W-24S24 | 9-36 VDC | 24 VDC | 0 mA | 16.7 A | 120 mA | 19.19 A | 87 | 4700µF |
| CFB400W-24S28 | 9-36 VDC | 28 VDC | 0 mA | 14.3 A | 120 mA | 19.18 A | 87 | 4700µF |
| CFB400W-24S48 | 9-36 VDC | 48 VDC | 0 mA | 8.3 A | 120 mA | 19.19 A | 86.5 | 2200µF |
| CFB400W-48S05 | 18-75 VDC | 5 VDC | 0 mA | 80 A | 300 mA | 9.36 A | 89 | 10000µF |
| CFB400W-48S12 | 18-75 VDC | 12 VDC | 0 mA | 33.3 A | 60 mA | 9.41 A | 88.5 | 10000µF |
| CFB400W-48S24 | 18-75 VDC | 24 VDC | 0 mA | 16.7 A | 60 mA | 9.28 A | 90 | 4700µF |
| CFB400W-48S28 | 18-75 VDC | 28 VDC | 0 mA | 14.3A | 60 mA | 9.27 A | 90 | 4700µF |
| CFB400W-48S48 | 18-75 VDC | 48 VDC | 0 mA | 8.3 A | 60 mA | 9.27 A | 89.5 | 2200µF |

Fig.1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.

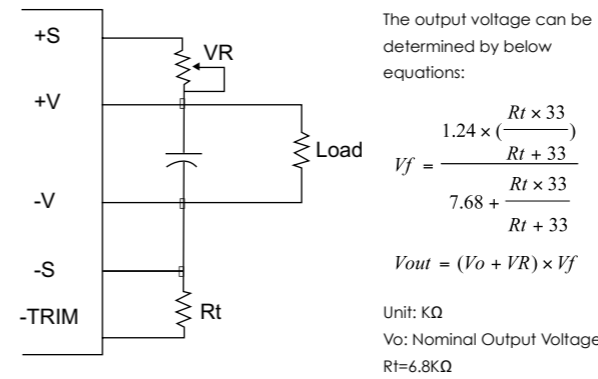
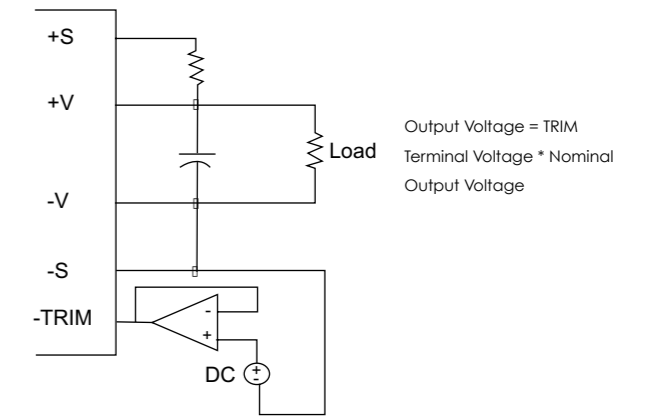


Fig.2 The schematic of output voltage adjusted by using external DC voltage.



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|-------------------------------|---------------------------|-----------------------------|
| Input Voltage Range | 24V 9-36V | 48V 18-75V |
| Under Voltage Lockout | 24Vin power up 8.5V | 48Vin power down 7.5V |
| Input Over Voltage Protection | 24Vin power up 17V | 48Vin power down 15V |
| Opto Isolated Remote On/Off | 24Vin Turn on 42V | 48Vin Turn on 40V |
| Input Filter | 24Vin Turn off 83V | 48Vin Turn on 80V |
| | See note 6 | |
| | LC Type | |

OUTPUT SPECIFICATIONS

| | |
|---|----------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 500µs |
| External Trim Adj. Range | 80-110% |
| Load share Accuracy | ±10% at 50% to 100% Full Load |
| Auxiliary Output Voltage/Current | 10±3Vdc/20mA max. |
| Ripple & Noise, 20MHz BW (note 3) | 5V |
| | 40mV RMS max., 100mV pk-pk max. |
| | 12V |
| | 60mV RMS max., 120mV pk-pk max. |
| | 24V |
| | 100mV RMS max., 240mV pk-pk max. |
| | 28V |
| | 100mV RMS max., 280mV pk-pk max. |
| | 48V |
| | 120mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Over Voltage Protection Trip Range, % Vo nom. | 115-140% |
| Current Limit | 110% -150% Nominal Output |
| Start up time | 120ms typ. |

GENERAL SPECIFICATIONS

| | |
|---|--|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case 1500VDC min. |
| | Output/Case 1500VDC min. |
| | 107 ohm min. |
| Isolation Resistance | 107 ohm min. |
| Isolation Capacitance | 4000pF typ. |
| Switching Frequency | 230KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +110°C |
| Thermal Shutdown Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-HDBK-217F, GB, 25°C, Full Load | 340Khrs typ. |
| Dimensions | 4.60 x 2.40 x 0.50 inches (116.8 x 61.0 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 220 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. The output adjustment circuit and trim equations show as figure1 and figure2.
5. An external input capacitor 1000µF for 24Vin or 330µF for 48Vin models are recommended to reduce input ripple voltage.
6. Standard model is negative logic, suffix "P" to the model number with positive logic. (refer application note)
7. If the remote sense feature is not to be used, the +sense pin should be connected to the +Vout pin and the -sense pin should be connected to the -Vout pin. (refer application note)

CFB600 SERIES

600-700 WATT, 2:1 INPUT RANGE

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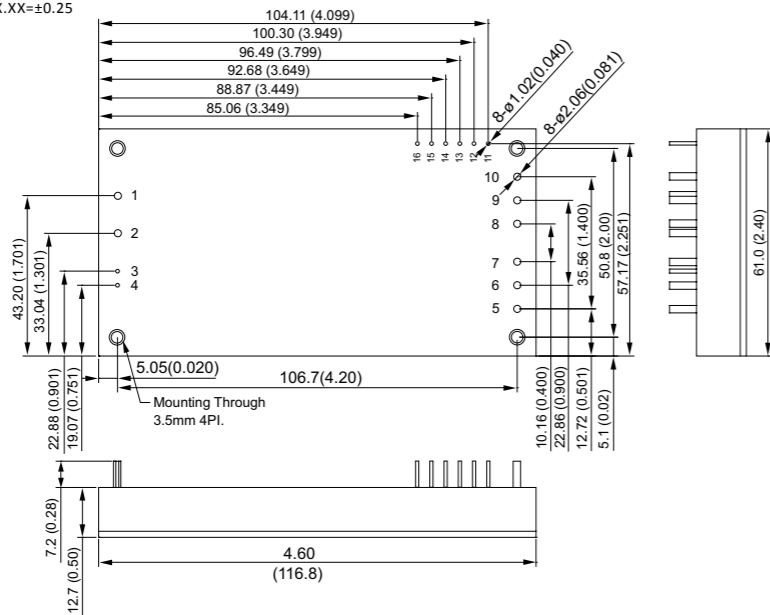
Features

- ◆ 600W-700W Isolated Output
- ◆ Efficiency to 92%
- ◆ Fixed Switching Frequency
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Full-Brick Package
- ◆ Fully Isolated 1500VDC
- ◆ UL60950-1 Approval



Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | -V Input |
| 2 | +V Input |
| 3 | -On/Off |
| 4 | +On/Off |
| 5-7 | +V Output |
| 8-10 | -V Output |
| 11 | -Sense |
| 12 | +Sense |
| 13 | Trim |
| 14 | PC/NC |
| 15 | IOG |
| 16 | AUX |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|--------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CFB600-24S12 | 18-36 VDC | 12 VDC | 0 mA | 50 A | 150 mA | 28.09 A | 88 | 10000µF |
| CFB600-24S24 | 18-36 VDC | 24 VDC | 0 mA | 25 A | 150 mA | 27.78 A | 89 | 5000µF |
| CFB600-24S28 | 18-36 VDC | 28 VDC | 0 mA | 21.5 A | 150 mA | 27.87 A | 90 | 5000µF |
| CFB600-24S32 | 18-36 VDC | 32 VDC | 0 mA | 19 A | 150 mA | 27.84 A | 91 | 5000µF |
| CFB600-24S48 | 18-36 VDC | 48 VDC | 0 mA | 12.5 A | 200 mA | 27.47 A | 91 | 5000µF |
| CFB600-48S12 | 36-75 VDC | 12 VDC | 0 mA | 50 A | 90 mA | 13.89 A | 90 | 10000µF |
| CFB600-48S24 | 36-75 VDC | 24 VDC | 0 mA | 25 A | 100 mA | 13.59 A | 92 | 5000µF |
| CFB700-48S28 | 36-75 VDC | 28 VDC | 0 mA | 25 A | 105 mA | 16.03 A | 91 | 5000µF |
| CFB600-48S32 | 36-75 VDC | 32 VDC | 0 mA | 19 A | 90 mA | 13.77 A | 92 | 5000µF |
| CFB600-48S48 | 36-75 VDC | 48 VDC | 0 mA | 12.5 A | 130 mA | 13.59 A | 92 | 5000µF |

Fig.1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.

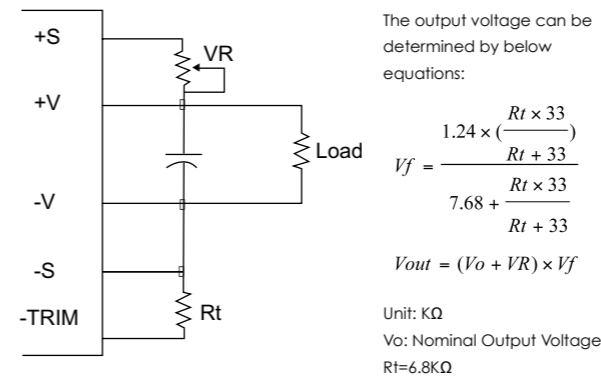
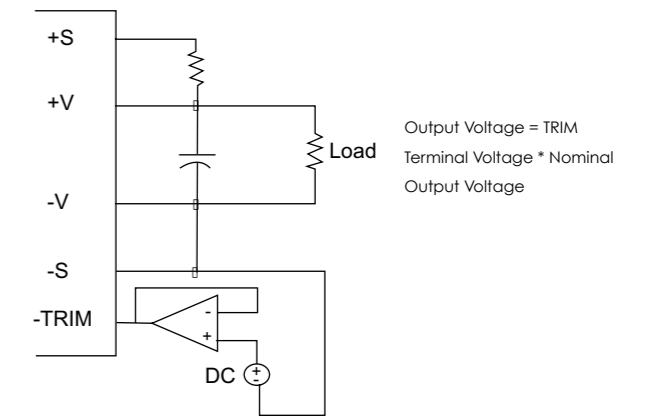


Fig.2 The schematic of output voltage adjusted by using external DC voltage.



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | |
|----------------------------------|----------------------|-----------------------|
| Input Voltage Range | 24V 18-36V | 48V 36-75V |
| Input Surge Voltage (100ms max.) | 24V 50Vdc max. | 48V 100Vdc max. |
| Under voltage lockout | 24Vin | power up 17V |
| | | power down 16V |
| | 48Vin | power up 35V |
| | | power down 33V |
| Input over voltage protection | 24Vin | Turn off 40V |
| | | Turn on 38V |
| | 48Vin | Turn off 80V |
| | | Turn on 77V |
| Opto isolated Remote On/Off | See note 6 | |
| Input Filter | PI Type | |

OUTPUT SPECIFICATIONS

| | |
|--|-------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range | 60-110% |
| Load share Accuracy | ±10% at 50% to 100% Full Load |
| Auxiliary output voltage/current | 10±3Vdc/20mA max. |
| | Ripple & Noise, 20MHz BW |
| | 12V |
| | 60mV RMS max., |
| | 120mV pk-pk max. |
| | 24V |
| | 100mV RMS max., |
| | 240mV pk-pk max. |
| | 28V |
| | 100mV RMS max., |
| | 280mV pk-pk max. |
| | 32V |
| | 120mV RMS max., |
| | 320mV pk-pk max. |
| | 48V |
| | 200mV RMS max., |
| | 480mV pk-pk max |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Over Voltage Protection trip Range,% V _o nom. | 115-140% |
| Current Limit | 110% -150% Nominal Output |
| Start up time | 160ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|-------------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 1500VDC min. |
| | Input/Case1500VDC min. |
| | Output/Case 1500VDC min. |
| | 107 ohm min. |
| Isolation Resistance | |
| Isolation Capacitance | 4000pF typ. |
| Switching Frequency | 48S12 & 48S28 & 48S32...300KHz typ. |
| | Others 250KHz typ. |
| Operating Case Temperature | -40°C to 100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp. | 110°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 450Khrs typ. |
| Dimensions | 4.60 x 2.40 x 0.50 inches |
| | (116.8 x 61.0 x 12.7 mm) |
| Case Material | Aluminum Baseplate with |
| | Plastic Case |
| Weight | 220 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF tantalum and 1µF ceramic capacitor across output.
4. The output adjustment circuit and trim equations show as figure1 and figure2.
5. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.
6. Standard model is negative logic, suffix "P" to the model number with positive logic. (refer application note)
7. If the remote sense feature is not to be used, the +sense pin should be connected to the +Vout pin and the -sense pin should be connected to the -Vout pin. (refer application note Item 6.9)

CFB600-300S SERIES

600 WATT, INPUT RANGE 180-425 VDC

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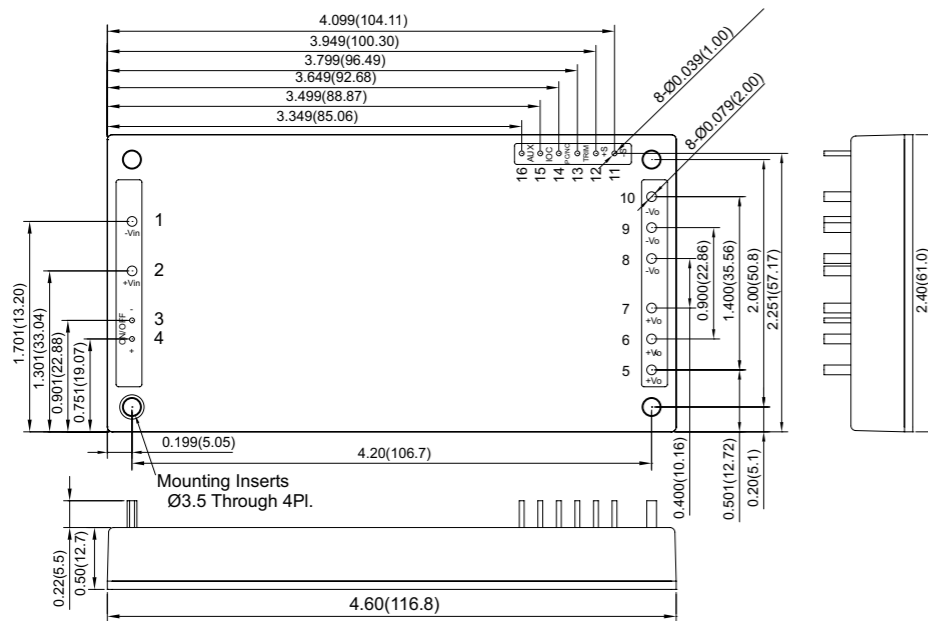
Features

- ◆ 600W Isolated Output
- ◆ Efficiency to 91%
- ◆ Fixed Switching Frequency
- ◆ Input Under-Voltage Protection
- ◆ Over Temperature Protection
- ◆ Over Voltage/Current Protection
- ◆ Remote On/Off
- ◆ Industry Full-Brick Package
- ◆ Safety Meets UL 60950-1
- ◆ Fully Isolated 3000VAC
- ◆ Off-Line Systems Using PFC Front-Ends



Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1 | -V Input |
| 2 | +V Input |
| 3 | -On/Off |
| 4 | +On/Off |
| 5-7 | +V Output |
| 8-10 | -V Output |
| 11 | -Sense |
| 12 | +Sense |
| 13 | Trim |
| 14 | PC/NC |
| 15 | I/OG |
| 16 | AUX |

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | % EFF. | CAPACITOR LOAD MAX. |
|---------------|---------------|----------------|----------------|--------|---------------|-----------|--------|---------------------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | |
| CFB600-300S12 | 180-425 VDC | 12 VDC | 0 mA | 50 A | 10 mA | 2.24 A | 89.5 | 10000µF |
| CFB600-300S24 | 180-425 VDC | 24 VDC | 0 mA | 25 A | 10 mA | 2.21 A | 90.5 | 10000µF |
| CFB600-300S48 | 180-425 VDC | 48 VDC | 0 mA | 12.5 A | 10 mA | 2.20 A | 91 | 8000µF |

Fig.1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.

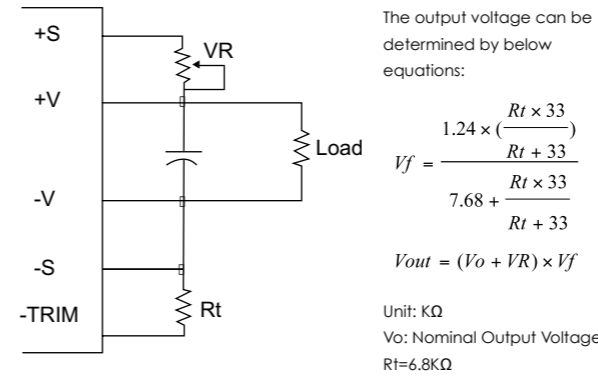
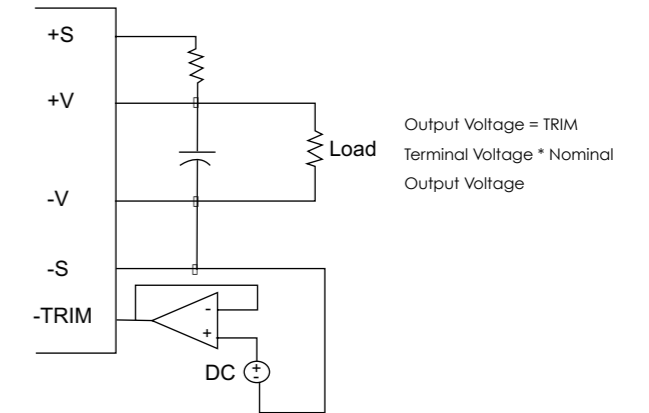


Fig.2 The schematic of output voltage adjusted by using external DC voltage.



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|-------------------------------|---|
| Input Voltage Range | 300V 180-425V |
| Input Over Voltage Protection | Module on 480V Module off 500V |
| Under Voltage Lockout | Power Up 170V Power Down 160V |
| Positive Logic Remote On/Off | See note 5 & 6 |
| Input Filter | Capacitive |

OUTPUT SPECIFICATIONS

| | |
|--|-------------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response:25% Step Load Change | < 500µs |
| External Trim Adj. Range (note 4) | 60-110% |
| Load share Accuracy | ±10% at 50% to 100% Full Load |
| Auxiliary Output Voltage/Current | 10±3Vdc/20mA max. |
| Ripple & Noise, 20MHz BW (note 3) | |
| 12V | 75mV RMS max., 150mV pk-pk max. |
| 24V | 120mV RMS max., 240mV pk-pk max. |
| 48V | 200mV RMS max., 480mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Over Voltage Protection Trip Range, % Vo nom | 115-140% |
| Current Limit | 105% -125% Nominal Output |
| Start up time | 40ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---|
| Efficiency | See Table |
| Isolation Voltage | Input/Output 3000VAC min. Input/Case 2500VAC min. Output/Case 500VAC min. |
| Isolation Resistance | 10 ⁷ ohm min. |
| Isolation Capacitance | 3100pF typ. |
| Switching Frequency | 200KHz typ. |
| Operating Case Temperature | -40°C to +100°C |
| Storage Temperature | -55°C to +105°C |
| Thermal Shutdown, Case Temp. | 105°C typ. |
| Humidity | 95% RH max. Non condensing |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 420Khrs typ. |
| Dimensions | 4.60 x 2.40 x 0.50 inches (116.8 x 61.0 x 12.7 mm) |
| Case Material | Aluminum Baseplate with Plastic Case |
| Weight | 230 g typ. |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with min. capacitor 470µF and 1µF ceramic capacitor across output.
4. The output adjustment circuit and trim equations show as figure1 and figure2.
5. Logic compatibility open collector refer to -Vin
Module On >3.5VDC to 75VDC or open circuit
Module Off <1.2VDC
6. Suffix "N" to the model number with negative logic remote On/Off
Module On <1.2VDC
Module Off >3.5VDC to 75VDC or open circuit
7. An external input capacitor 330µF for all models are recommended to reduce input ripple voltage.

PFC700FB SERIES

700 WATT, POWER FACTOR CORRECTION MODULE

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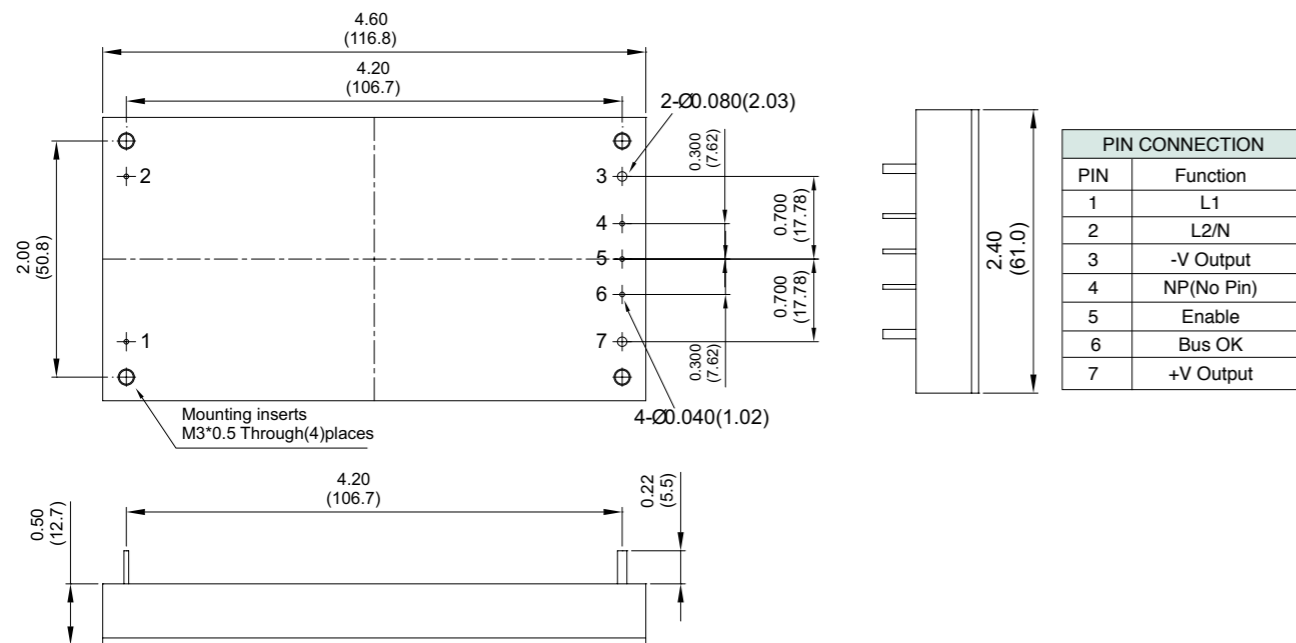
Features

- ◆ Unity Power Factor Meet EN61000-3-2
- ◆ High Efficiency Up to 96.5%
- ◆ Up to 700W Output
- ◆ Power Density Up to 120W/in³
- ◆ 100°C Base-Plate Operating Temperature
- ◆ Internal Inrush Current Limit
- ◆ Short Circuit Protection
- ◆ DC-DC Converter Enable
- ◆ Bus OK Output
- ◆ Standard Full Brick Package



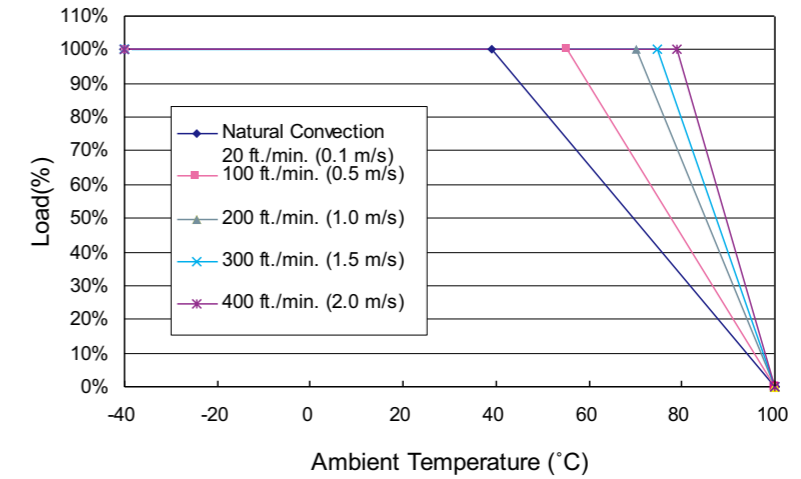
Mechanical Dimensions

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA
All Dimensions in Inches (mm)
Tolerance Inches: X.XX±0.02, X.XXX±0.010
Millimeters: X.X±0.5, X.XX±0.25



| MODEL NUMBER | INPUT VOLTAGE | VOLTAGE VOLTAGE | OUTPUT CURRENT | RIPPLE & NOISE | % EFF. | OUTPUT CAPACITOR |
|--------------|---------------|-----------------|----------------|----------------|--------|------------------|
| PFC700FB | 85-150 VAC | 290 VDC | 2.42 A | 10Vp-p | 94.0% | 660μF-3000μF |
| | 190-264 VAC | 385 VDC | 1.82 A | 10Vp-p | 96.5% | |

De-rating Curve With Heatsink M-B012 (Input 230VAC)



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

AC Input Voltage 85~ 264 Vac
Frequency 47 to 63 Hz
Power Factor > 0.97
Inrush Current 20A @230Vac typ.
Under Voltage Lockout Power up >=85Vac
Power down < 75Vac

OUTPUT SPECIFICATIONS

Total Rated output Power 700W
De-rating, under 110Vac Linearly to 500W Power at 85Vac
Output Voltage Accuracy ±5%
Line Regulation¹ ±0.2%
Load Regulation² ±0.5%
Ripple & Noise, 20MHz BW³ 10Vpk-pk max.
Short Circuit Protection Continuous
Over Voltage Protection⁴ 410-450Vdc
BUS OK Open-collector output
DC Enable Open-collector output

GENERAL SPECIFICATIONS

Isolation Voltage Input/OutputNon-isolation
Input and Output/Case 2150Vdc min.
Switching Frequency 100KHz typ.
Operating Case Temperature -40°C to 100°C
Storage Temperature -55°C to 105°C
Thermal Shutdown, Case Temp 105°C typ.
Humidity 95% RH max. Non condensing

NOTE

1. Measured from high line to low line.
2. Measured from full load to 0.1A load.
3. Add a 0.1μF ceramic capacitor and a 47μF E.L. capacitor to output for ripple & noise measurement and 1000μF bulk capacitor.
4. The PFC function stops.

CQB CHASSIS MOUNT/DIN-RAIL

33-100W, WIDE INPUT RANGE

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Features

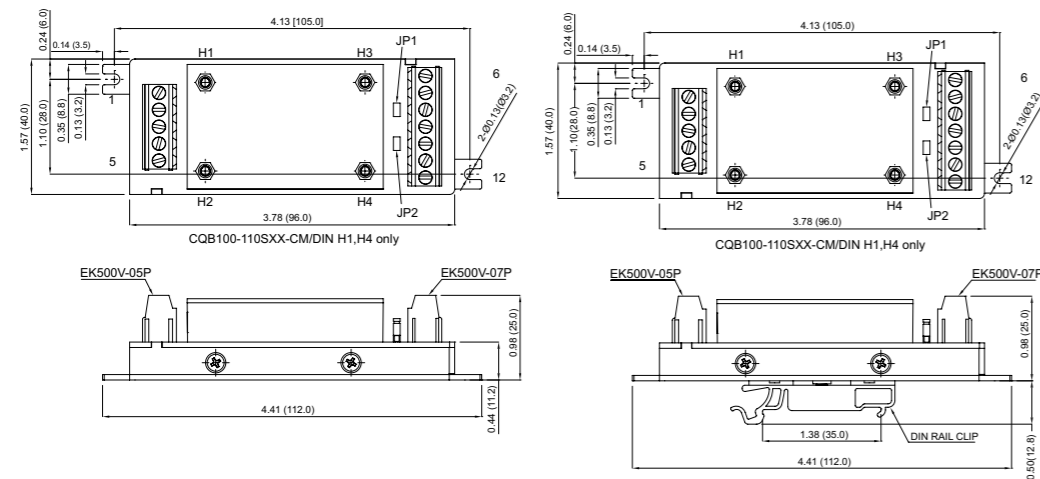
- ◆ 33W-100W Isolated Output
- ◆ 4 : 1 Wide Input Range
- ◆ Chassis Mount/Din Rail Mount
- ◆ Input Over Voltage Protection
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ CE Mark Meets 2004/108/EEC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1
- ◆ UL60950-1 Approval for DC Modules



QUARTER BRICK DC-DC CONVERTER WITH HEATSINK

Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

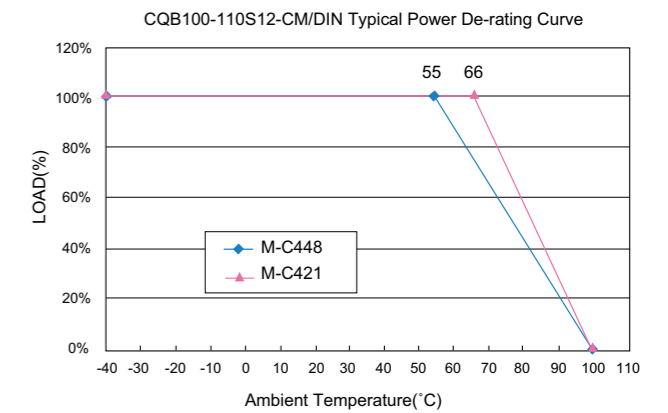
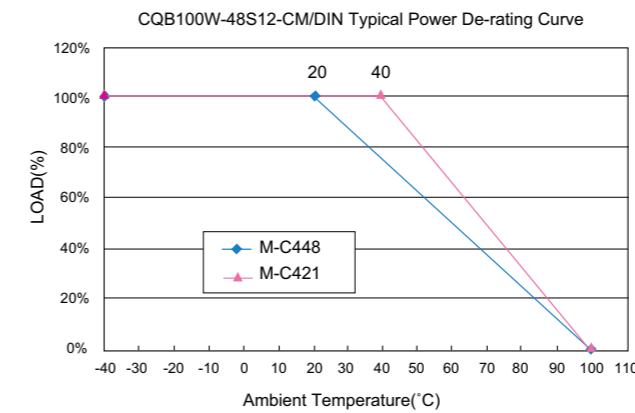
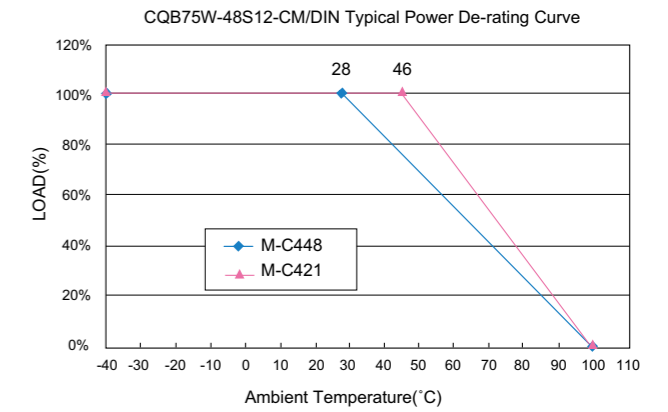
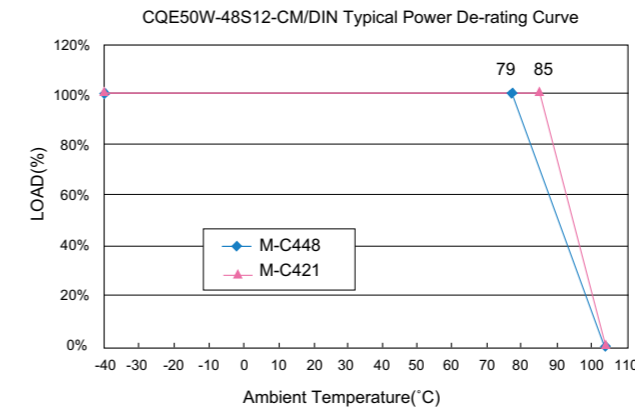


| PIN CONNECTION | |
|----------------|---------------------|
| PIN | Function |
| 1,2 | +V Input |
| 3 | -On/Off |
| 4,5 | +V Input |
| 6,7 | +V Output |
| 8 | +Sense |
| 9 | Trim |
| 10 | -Sense |
| 11,12 | -V Output |
| JP1 | Short +S& +V Output |
| JP1 | Short -S& -V Output |

| MODEL NUMBER | INPUT |
|----------------------|---|
| CQE50W-XXSXX-CM/DIN | 220µF/100V for 24Vin Models 47µF/100V for 48Vin Models |
| CQB75W-XXSXX-CM/DIN | 220µF/100V for 24Vin Models |
| CQB100W-XXSXX-CM/DIN | 100µF/100V for 24Vin Models 47µF/100V for 48Vin Models |
| CQB100-110SXX-CM/DIN | 120µF/200V |

Derating Curve

Typical Derating Curves At Nominal Line, Full Load, and natural convection



Ordering Information

Require input an aluminum capacitor connected in the table below.

| Ordering Information | | | | | | |
|----------------------|--------------------------|--------------------------|--|---|--|-------------------------|
| CHB(E)XXX- | XX | S | XX | N | -XXX | +X-XXXX |
| Model No. | Nominal Input Voltage | Single Output | Output Voltage | Remote On/Off | CM: Chassis Mount DIN: Din Rail Mount | Heat Sink Type (Option) |
| CQE50W | 24 : 24VDC 48 : 48VDC | | 3V3 : 3.3VDC | None: Positive Logic N: Negative Logic | | M-C448 M-C421 |
| CQB75W | | | 05 : 5VDC | | | |
| CQB100W | | | 12 : 12VDC 15 : 15VDC 24 : 24VDC 48 : 48VDC | | | |
| CQE50W | 110 : 110VDC | 05 : 5VDC | | | | |
| CQB100 | | 12 : 12VDC 24 : 24VDC | | | | |

CHB CHASSIS MOUNT/DIN-RAIL

33-100W, WIDE INPUT RANGE

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Features

- ◆ 33W-100W Isolated Output
- ◆ 4 : 1 Wide Input Range
- ◆ Chassis Mount/Din Rail Mount
- ◆ Input Over Voltage Protection
- ◆ Regulated Outputs
- ◆ Continuous Short Circuit Protection
- ◆ CE Mark Meets 2004/108/EEC
- ◆ Safety Meets UL60950-1, EN60950-1, and IEC60950-1
- ◆ UL60950-1 Approval for DC Modules (Excludes CHE75W, CHE100W and 28Vout)

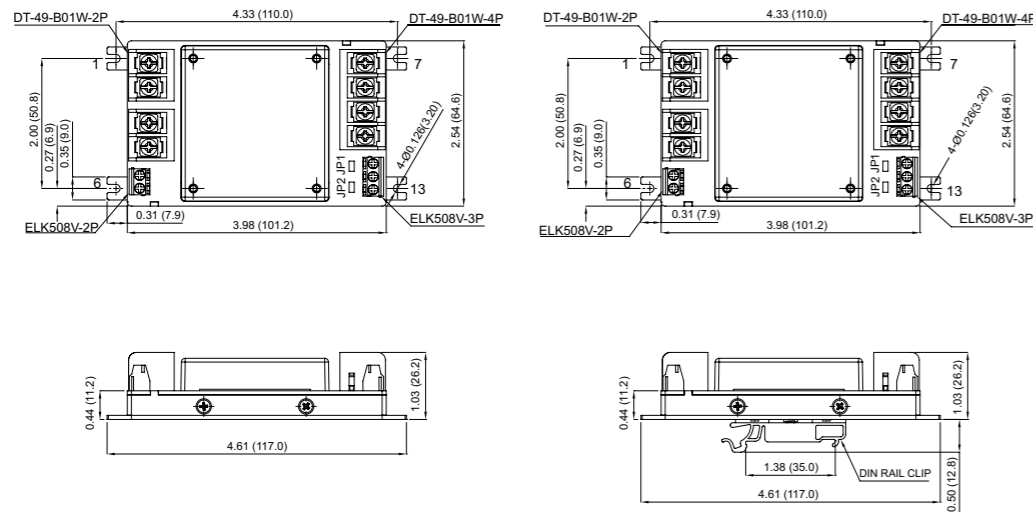


HALF BRICK DC-DC CONVERTER WITH HEATSINK



Mechanical Dimensions

All Dimensions in Inches (mm)
 Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
 Millimeters: X.X=±0.5, X.XX=±0.25

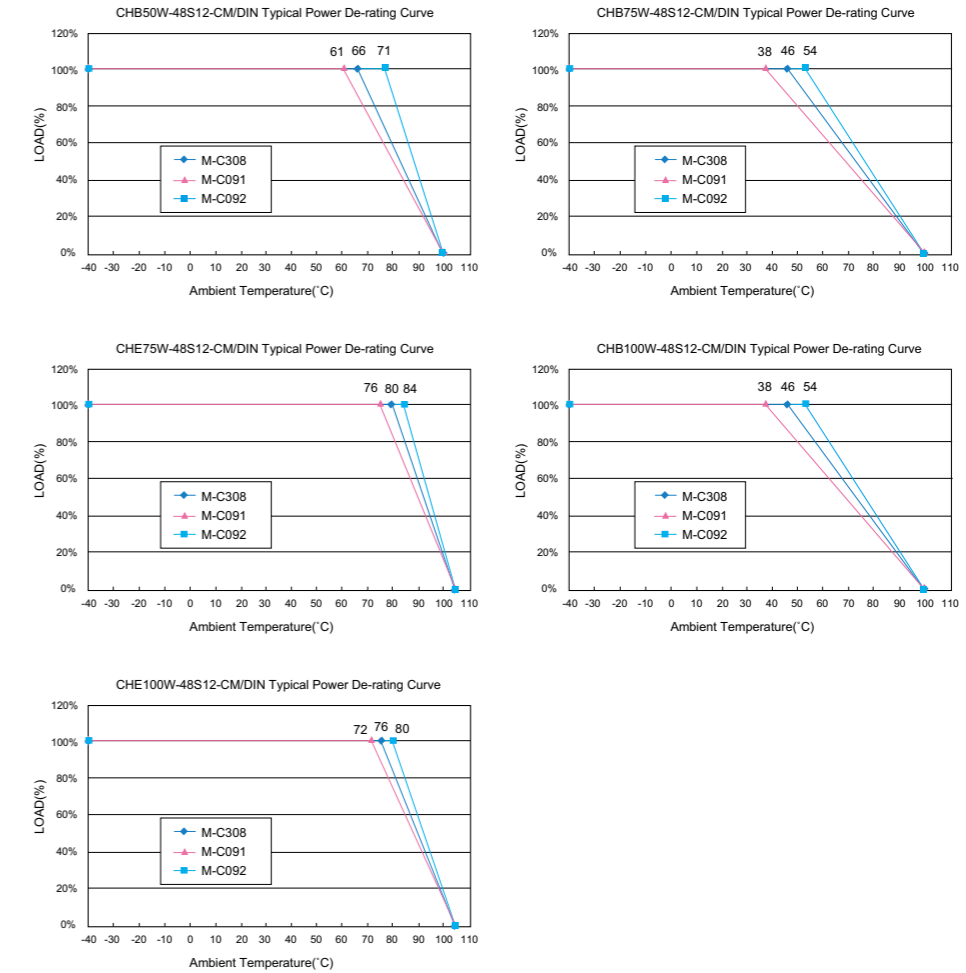


| PIN CONNECTION | |
|----------------|---------------------|
| PIN | Function |
| 1,2 | +V Input |
| 3,4 | -V Input |
| 5 | On/Off |
| 6 | CASE |
| 7,8 | +V Output |
| 9,10 | -V Output |
| 11 | +Sense |
| 12 | Trim |
| 13 | -Sense |
| JP1 | Short +S& +V Output |
| JP1 | Short -S& -V Output |

| MODEL NUMBER | INPUT | OUTPUT |
|----------------------|-----------------------------|----------------------------------|
| CHB50W-XXSXX-CM/DIN | NC | 47µF/100V for 48Vout Models Only |
| CHB75W-XXSXX-CM/DIN | 47µF/100V for 48Vin Models | 47µF/100V for 48Vout Models Only |
| CHE75W-XXSXX-CM/DIN | 100µF/100V | 10µF/100V for 48Vout Models Only |
| CHB100W-XXSXX-CM/DIN | 100µF/100V for 24Vin Models | 47µF/100V for 48Vin Models |
| | | 47µF/100V for 48Vout Models Only |
| CHE100W-XXSXX-CM/DIN | 220µF/100V | 10µF/100V for 48Vout Models Only |

Derating Curve

Typical Derating Curves At Nominal Line, Full Load, and natural convection



Ordering Information

Require input an aluminum capacitor connected in the table below.

| Ordering Information | | | | | | |
|--|------------------------|---------------|---|---|--|----------------------------|
| CHB(E)XXX- | XX | S | XX | N | -XXX | +X-XXXX |
| Model No. | Nominal Input Voltage | | Output Voltage | Remote On/Off | | Heat Sink Type (Option) |
| CHB50W CHB75W CHE75W CHB100W CHE100W | 24: 24VDC 48: 48VDC | Single Output | 3V3 : 3.3VDC 05 : 5VDC 12 : 12VDC 15 : 15VDC 24 : 24VDC 48 : 48VDC | None: Positive Logic N: Negative Logic | CM: Chassis Mount DIN: Din Rail Mount | M-C308 M-C091 M-C092 |
| CHB50W CHB75W CHB100W | | | 28: 28VDC | | | |

FM SERIES

10 AMP & 20 AMP, FILTER MODULE

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Features

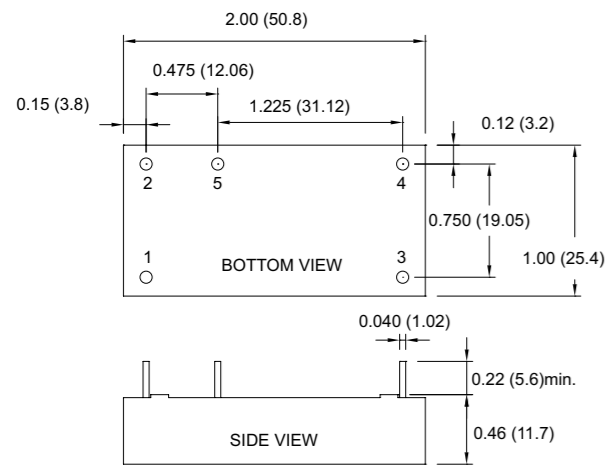
- ◆ Compact Size 2" x 1", 2" x 1.6"
- ◆ PCB Mount
- ◆ 10A and 20A Filter Module
- ◆ 75VDC Input Voltage Maximum
- ◆ Suitable for Use With Half Brick and Quarter Brick Series



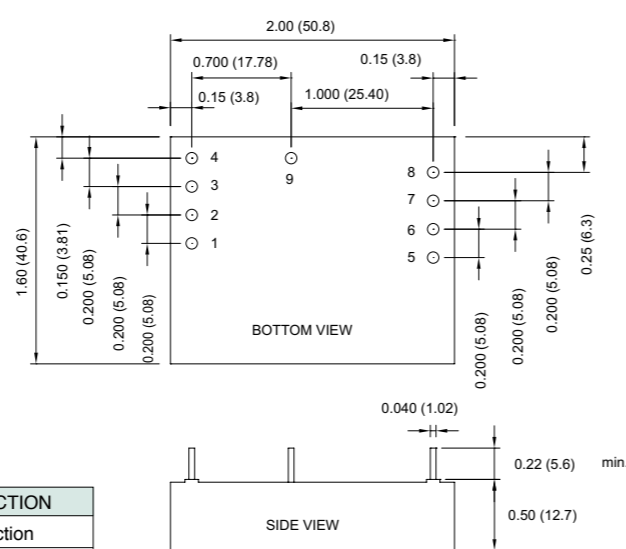
Mechanical Dimensions

NOTE: Pin Size is 0.04 Inch (1.02 mm) DIA
All Dimensions in Inches (mm)
Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
Millimeters: X.X=±0.5, X.XX=±0.25

Typical Common-mode and Differential-mode Loss for FM10-100



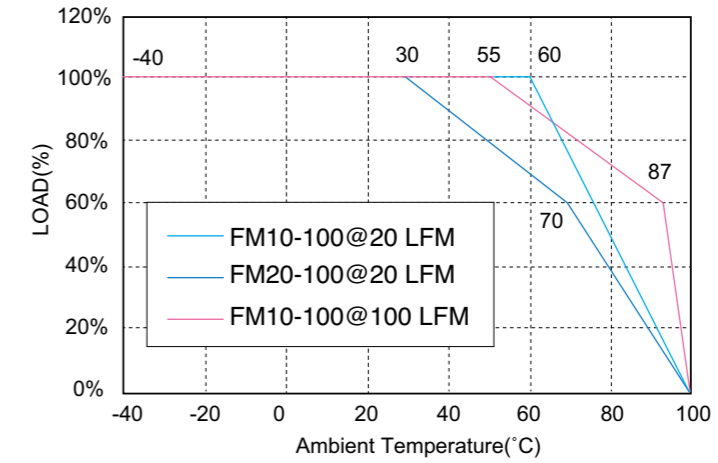
Typical Common-mode and Differential-mode Loss for FM20-100



| PIN CONNECTION | |
|----------------|-----------|
| PIN | Function |
| 1,2 | +V Input |
| 3,4 | -V Input |
| 5,6 | +V Output |
| 7,8 | -V Output |
| 9 | GND |

| MODEL NUMBER | INPUT VOLTAGE | INPUT SURGE VOLTAGE | OUTPUT RATED CURRENT | DC RESISTANCE (+Vin to +Vo) | DC RESISTANCE (-Vin to -Vo) |
|--------------|---------------|---------------------|----------------------|-----------------------------|-----------------------------|
| FM10-100 | 75 VDC max. | 100 VDC max. | 10 A max. | 11.5 mΩ typ. | 4.5 mΩ typ. |
| FM20-100 | 75 VDC max. | 100 VDC max. | 20 A max. | 9.5 mΩ typ. | 5.7 mΩ typ. |

Derating Curve



Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range: 75Vdc max.
Input Surge Voltage: 100Vdc/100ms
Input Rated Current: See Table

GENERAL SPECIFICATIONS

Isolation Voltage: Input/GND..... 1500Vdc min. Output/GND.....500Vdc min.
Isolation Resistance: 10⁷ ohm min.
DC Resistance: See Table
Operating Case Temperature Range (note 1): -40°C to +100°C
Storage Temperature Range: -55°C to +105°C

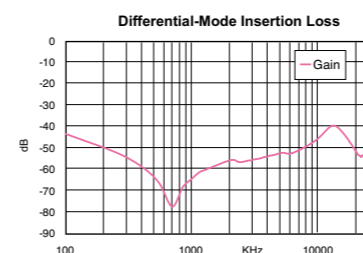
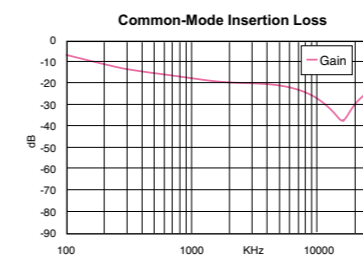
Dimensions:

FM10: 2.00 x 1.00 x 0.46 inches (50.8 x 25.4 x 11.7 mm)
FM20: 2.00 x 1.60 x 0.50 inches (50.8 x 40.6 x 12.7 mm)
Case Materials: Plastic Case with Epoxy Potting
Weight: FM10: 30 g, FM20: 55 g

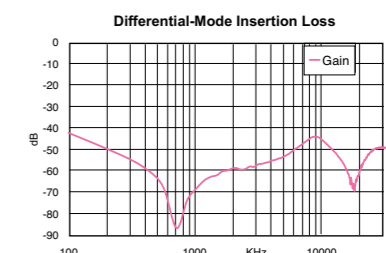
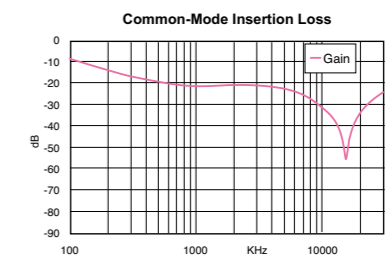
NOTE

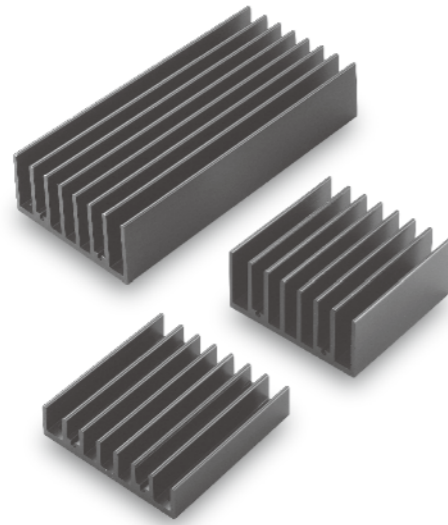
1. Maximum case temperature under any operating condition should not exceed 100°C.

Typical Common-mode and Differential-mode Loss for FM10-100



Typical Common-mode and Differential-mode Loss for FM20-100





Quarter Brick Heatsink

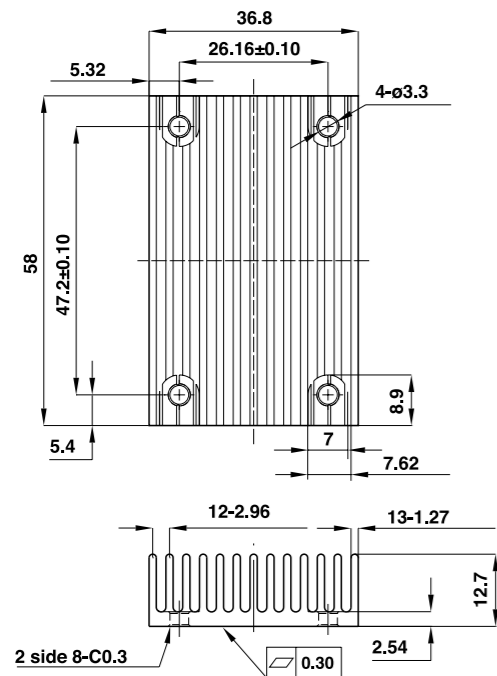
All Dimensions In mm

Longitudinal Fin

Model No. : M-C448

Thermal Pad : SZ56.9x35x0.25mm

Screw: SMP+SW M3x8L



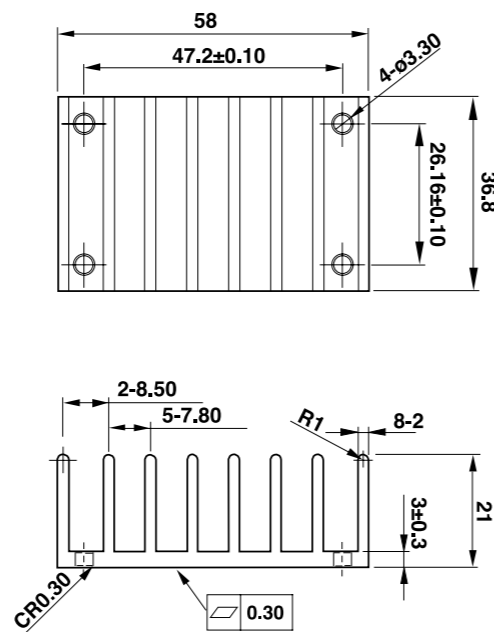
Rca: 5.61°C/W (typ.), At natural convection
 4.01°C/W (typ.), At 100LFM
 3.39°C/W (typ.), At 200LFM
 2.86°C/W (typ.), At 300LFM
 2.49°C/W (typ.), At 400LFM

Transverse Fin

Model No. : M-C421

Thermal Pad : SZ56.9x35x0.25mm

Screw: SMP+SW M3x8L



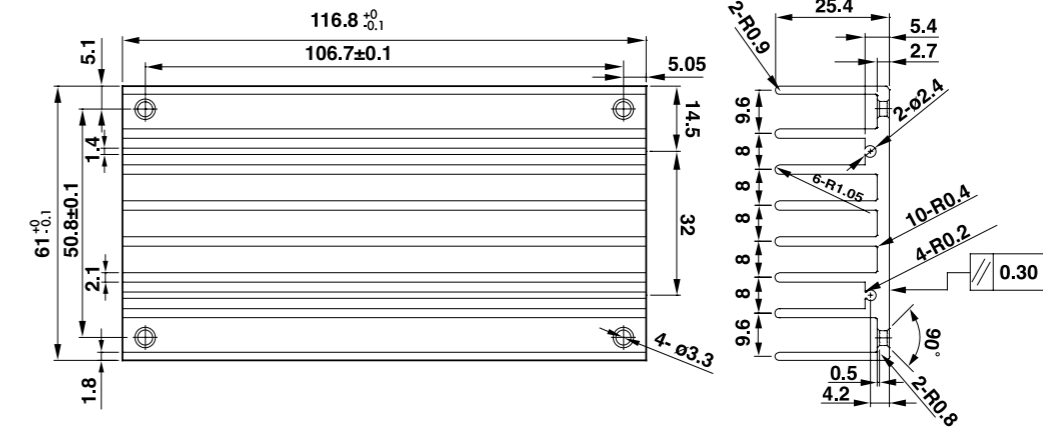
Rca: 4.78°C/W (typ.), At natural convection
 2.44°C/W (typ.), At 100LFM
 2.06°C/W (typ.), At 200LFM
 1.76°C/W (typ.), At 300LFM
 1.58°C/W (typ.), At 400LFM

Full Brick Heatsink

All Dimensions In mm

Longitudinal Fin

Model No. : M-B012



Thermal pad:
 SR60x115.8x0.23mm
 Screw: SMP+SW M3x8L
 Thermal Resistance:
 2.07°C/W (typ.), At natural convection

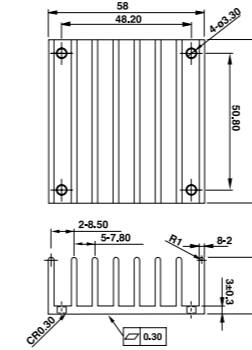
Half Brick Heatsink

All Dimensions In mm

Longitudinal Fin

Model No. : M-C308

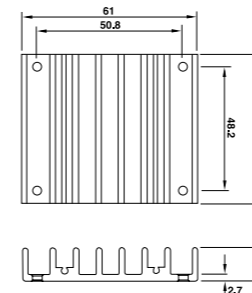
Rca:
 3.9°C/W (typ.), At natural convection
 1.74°C/W (typ.), At 100LFM
 1.33°C/W (typ.), At 200LFM
 1.12°C/W (typ.), At 300LFM
 0.97°C/W (typ.), At 400LFM



Transverse Fin

Model No. : M-C091

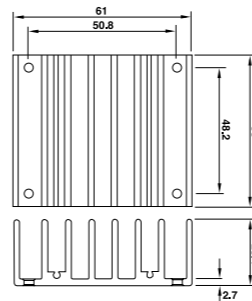
Rca:
 4.7°C/W (typ.), At natural convection
 2.89°C/W (typ.), At 100LFM
 2.30°C/W (typ.), At 200LFM
 1.88°C/W (typ.), At 300LFM
 1.59°C/W (typ.), At 400LFM



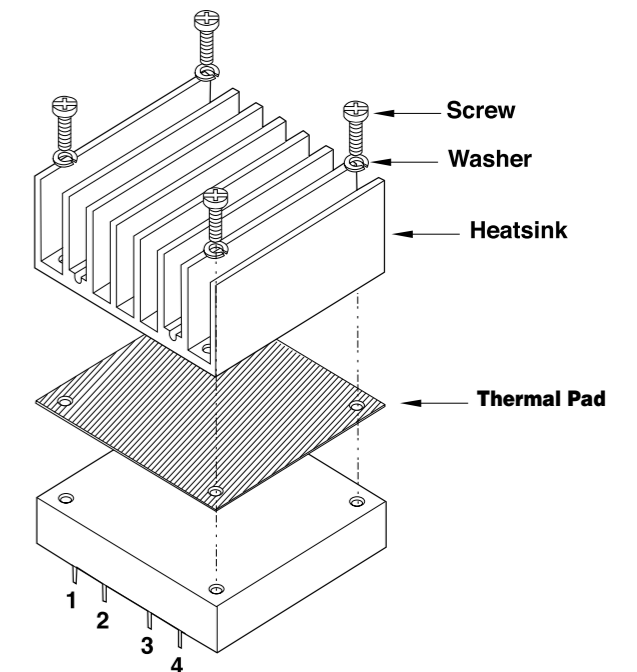
Transverse Fin

Model No. : M-C092

Rca:
 3°C/W (typ.), At natural convection
 1.44°C/W (typ.), At 100LFM
 1.17°C/W (typ.), At 200LFM
 1.04°C/W (typ.), At 300LFM
 0.95°C/W (typ.), At 400LFM



Half Brick Heatsink Assemble



Heat Sink: M-C308
 M-C091
 M-C092
 Thermal Pad: SZ56.9x60x0.25mm
 Screw: SMP+SW M3x8L

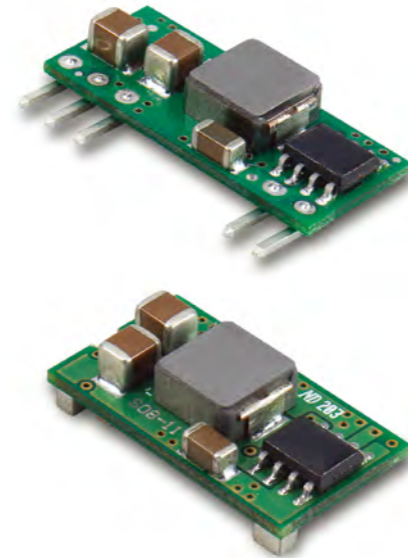
SIPSMT05-05 SERIES

5 AMP, POL CONVERTERS

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Features

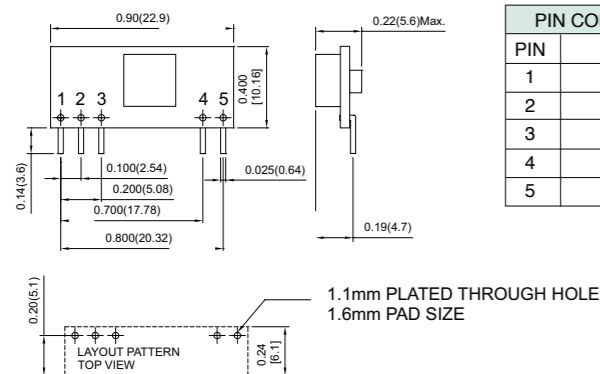
- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 5AMP
- ◆ Input Voltage Range 3.0-5.5VDC
- ◆ Output Voltage Range 0.75-3.63VDC
- ◆ High Efficiency to 94%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

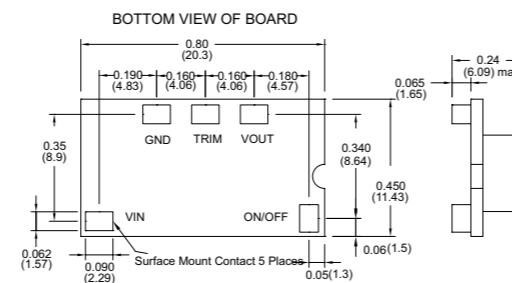
Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25

SIP Packages



| PIN CONNECTION | |
|----------------|----------|
| PIN | Function |
| 1 | +Output |
| 2 | Trim |
| 3 | Common |
| 4 | +V Input |
| 5 | On/Off |

SMT Packages



Derating Curve

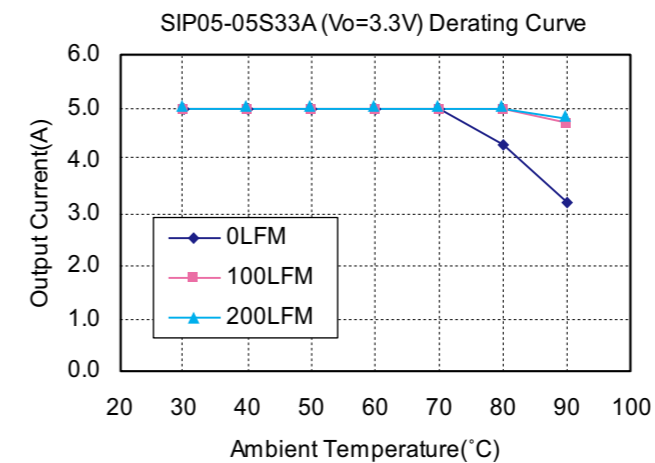


Figure2. Typical Power De-rating for 5V IN 3.3Vout

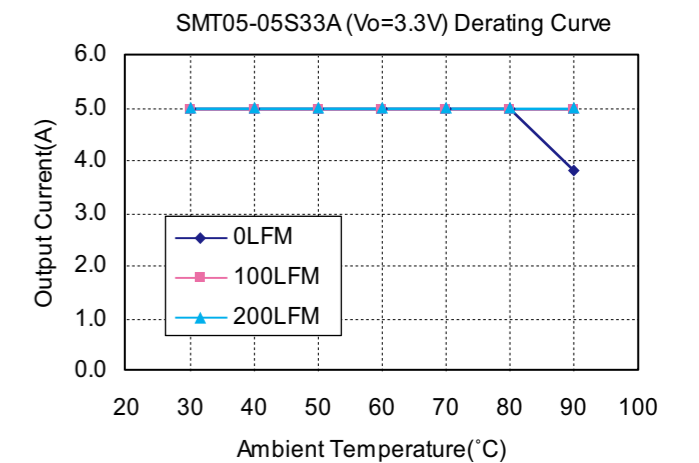


Figure3. Typical Power De-rating for 5V IN 3.3Vout

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|--------------------------------------|---|
| Input Voltage Range | Vo, set ≤ Vin-0.5VDC 5V 3.0 – 5.5V |
| Under Voltage Lock-out Power down | Power up 2.0V typ. 1.9V typ. |
| Input Filter Type | Capacitive |
| Positive Remote On/Off Control: | Open Circuit or = Vin |
| Module On | <0.4Vdc |
| Module Off | |

OUTPUT SPECIFICATIONS

| | |
|--|--------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 50% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 20mVrms max. 50mVpk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.4% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Capacitive Load Low ESR | 3000µF max. |
| External Trim Adj. Range (see Table 1) | Vo=0.75- 3.63Vdc |
| Start up time | 6.5ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 120°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 1.5Mhrs typ. |
| Dimensions: | SIP Package: 0.90 x 0.400 x 0.22 inches (22.9 x 10.16 x 5.6 mm) |
| SMT Package: | 0.80 x 0.450 x 0.24 inches (20.3 x 11.43 x 6.09 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 2.3 g |

NOTE

1. Measured from high line to low line, Vo, set=1.8VDC.
2. Measured from full load to zero load, Vo, set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 100mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Module Off >+2.8VDC to Vin

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP05-05S33A | 3.0-5.5 VDC | 0.75 VDC | 5 A | 25 mA | 949 mA | 79 |
| | 3.0-5.5 VDC | 1.2 VDC | 5 A | 30 mA | 1412 mA | 85 |
| | 3.0-5.5 VDC | 1.5 VDC | 5 A | 30 mA | 1724 mA | 87 |
| | 3.0-5.5 VDC | 1.8 VDC | 5 A | 35 mA | 2022 mA | 89 |
| SMT05-05S33A | 3.0-5.5 VDC | 2.0 VDC | 5 A | 35 mA | 2222 mA | 90 |
| | 3.0-5.5 VDC | 2.5 VDC | 5 A | 35 mA | 2217 mA | 92 |
| | 4.5-5.5 VDC | 3.3 VDC | 5 A | 35 mA | 3511 mA | 94 |

SIPSMT05-12 SERIES

5 AMP, POL CONVERTERS

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Features

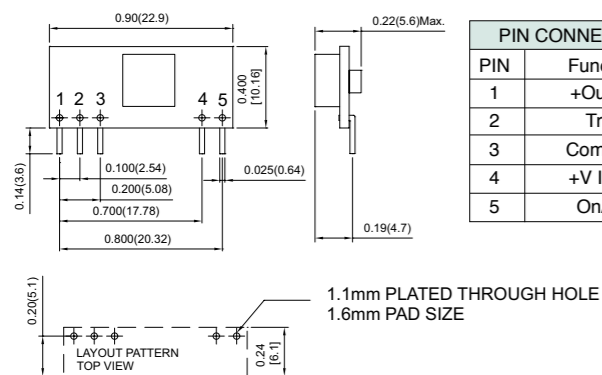
- ◆ Non-isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 5AMP
- ◆ Input Voltage Range 8.3-14VDC
- ◆ Output Voltage Range 0.75-5VDC
- ◆ High Efficiency to 92%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ UL/C-UL60950 Certified



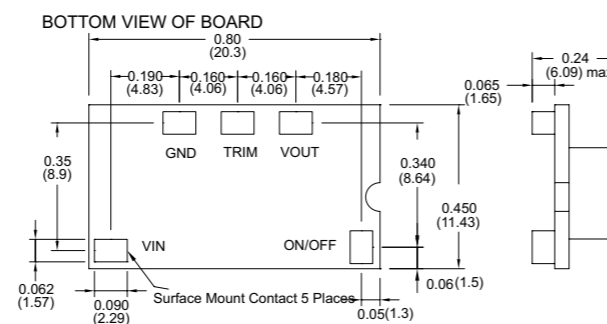
Mechanical Dimensions

Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25

SIP Packages



SMT Packages



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP05-12S05A | 8.3-14 VDC | 0.75 VDC | 5 A | 20 mA | 428 mA | 73 |
| | 8.3-14 VDC | 1.2 VDC | 5 A | 25 mA | 625 mA | 80 |
| | 8.3-14 VDC | 1.5 VDC | 5 A | 25 mA | 762 mA | 82 |
| | 8.3-14 VDC | 1.8 VDC | 5 A | 30 mA | 893 mA | 84 |
| SMT05-12S05A | 8.3-14 VDC | 2.0 VDC | 5 A | 30 mA | 980 mA | 85 |
| | 8.3-14 VDC | 2.5 VDC | 5 A | 35 mA | 1197 mA | 87 |
| | 8.3-14 VDC | 3.3 VDC | 5 A | 45 mA | 1545 mA | 89 |
| | 8.3-14 VDC | 5.0 VDC | 5 A | 50 mA | 2264 mA | 92 |

Derating Curve

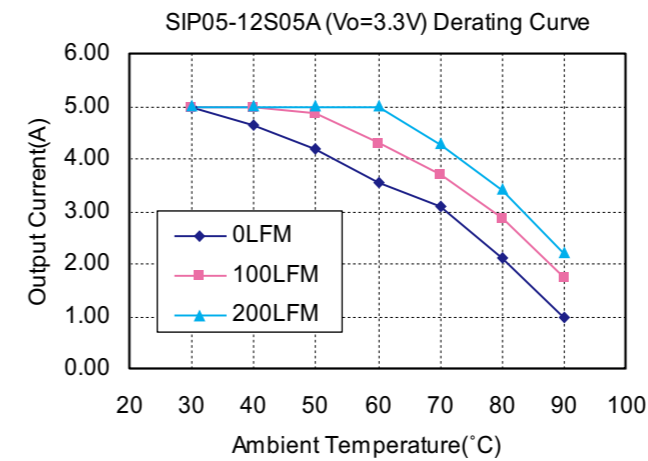


Figure2. Typical Power De-rating for 12V IN 3.3Vout

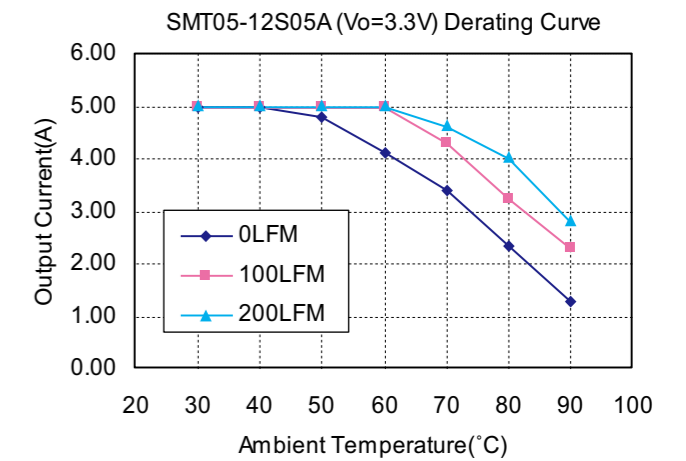


Figure3. Typical Power De-rating for 12V IN 3.3Vout

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range 12V 8.3-14V
Under Voltage Lock-out Power up 8.0V typ.
Power down 7.9V typ.
Input Filter Type Capacitive

Positive Remote On/Off Control:

Module On Open Circuit or = Vin
Module Off <0.4Vdc

OUTPUT SPECIFICATIONS

Voltage Accuracy ±1.5% max.
Transient Response: 50% Step Load Change < 200µs
Ripple and Noise, 20MHz BW (note 3) 20mVrms, 50mVpk-pk max.
Vo=5Vdc 45mVrms, 75mVpk-pk max.
Temperature Coefficient ±0.03%/°C max.
Short Circuit Protection Continuous
Line Regulation (note 1) ±0.2% max.
Load Regulation (note 2) ±0.5% max.
Capacitive Load Low ESR 3000µF max.
External Trim Adj. Range (see Table1) Vo=0.75-5.0Vdc
Start up time 7ms typ.

GENERAL SPECIFICATIONS

Efficiency See Table
Isolation Voltage Non-isolation
Switching Frequency 300KHz typ.
Over Temperature Protection 120°C typ.
Operating Ambient Temperature Range -40°C to +85°C
Power De-rating Curve see Figure2, 3
Storage Temperature Range -55°C to +125°C
MTBF MIL-STD-217F, GB, 25°C, Full Load 1.5Mhrs typ.
Dimensions: SIP Package: 0.90 x 0.400 x 0.22 inches (22.9 x 10.16 x 5.6 mm)
SMT Package: 0.80 x 0.450 x 0.24 inches (20.3 x 11.43 x 6.09 mm)
Structure Non-potted With Open Frame Type
Weight 2.3 g

NOTE

1. Measured from high line to low line, Vo, set=1.8VDC.
2. Measured from full load to zero load, Vo, set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 100mΩ to reduce the input ripple voltage
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Module Off >+2.8VDC to Vin

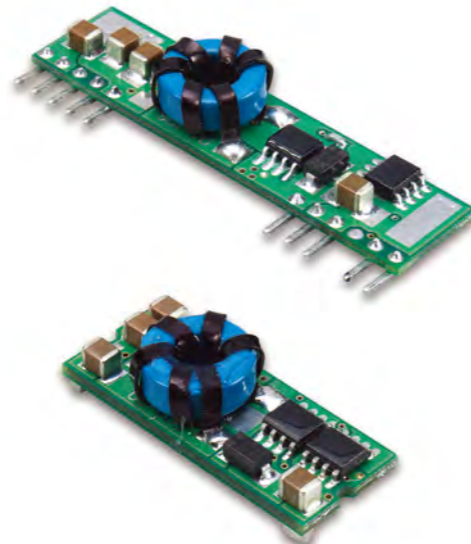
SIPSMT10-05 SERIES

10 AMP, POL CONVERTERS

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Features

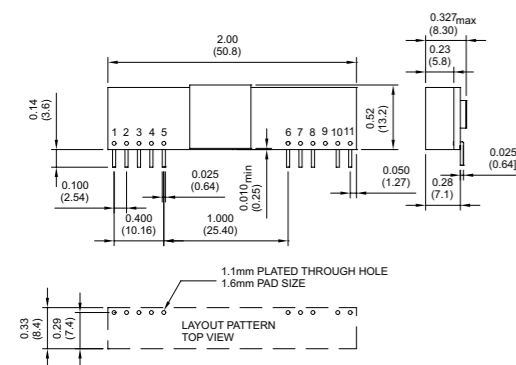
- ◆ Non-isolated POL converter
- ◆ SIP / SMT Package
- ◆ Output Current 10AMP
- ◆ Input Voltage Range 3-5.5VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 95%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off Control
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25

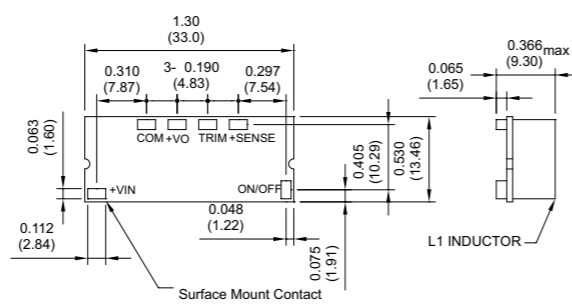
SIP Packages



| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | +Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | Common |
| 7 | +V Input |
| 8 | +V Input |
| 9 | No Pin |
| 10 | Trim |
| 11 | On/Off Control |

SMT Packages

Bottom View of Board



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP10-05S10 | 3.0-5.5 VDC | 1.0 VDC | 10 A | 50 mA | 2353 mA | 85 |
| SMT10-05S10 | 3.0-5.5 VDC | 1.0 VDC | 10 A | 50 mA | 2353 mA | 85 |
| SIP10-05S12 | 3.0-5.5 VDC | 1.2 VDC | 10 A | 50 mA | 2791 mA | 86 |
| SMT10-05S12 | 3.0-5.5 VDC | 1.2 VDC | 10 A | 50 mA | 2791 mA | 86 |
| SIP10-05S15 | 3.0-5.5 VDC | 1.5 VDC | 10 A | 50 mA | 3409 mA | 88 |
| SMT10-05S15 | 3.0-5.5 VDC | 1.5 VDC | 10 A | 50 mA | 3409 mA | 88 |
| SIP10-05S18 | 3.0-5.5 VDC | 1.8 VDC | 10 A | 50 mA | 4000 mA | 90 |
| SMT10-05S18 | 3.0-5.5 VDC | 1.8 VDC | 10 A | 50 mA | 4000 mA | 90 |
| SIP10-05S20 | 3.0-5.5 VDC | 2.0 VDC | 10 A | 60 mA | 4396 mA | 91 |
| SMT10-05S20 | 3.0-5.5 VDC | 2.0 VDC | 10 A | 60 mA | 4396 mA | 91 |
| SIP10-05S25 | 3.0-5.5 VDC | 2.5 VDC | 10 A | 60 mA | 5376 mA | 93 |
| SMT10-05S25 | 3.0-5.5 VDC | 2.5 VDC | 10 A | 60 mA | 5376 mA | 93 |
| SIP10-05S33 | 4.5-5.5 VDC | 3.3 VDC | 10 A | 60 mA | 6947 mA | 95 |
| SMT10-05S33 | 4.5-5.5 VDC | 3.3 VDC | 10 A | 60 mA | 6947 mA | 95 |

Derating Curve

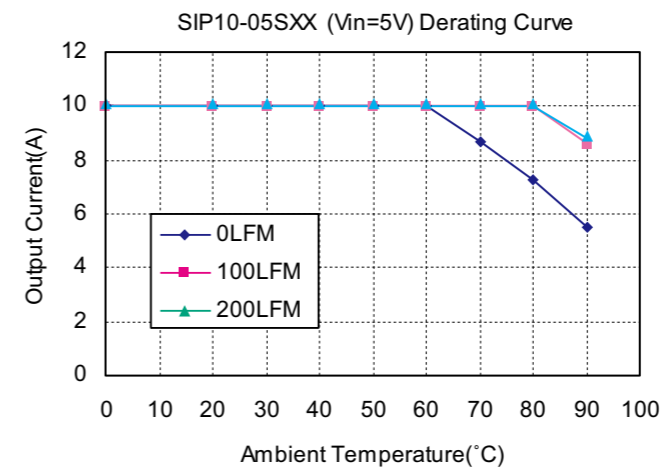


Figure2. Typical Power De-rating for 5Vin

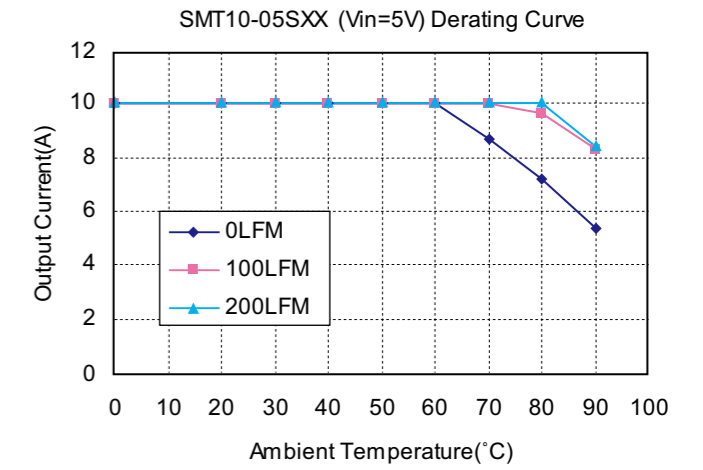


Figure3. Typical Power De-rating for 5Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|---------------------------------|----------------------------|
| Input Voltage Range | 5V 3.0- 5.5V |
| | 5V 4.5-5.5V |
| Under Voltage Lock-out | Power up 2.8V typ. |
| | Power down 2.7V typ. |
| | Capacitive |
| Input Filter Type | Open Circuit or = Vin |
| Positive Remote On/Off Control: | < 0.4Vdc |
| Module On | |
| Module Off | |

OUTPUT SPECIFICATIONS

| | |
|--|----------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note3) | 20mVrms max. |
| | 50mVpk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note1) | ±0.2% max. |
| Load Regulation (note2) | ±0.5% max. |
| Capacitive Load, Low ESR | 10000µF max. |
| External Trim Adj. Range | ±10% |
| Start up time | 4.5ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|--|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 120°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 1.5Mhrs typ. |
| Dimensions: | SIP Package: 2.00 x 0.327 x 0.52 inches (50.8 x 8.3 x 13.2 mm) |
| | SMT Package: 1.30 x 0.530 x 0.366 inches (33.0x12.46x9.3 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 6.8 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 20mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Module Off >+2.8VDC to Vin

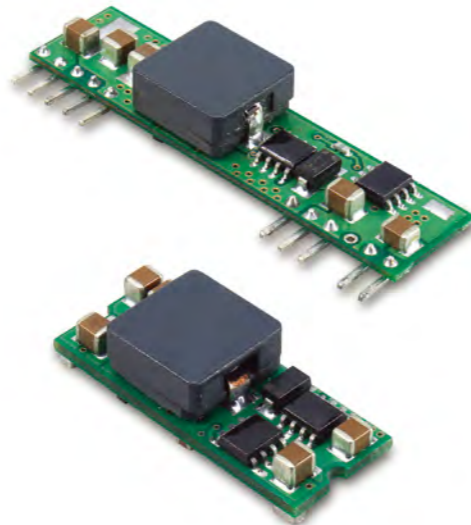
SIPSMT10-12 SERIES

10 AMP, POL CONVERTERS

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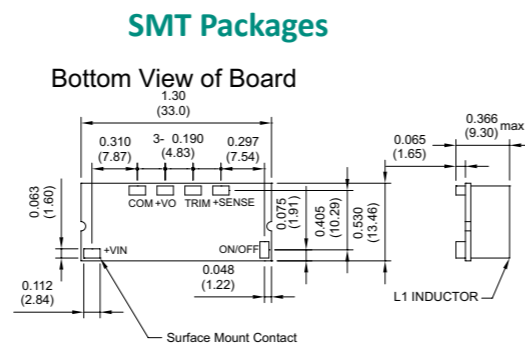
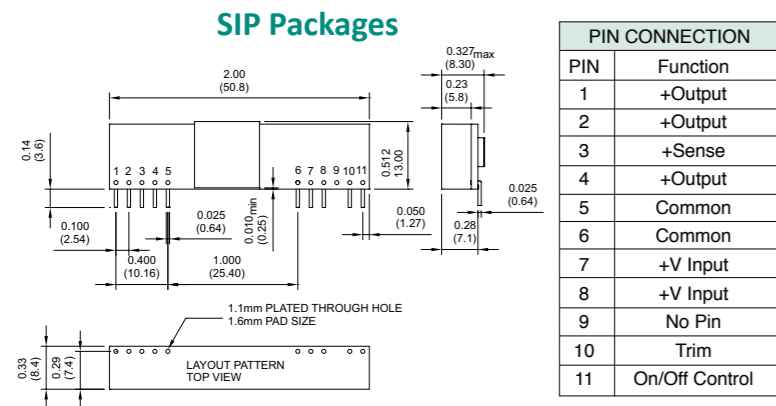
Features

- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 10AMP
- ◆ Input Voltage Range 9.0-14VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 95%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote ON/OFF Control
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP10-12S10 | 9.0-14 VDC | 1.0 VDC | 10 A | 50 mA | 992 mA | 84 |
| SMT10-12S10 | 9.0-14 VDC | 1.0 VDC | 10 A | 50 mA | 992 mA | 84 |
| SIP10-12S12 | 9.0-14 VDC | 1.2 VDC | 10 A | 50 mA | 1163 mA | 86 |
| SMT10-12S12 | 9.0-14 VDC | 1.2 VDC | 10 A | 50 mA | 1163 mA | 86 |
| SIP10-12S15 | 9.0-14 VDC | 1.5 VDC | 10 A | 50 mA | 1404 mA | 89 |
| SMT10-12S15 | 9.0-14 VDC | 1.5 VDC | 10 A | 50 mA | 1404 mA | 89 |
| SIP10-12S18 | 9.0-14 VDC | 1.8 VDC | 10 A | 60 mA | 1666 mA | 90 |
| SMT10-12S18 | 9.0-14 VDC | 1.8 VDC | 10 A | 60 mA | 1666 mA | 90 |
| SIP10-12S20 | 9.0-14 VDC | 2.0 VDC | 10 A | 60 mA | 1832 mA | 91 |
| SMT10-12S20 | 9.0-14 VDC | 2.0 VDC | 10 A | 60 mA | 1832 mA | 91 |
| SIP10-12S25 | 9.0-14 VDC | 2.5 VDC | 10 A | 60 mA | 2264 mA | 92 |
| SMT10-12S25 | 9.0-14 VDC | 2.5 VDC | 10 A | 60 mA | 2264 mA | 92 |
| SIP10-12S33 | 9.0-14 VDC | 3.3 VDC | 10 A | 70 mA | 2956 mA | 93 |
| SMT10-12S33 | 9.0-14 VDC | 3.3 VDC | 10 A | 70 mA | 2956 mA | 93 |
| SIP10-12S05 | 9.0-14 VDC | 5.0 VDC | 10 A | 70 mA | 4385 mA | 95 |
| SMT10-12S05 | 9.0-14 VDC | 5.0 VDC | 10 A | 70 mA | 4385 mA | 95 |
| SIP10-12S05A | 8.3-14 VDC | 0.75-5 VDC | 10 A | 70 mA | 2956 mA | 93%@3.3V |
| SMT10-12S05A | 8.3-14 VDC | 0.75-5 VDC | 10 A | 70 mA | 2956 mA | 93%@3.3V |

Derating Curve

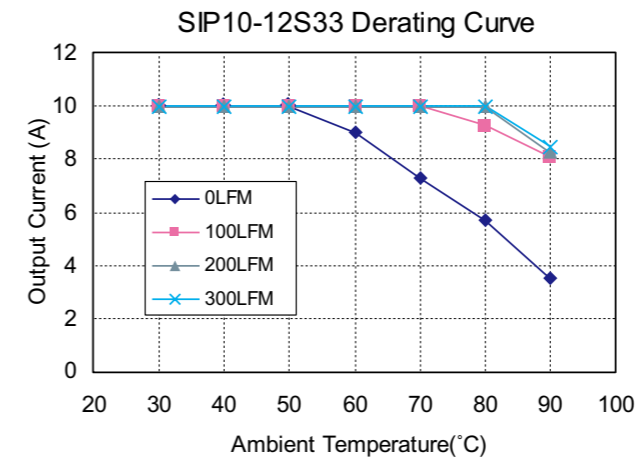


Figure2. Typical Power De-rating for 12Vin

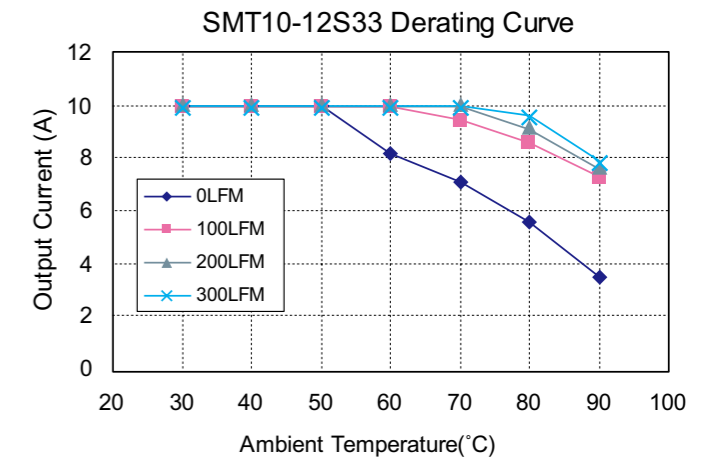


Figure3. Typical Power De-rating for 12Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|---------------------------------|----------------------------|
| Input Voltage Range | 12V 9.0 – 14V |
| | 12V 8.3 – 14V |
| Under Voltage Lock-out | Power up 8.0V typ. |
| | Power down 7.7V typ. |
| Input Filter Type | Capacitive |
| Positive Remote On/Off Control: | |
| Module On | Open Circuit or =Vin |
| Module Off | < 0.4Vdc |

OUTPUT SPECIFICATIONS

| | |
|--|----------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 20mVrms max. |
| | 50mVpk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Capacitive Load Low ESR | 8000µF max. |
| External Trim Adj. Range | ±10% |
| (SIP/SMT10-12S05) | +5%, -10% |
| (SIP/SMT10-12S05A) | 0.75V-5.0V |
| Start up time | 7ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 120°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 0.98Mhrs typ. |
| Dimensions: | SIP Package: 2.00 x 0.512 x 0.327inches (50.8 x 13.00 x 8.30 mm) |
| | SMT Package: 1.30 x 0.530 x 0.366 inches (33.0 x 13.46 x 9.30 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 10 g |

NOTE

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 100mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Model Off >+2.8VDC to Vin

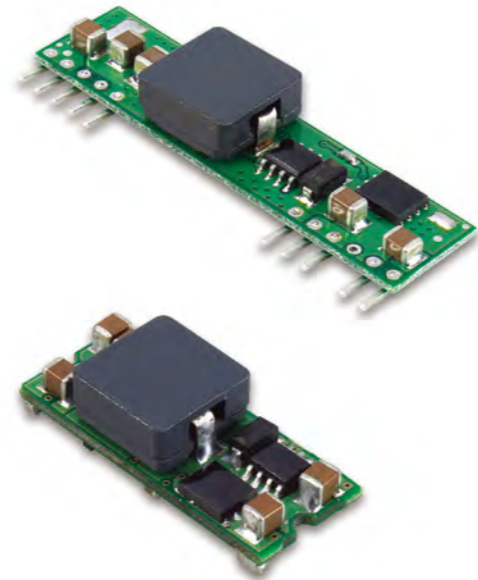
SIPSMT10W-12 SERIES

10 AMP, POL CONVERTERS

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Features

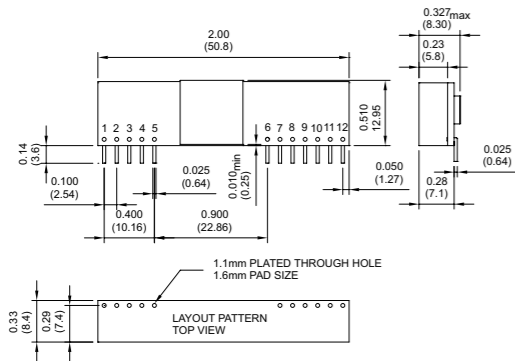
- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 10AMP
- ◆ Input Voltage Range 6.0-14VDC
- ◆ Output Voltage Range 0.7525-5VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 95%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote ON/OFF Control
- ◆ Output Voltage Sequencing
- ◆ Power Good Signal
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

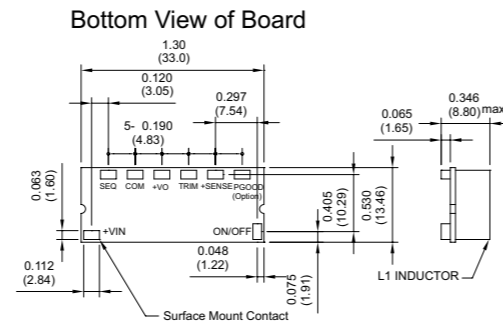
Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25

SIP Packages



| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | +Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | Common |
| 7 | +V Input |
| 8 | +V Input |
| 9 | No Pin |
| 10 | Trim |
| 11 | On/Off Control |

SMT Packages



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|---------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP10W-12S05A | 6.0-14 VDC | 0.7525 VDC | 10 A | 40 mA | 762 mA | 82 |
| | 6.0-14 VDC | 1.2 VDC | 10 A | 40 mA | 1149 mA | 87 |
| | 6.0-14 VDC | 1.5 VDC | 10 A | 50 mA | 1404 mA | 89 |
| | 6.0-14 VDC | 1.8 VDC | 10 A | 50 mA | 1666 mA | 90 |
| SMT10W-12S05A | 6.0-14 VDC | 2.0 VDC | 10 A | 60 mA | 1832 mA | 91 |
| | 6.0-14 VDC | 2.5 VDC | 10 A | 65 mA | 2264 mA | 92 |
| | 6.0-14 VDC | 3.3 VDC | 10 A | 75 mA | 2956 mA | 93 |
| | 6.5-14 VDC | 5.0 VDC | 10 A | 95 mA | 4386 mA | 95 |

Derating Curve

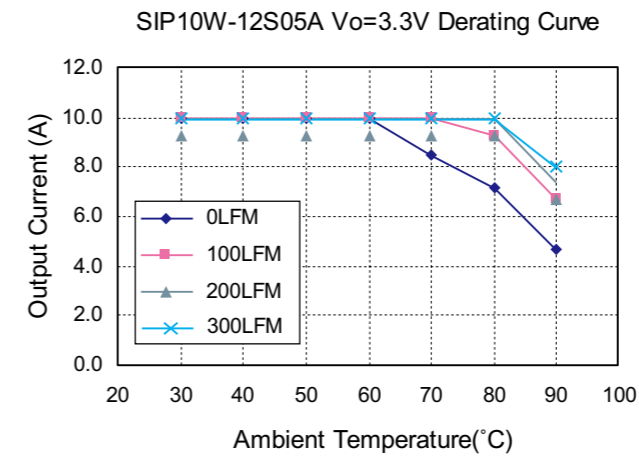


Figure3. Typical Power De-rating for 12Vin

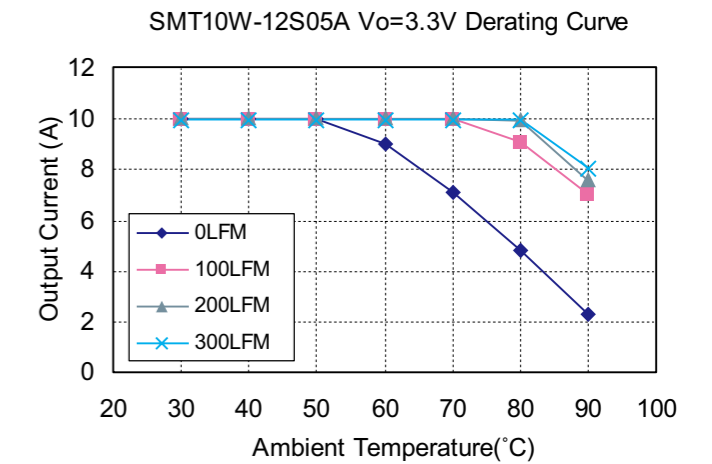


Figure3. Typical Power De-rating for 12Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|----------------------------|
| Input Voltage Range | 12V 6.0-14.0V |
| | 12V 6.5-14.0V |
| Under Voltage Lock-out | Power up 5.0V typ. |
| | Power down 4.0V typ. |
| Input Filter Type | Capacitive |
| Positive Remote On/Off Control : | |
| Module On | Open Circuit or = Vin |
| Module Off | < 0.4 Vdc |

OUTPUT SPECIFICATIONS

| | |
|--|------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 30mV rms max. |
| 75mV pk-pk max. | |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| External Trim Adj. Range (see Table1) | Vo=0.75-5.0Vdc |
| Sequencing Slew Rate Capability (dVSEQ/dt) | 0.1-1.0V/msec |
| Sequencing Delay Time | 10msec min. |
| Tracking Accuracy | Power up: 200mV max., |
| | Power down: 400mV max. |
| Capacitive Load Low ESR | 8000µF max. |
| Power Good Signal Asserted Logic High | Vo=90%-110%Vo, nom |
| Start up time | 7ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 130°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power De-rating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 0.92Mhrs typ. |
| Dimensions: | SIP Package: 2.00 x 0.510 x 0.327 inches (50.8 x 12.95 x 8.30 mm) |
| | SMT Package: 1.30 x 0.530 x 0.346 inches (33.0 x 13.46 x 8.80 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 8.5 g |

NOTE

1. Measured from high line to low line, Vo,set=3.3VDC.
2. Measured from full load to zero load, Vo,set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 100mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
 Model On.....open circuit or < 0.4VDC
 Module Off.....>+2.8VDC to Vin
6. Suffix "P" to the model number with power good function.

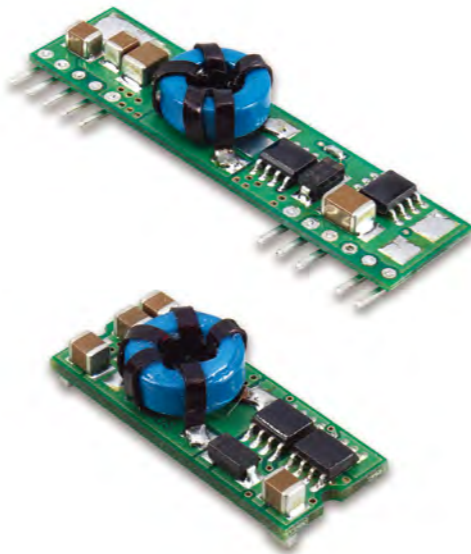
SIPSMT15-05 SERIES

15 AMP, POL CONVERTERS

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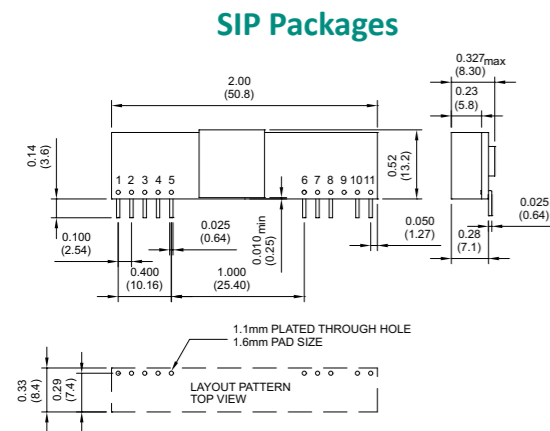
Features

- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Converter
- ◆ Output Current 15AMP
- ◆ Input Voltage Range 3-5.5VDC
- ◆ Output Voltage Range 0.9-3.63VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 94%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off Control
- ◆ UL/C-UL60950 Certified

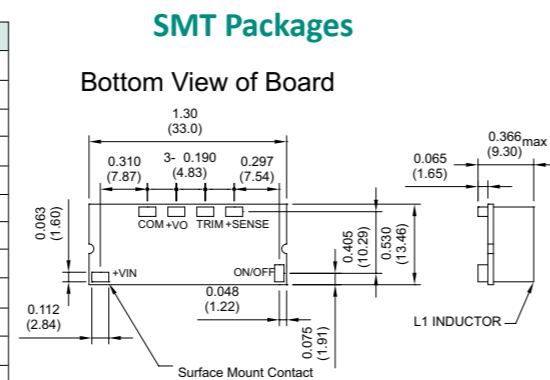


Mechanical Dimensions

Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | +Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | Common |
| 7 | +V Input |
| 8 | +V Input |
| 9 | No Pin |
| 10 | Trim |
| 11 | On/Off Control |



Derating Curve

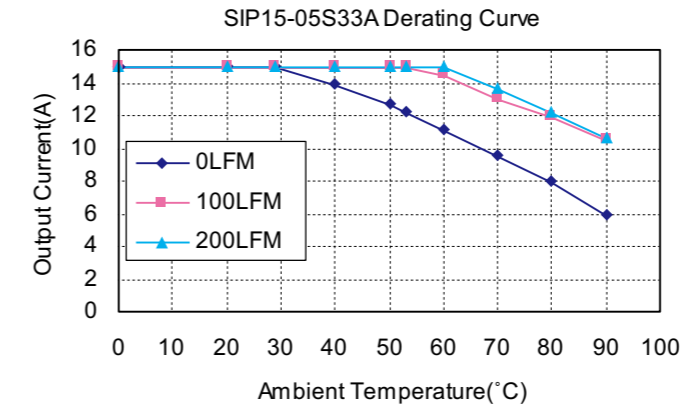


Figure2. Typical Power De-rating for 5Vin

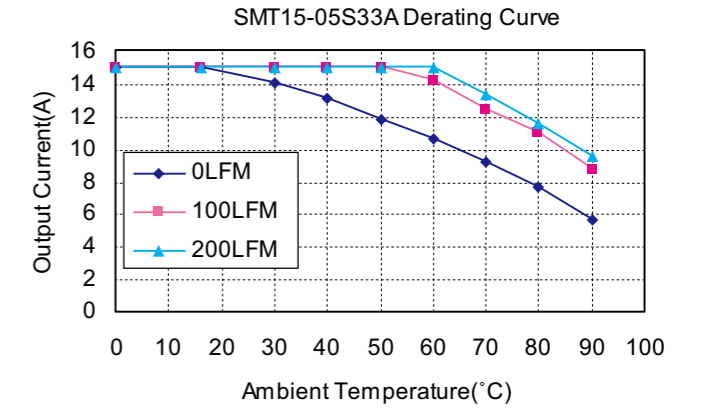


Figure3. Typical Power De-rating for 5Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

Input Voltage Range
5V 3.0-5.5V
Power up 2.8V typ.
Power down 2.7V typ.
Capacitive

Input Filter Type
Positive Remote On/Off Control:
Module On
Module Off

$V_o, set \leq V_{in} - 0.5VDC$
5V 3.0-5.5V
Power up 2.8V typ.
Power down 2.7V typ.
Capacitive

OUTPUT SPECIFICATIONS

Voltage Accuracy ±1.5% max.
Transient Response: 25% Step Load Change < 200µs
Ripple and Noise, 20MHz BW (note 3) 20mVrms max.
50mVpk-pk max.
Temperature Coefficient ±0.03%/°C max.
Short Circuit Protection Continuous
Line Regulation (note 1) SIP15-05S33A ±0.2% max.
SMT15-05S33A .. ±0.4% max.
Load Regulation (note 2) ±0.5% max.
Capacitive Load Low ESR 10000µF max.
External Trim Adj. Range (see Table1) $V_o = 0.9 - 3.63Vdc$
Start up time 4.5ms typ.

GENERAL SPECIFICATIONS

Efficiency See Table
Isolation Voltage Non-isolation
Switching Frequency 300KHz typ.
Over Temperature Protection 120°C typ.
Operating Ambient Temperature Range -40°C to +85°C
Power De-rating Curve see Figure2, 3
Storage Temperature Range -55°C to +125°C
MTBF MIL-STD-217F, GB, 25°C, Full Load 1.5Mhrs typ.
Dimensions:
SIP Package: 2.00 x 0.327 x 0.52 inches (50.8 x 8.3 x 13.2 mm)
SMT Package: 1.30 x 0.53 x 0.366 inches (33.0 x 13.46 x 9.30 mm)
Structure Non-potted With Open Frame Type
Weight 6.8 g

NOTE

1. Measured from high line to low line, $V_o, set = 1.8VDC$.
2. Measured from full load to zero load, $V_o, set = 3.3VDC$.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR < 20mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Module Off > +2.8VDC to V_{in}

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP15-05S33A | 3.0-5.5 VDC | 0.75 VDC | 15 A | 60 mA | 3.658 A | 82 |
| | 3.0-5.5 VDC | 1.2 VDC | 15 A | 60 mA | 4.286 A | 84 |
| SMT15-05S33A | 3.0-5.5 VDC | 1.5 VDC | 15 A | 60 mA | 5.172 A | 87 |
| | 3.0-5.5 VDC | 1.8 VDC | 15 A | 70 mA | 6.136 A | 88 |
| | 3.0-5.5 VDC | 2.0 VDC | 15 A | 70 mA | 6.742 A | 89 |
| | 3.0-5.5 VDC | 2.5 VDC | 15 A | 70 mA | 8.152 A | 92 |
| | 4.5-5.5 VDC | 3.3 VDC | 15 A | 70 mA | 10.532 A | 94 |

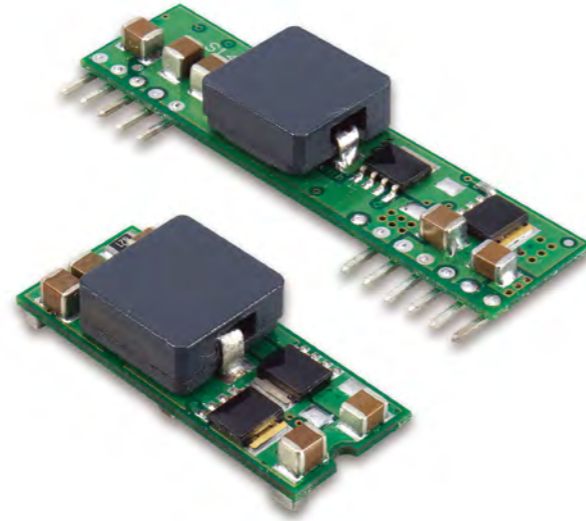
SIPSMT16-12 SERIES

16 AMP, POL CONVERTERS

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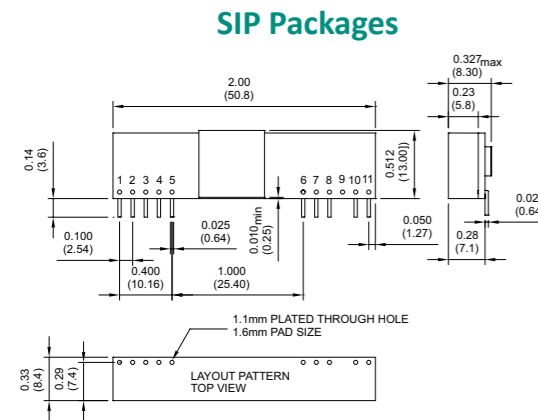
Features

- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Converter
- ◆ Output Current 15AMP
- ◆ Input Voltage Range 3-5.5VDC
- ◆ Output Voltage Range 0.9-3.63VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 94%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off Control
- ◆ UL/C-UL60950 Certified

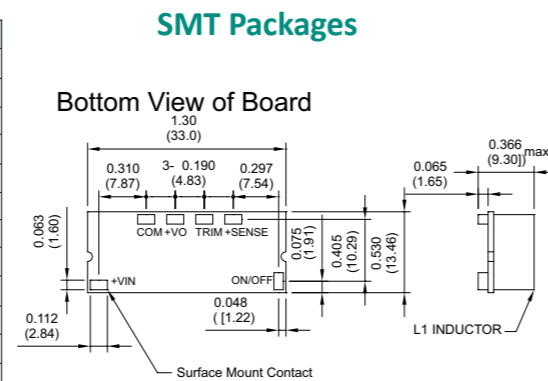


Mechanical Dimensions

Mechanical Specification
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02, X.XXX= ±0.010
Millimeters: X.X= ±0.5, X.XX=±0.25



| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | +Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | Common |
| 7 | +V Input |
| 8 | +V Input |
| 9 | No Pin |
| 10 | Trim |
| 11 | On/Off Control |



Derating Curve

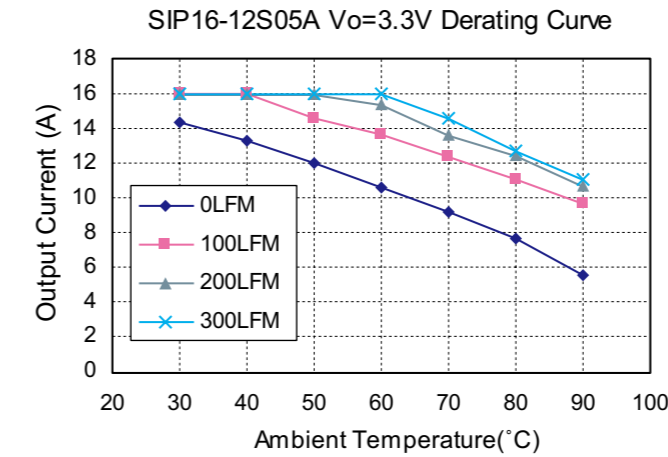


Figure2. Typical Power De-rating for 12Vin

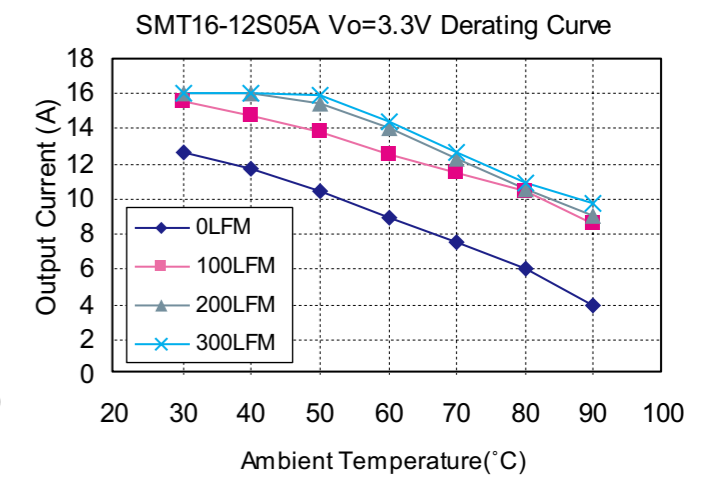


Figure3. Typical Power De-rating for 12Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|---------------------------------|--|
| Input Voltage Range | 12V 9.0-14V |
| Under Voltage Lock-out | Power up 8.0V typ. Power down 7.7V typ. |
| Input Filter Type | Capacitive |
| Positive Remote On/Off Control: | |
| Module On | Open Circuit or =Vin |
| Module Off | < 0.4Vdc |

OUTPUT SPECIFICATIONS

| | |
|--|--------------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 30mVrms max. 75mVpk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| Capacitive Load Low ESR | 8000µF max. |
| External Trim Adj. Range (see Table1) | Vo=0.75-5.0Vdc |
| Start up time | 7ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 130°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 0.98Mhrs typ. |
| Dimensions: | |
| SIP Package: | 2.00 x 0.512 x 0.327 inches (50.8 x 13.00 x 8.30 mm) |
| SMT Package: | 1.30 x 0.530 x 0.366 inches (33.0 x 13.46 x 9.30 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 10 g |

NOTE

1. Measured from high line to low line, Vo,set=3.3VDC.
2. Measured from full load to zero load, Vo,set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR< 100mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On open circuit or < 0.4VDC
Module Off >+2.8VDC to Vin

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|--------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP16-12S05A | 9.0-14 VDC | 0.75 VDC | 16 A | 40 mA | 1299 mA | 77 |
| | 9.0-14 VDC | 1.2 VDC | 16 A | 50 mA | 1928 mA | 83 |
| | 9.0-14 VDC | 1.5 VDC | 16 A | 50 mA | 2326 mA | 86 |
| SMT16-12S05A | 9.0-14 VDC | 1.8 VDC | 16 A | 60 mA | 2727 mA | 88 |
| | 9.0-14 VDC | 2.0 VDC | 16 A | 60 mA | 2996 mA | 89 |
| | 9.0-14 VDC | 2.5 VDC | 16 A | 65 mA | 3704 mA | 90 |
| | 9.0-14 VDC | 3.3 VDC | 16 A | 75 mA | 4783 mA | 92 |
| | 9.0-14 VDC | 5.0 VDC | 16 A | 75 mA | 7092 mA | 94 |

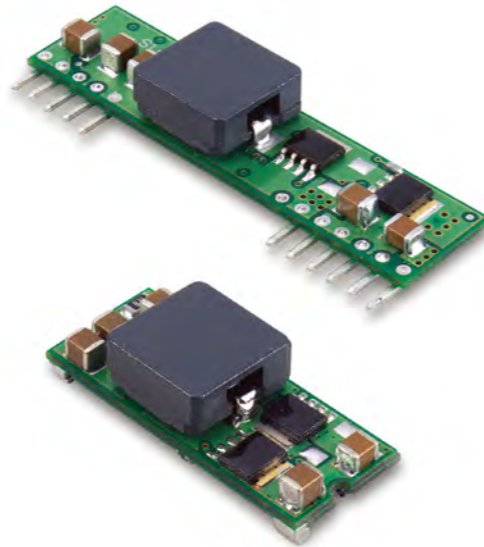
SIPSMT16W-12 SERIES

16 AMP, POL CONVERTERS

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Features

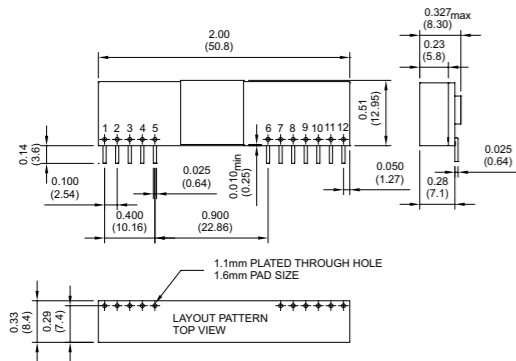
- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 16AMP
- ◆ Input Voltage Range 6.0-14VDC
- ◆ Output Voltage Range 0.7525-5.0VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 94%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off Control
- ◆ Output Voltage Sequencing
- ◆ Power Good Signal
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

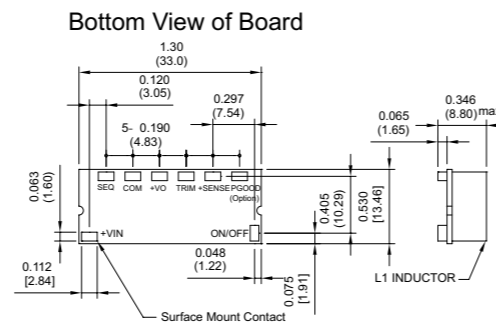
Mechanical Specification
All Dimensions in Inches (mm)
Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
Millimeters: X.X=±0.5, X.XX=±0.25

SIP Packages



| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | No Pin/PGOOD |
| 7 | Common |
| 8 | +V Input |
| 9 | +V Input |
| 10 | Sequency |
| 11 | Trim |
| 12 | On/Off Control |

SMT Packages



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|---------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP16W-12S05A | 6.0-14 VDC | 0.7525 VDC | 16 A | 40 mA | 1250 mA | 80 |
| | 6.0-14 VDC | 1.2 VDC | 16 A | 40 mA | 1882 mA | 85 |
| | 6.0-14 VDC | 1.5 VDC | 16 A | 50 mA | 2273 mA | 88 |
| SMT16W-12S05A | 6.0-14 VDC | 1.8 VDC | 16 A | 60 mA | 2697 mA | 89 |
| | 6.0-14 VDC | 2.0 VDC | 16 A | 60 mA | 2963 mA | 90 |
| | 6.0-14 VDC | 2.5 VDC | 16 A | 65 mA | 3663 mA | 91 |
| | 6.0-14 VDC | 3.3 VDC | 16 A | 75 mA | 4731 mA | 93 |
| | 6.5-14 VDC | 5.0 VDC | 16 A | 95 mA | 7092 mA | 94 |

Derating Curve

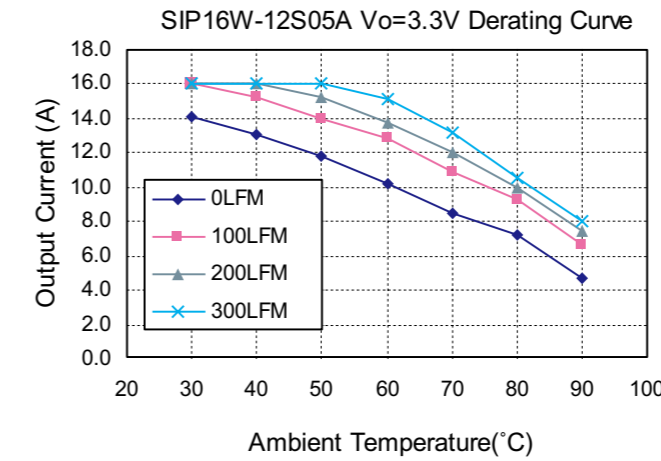


Figure2. Typical Power De-rating for 12Vin

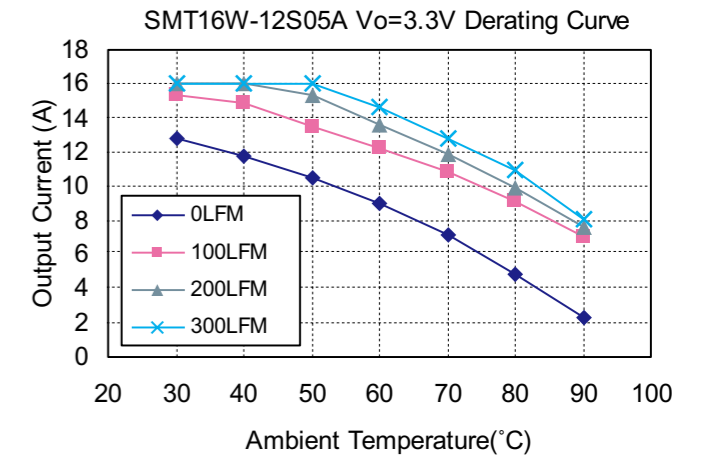


Figure3. Typical Power De-rating for 12Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|----------------------------|
| Input Voltage Range | 12V 6.0-14.0V |
| | 12V 6.5-14.0V |
| Under Voltage Lock-out | Power up 5.0V typ. |
| | Power down 4.0V typ. |
| | Capacitive |
| Input Filter Type | |
| Positive Remote On/Off Control : | |
| Module On | Open Circuit or = Vin |
| Module Off | < 0.4 Vdc |

OUTPUT SPECIFICATIONS

| | |
|--|------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 30mV rms max. |
| | 75mV pk-pk max. |
| Temperature Coefficient | ±0.03%/°C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| External Trim Adj. Range (see Table1) | Vo=0.75-5.0Vdc |
| Sequencing Slew Rate Capability (dVseq/dt) | 0.1-1.0V/msec |
| Sequencing Delay Time | 10msec min. |
| Tracking Accuracy | Power up: 200mV max., |
| | Power down: 400mV max. |
| Capacitive Load Low ESR | 8000µF max. |
| Power Good Signal Asserted Logic High | Vo=90%-110%Vo, nom. |
| Start up time | 7ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 130°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 0.92Mhrs typ. |
| Dimensions: | |
| SIP Package: | 2 x 0.51 x 0.327 inches |
| | (50.8 x 12.95 x 8.3 mm) |
| SMT Package: | 1.3 x 0.53 x 0.346 inches |
| | (33.0 x 13.46 x 8.8 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 8.5 g |

NOTE

1. Measured from high line to low line, Vo,set=3.3VDC.
2. Measured from full load to zero load, Vo,set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 100µF capacitor ESR<100mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
 Model On Open Circuit or < 0.4VDC
 Module Off >+2.8VDC to Vin
6. Suffix "P" to the model number with power good function.

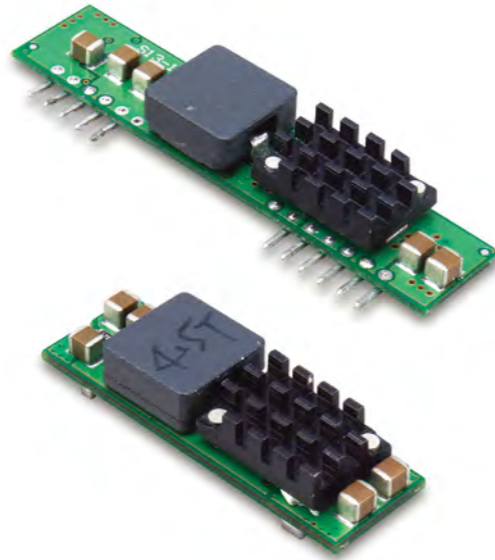
SIPSMT20W-12 SERIES

20 AMP, POL CONVERTERS

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Features

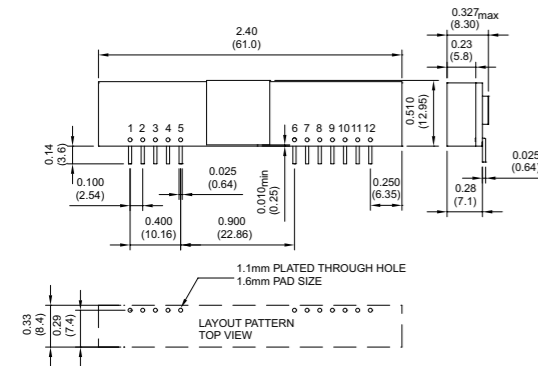
- ◆ Non-Isolated POL Converter
- ◆ SIP / SMT Package
- ◆ Output Current 20AMP
- ◆ Input Voltage Range 6-14VDC
- ◆ Output Voltage Range 0.7525-5VDC
- ◆ 300KHz Switching Frequency
- ◆ High Efficiency to 94%
- ◆ Over Temperature Protection
- ◆ Continuous Short Circuit Protection
- ◆ Remote On/Off Control
- ◆ Output Voltage Sequencing
- ◆ Power Good Signal
- ◆ UL/C-UL60950 Certified



Mechanical Dimensions

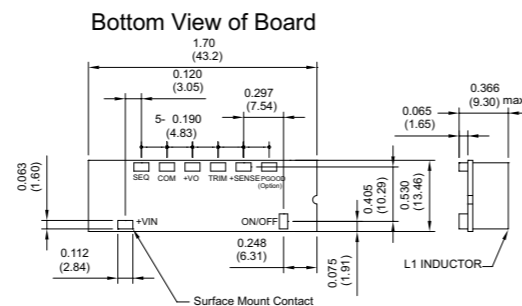
Mechanical Specification
All Dimensions in Inches (mm)
Tolerance Inches: X.XX=±0.02, X.XXX=±0.010
Millimeters: X.X=±0.5, X.XX=±0.25

SIP Packages



SMT Packages

| PIN CONNECTION | |
|----------------|----------------|
| PIN | Function |
| 1 | +Output |
| 2 | Output |
| 3 | +Sense |
| 4 | +Output |
| 5 | Common |
| 6 | No Pin/PGOOD |
| 7 | Common |
| 8 | +V Input |
| 9 | +V Input |
| 10 | Sequency |
| 11 | Trim |
| 12 | On/Off Control |



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT | | Efficiency (%) |
|---------------|---------------|----------------|----------------|---------------|-----------|----------------|
| | | | | NO LOAD | FULL LOAD | |
| SIP20W-12S05A | 6.0-14 VDC | 0.7525 VDC | 20 A | 40 mA | 1603 mA | 78 |
| | 6.0-14 VDC | 1.5 VDC | 20 A | 50 mA | 2874 mA | 87 |
| | 6.0-14 VDC | 1.8 VDC | 20 A | 50 mA | 3409 mA | 88 |
| | 6.0-14 VDC | 2.0 VDC | 20 A | 60 mA | 3745 mA | 89 |
| | 6.0-14 VDC | 2.5 VDC | 20 A | 65 mA | 4630 mA | 90 |
| SMT20W-12S05A | 6.0-14 VDC | 3.3 VDC | 20 A | 75 mA | 5978 mA | 92 |
| | 6.0-14 VDC | 5.0 VDC | 20 A | 95 mA | 8865 mA | 94 |

Derating Curve

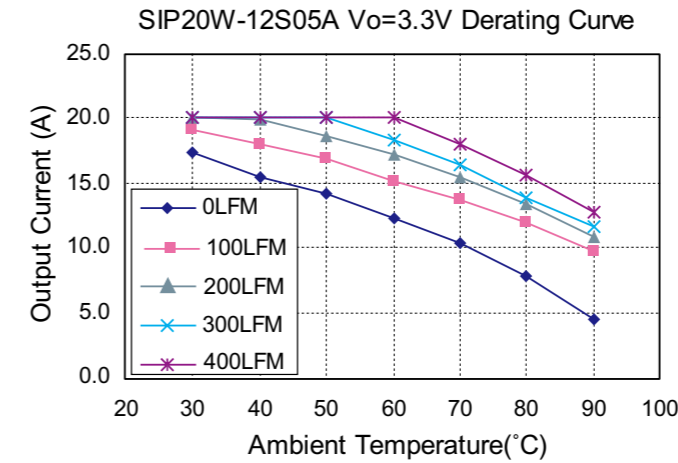


Figure2. Typical Power De-rating for 12Vin

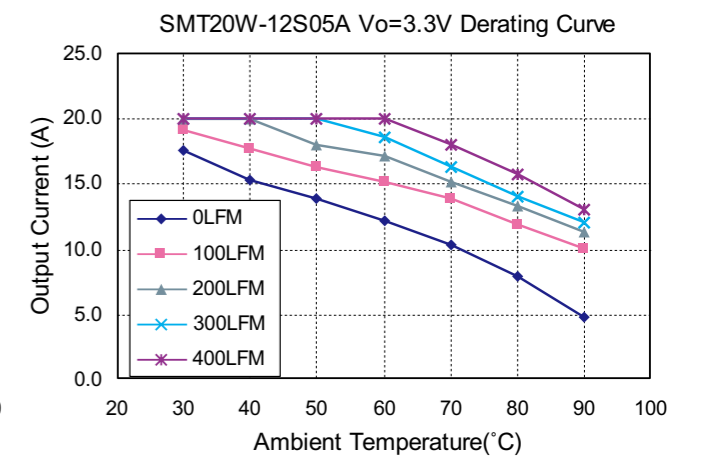


Figure3. Typical Power De-rating for 12Vin

Specifications

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | |
|----------------------------------|----------------------------|
| Input Voltage Range | 12V 6.0-14.0V |
| | 12V 6.5-14.0V |
| Under Voltage Lock-out | Power up 5.0V typ. |
| | Power down 4.0V typ. |
| | Capacitive |
| Input Filter Type | |
| Positive Remote On/Off Control : | |
| Module On | Open Circuit or = Vin |
| Module Off | < 0.4 Vdc |

OUTPUT SPECIFICATIONS

| | |
|--|------------------------|
| Voltage Accuracy | ±1.5% max. |
| Transient Response: 25% Step Load Change | < 200µs |
| Ripple and Noise, 20MHz BW (note 3) | 30mV rms max. |
| | 75mV pk-pk max. |
| Temperature Coefficient | ±0.03%/C max. |
| Short Circuit Protection | Continuous |
| Line Regulation (note 1) | ±0.2% max. |
| Load Regulation (note 2) | ±0.5% max. |
| External Trim Adj. Range (see Table1) | Vo=0.75-5.0Vdc |
| Sequencing Slew Rate Capability (dVseq/dt) | 0.1-1.0V/msec |
| Sequencing Delay Time | 10msec min. |
| Tracking Accuracy | Power up: 200mV max., |
| | Power down: 400mV max. |
| Capacitive Load Low ESR | 8000µF max. |
| Power Good Signal Asserted Logic High | Vo=90%-110%Vo, nom. |
| Start up time | 7ms typ. |

GENERAL SPECIFICATIONS

| | |
|--|---------------------------------|
| Efficiency | See Table |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 300KHz typ. |
| Over Temperature Protection | 130°C typ. |
| Operating Ambient Temperature Range | -40°C to +85°C |
| Power Derating Curve | see Figure2, 3 |
| Storage Temperature Range | -55°C to +125°C |
| MTBF MIL-STD-217F, GB, 25°C, Full Load | 0.9Mhrs typ. |
| Dimensions: | |
| SIP Package: | 2.40 x 0.510 x 0.327 inches |
| | (61.0 x 12.95 x 8.30 mm) |
| SMT Package: | 1.70 x 0.530 x 0.366 inches |
| | (43.2 x 13.46 x 9.30 mm) |
| Structure | Non-potted With Open Frame Type |
| Weight | 11 g |

NOTE

1. Measured from high line to low line, Vo,set=3.3VDC.
2. Measured from full load to zero load, Vo,set=3.3VDC.
3. The output noise is measured with 10µf tantalum capacitor and 1µf ceramic capacitor across output.
4. The input terminal recommend to parallel with 200µF capacitor ESR< 25mΩ to reduce the input ripple voltage.
5. Suffix "N" to the model number with negative logic remote On/Off
Model On Open Circuit or < 0.4VDC
Module Off >+2.8VDC to Vin
6. Suffix "P" to the model number with power good function.

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Product Type _____ Application _____

Output Voltages _____ Output Currents _____

Input Voltages _____ Efficiency _____

Isolation _____ Protection _____

Storage / Operating Temperature Range _____

Safety Standard _____ EMC Standard _____

Mechanical Description _____

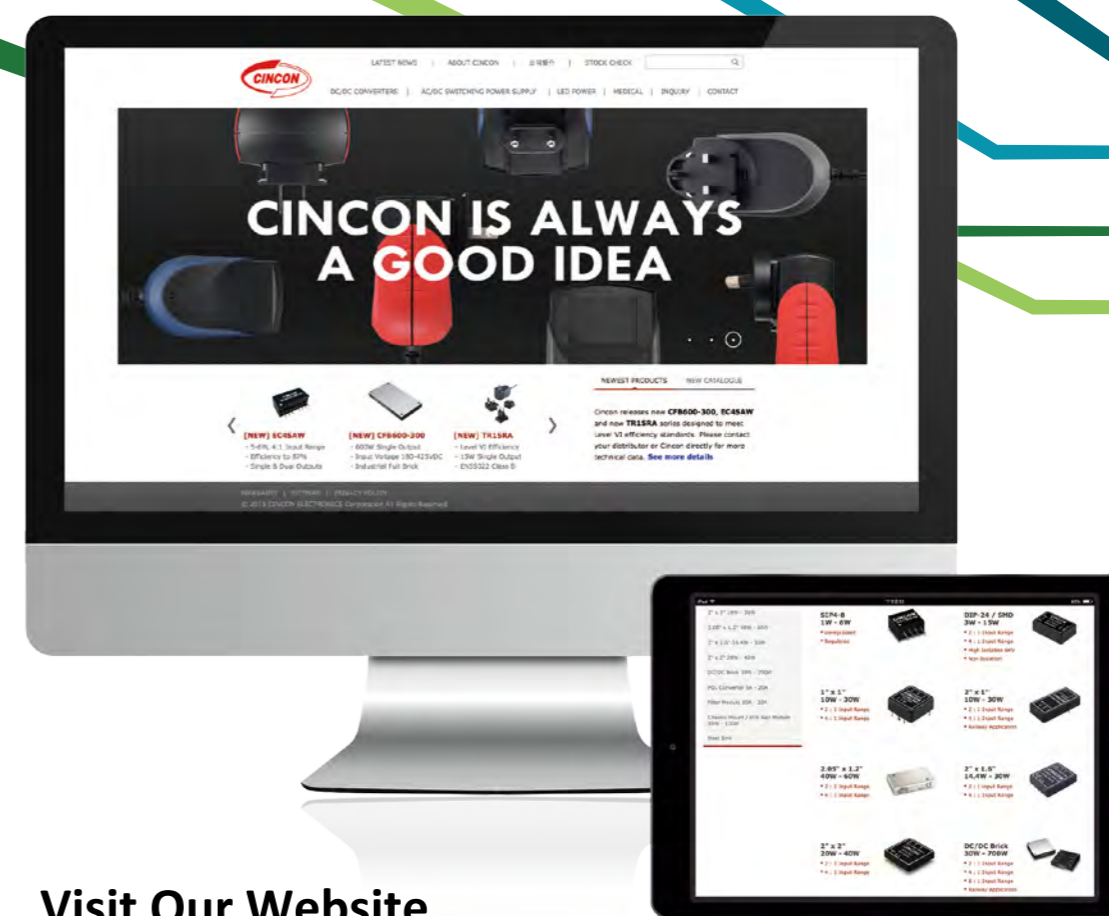
Remarks _____

Cincon Headquarters

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