

FEATURES

- 15 WATTS OUTPUT POWER
- OUTPUT CURRENT UP TO 4A
- STANDARD 2.0 X 1.0 X 0.4 INCH PACKAGE
- HIGH EFFICIENCY UP TO 88%
- 2:1 WIDE INPUT VOLTAGE RANGE
- SIX-SIDED CONTINUOUS SHIELD
- FIXED SWITCHING FREQUENCY
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

DESCRIPTION

The MT15E series offer 15 watts of output power from a 2 x 1 x 0.4 inch package. The MT15E series with 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC.

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			
Output power	15 Watts, max.		
Voltage accuracy	Full load and nominal Vin	± 1%	
Minimum load (Note 6)	See Table		
Line regulation	LL to HL at Full Load	± 0.5%	
Load regulation	Min. load to Full load	Single Dual	± 0.5% ± 1%
Cross regulation (Dual)	Asymmetrical load 25% / 100% FL	± 5%	
Ripple and noise	20MHz bandwidth	Single Dual	50mVp-p 75mVp-p
Temperature coefficient	±0.02% / °C, max.		
Transient response recovery time	25% load step change	250µS	
Over voltage protection (Zener diode clamp)	3.3V output	3.9VDC	
	5V output	6.2VDC	
	12V output	15VDC	
	15V output	18VDC	
Over load protection	% of FL at nominal input	150%, max.	
Short circuit protection	Hiccup, automatics recovery		
GENERAL SPECIFICATIONS			
Efficiency	See table		
Isolation voltage	1600VDC, min.		
Isolation resistance	10 ⁹ ohms, min.		
Isolation capacitance	300pF, max.		
Switching frequency	Single output	500KHz, typ.	
	Dual output	300KHz, typ.	
Case material	Nickel-coated copper		
Base material	Non-conductive black plastic		
Potting material	Epoxy (UL94-V0)		
Dimensions	2.00 X 1.00 X 0.40 Inch (50.8 X 25.4 X 10.2 mm)		
Weight	27g (0.95oz)		
MTBF (Note 1)	BELLCORE TR-NWT-000332	2.041 x 10 ⁶ hrs	
	MIL-HDBK-217F	1.044 x 10 ⁶ hrs	

INPUT SPECIFICATIONS			
Input voltage range	12V nominal input	9 – 18VDC	
	24V nominal input	18 – 36VDC	
	48V nominal input	36 – 75VDC	
Input filter	Pi type		
Input surge voltage 100mS max	12V input	36VDC	
	24V input	50VDC	
	48V input	100VDC	
Input reflected ripple current	Nominal Vin and full load	20mA _{p-p}	
Start up time	Nominal Vin and constant resistive load	Power up	20mS, typ.
	Remote ON/OFF (Option) (Note 7)		
(Positive logic)	DC-DC ON	Open or 3.5V < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 1.2V	
(Negative logic)	DC-DC ON	Short or 0V < Vr < 1.2V	
	DC-DC OFF	Open or 3.5V < Vr < 12V	
Input current of remote control pin	Nominal Vin	-0.5mA ~ +1mA	
Remote off state input current	Nominal Vin	20mA	
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature	-40°C ~ +85°C (with derating)		
Maximum case temperature	100°C		
Storage temperature range	-55°C ~ +105°C		
Thermal impedance (Note 8)	Nature convection	12°C/Watt	
	Nature convection with heat-sink	10°C/Watt	
Thermal shock	MIL-STD-810F		
Vibration	MIL-STD-810F		
Relative humidity	5% to 95% RH		
EMC CHARACTERISTICS			
EMI (Note 9)	EN55022	Class A	
ESD	EN61000-4-2	Air	± 8KV
		Contact	± 6KV
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (Note 10)	EN61000-4-4	± 2KV	Perf. Criteria B
Surge (Note 10)	EN61000-4-5	± 1KV	Perf. Criteria B
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Model Number	Input Range	Output Voltage	Output Current		Output (4) Ripple & Noise	Input Current		Eff (4) (%)	Capacitor (5) Load max
			Min. load	Full load		No load (3)	Full load (2)		
MT15E-1233SI	9 – 18 VDC	3.3 VDC	0mA	4000mA	50mVp-p	30mA	1467mA	79	10200µF
MT15E-1205SI	9 – 18 VDC	5 VDC	15mA	3000mA	50mVp-p	25mA	1603mA	82	7050µF
MT15E-1212SI	9 – 18 VDC	12 VDC	0mA	1250mA	50mVp-p	25mA	1524mA	86	1035µF
MT15E-1215SI	9 – 18 VDC	15 VDC	0mA	1000mA	50mVp-p	20mA	1524mA	86	705µF
MT15E-1205WI	9 – 18 VDC	± 5 VDC	0mA	± 1500mA	75mVp-p	20mA	1582mA	83	± 1020µF
MT15E-1212WI	9 – 18 VDC	± 12 VDC	0mA	± 625mA	75mVp-p	30mA	1524mA	86	± 495µF
MT15E-1215WI	9 – 18 VDC	± 15 VDC	±10mA	± 500mA	75mVp-p	35mA	1563mA	84	± 165µF
MT15E-2433SI	18 – 36 VDC	3.3 VDC	0mA	4000mA	50mVp-p	15mA	724mA	80	10200µF
MT15E-2405SI	18 – 36 VDC	5 VDC	15mA	3000mA	50mVp-p	10mA	781mA	84	7050µF
MT15E-2412SI	18 – 36 VDC	12 VDC	0mA	1250mA	50mVp-p	20mA	772mA	85	1035µF
MT15E-2415SI	18 – 36 VDC	15 VDC	10mA	1000mA	50mVp-p	15mA	772mA	85	705µF
MT15E-2405WI	18 – 36 VDC	± 5 VDC	0mA	± 1500mA	75mVp-p	15mA	781mA	84	± 1020µF
MT15E-2412WI	18 – 36 VDC	± 12 VDC	0mA	± 625mA	75mVp-p	25mA	762mA	86	± 495µF
MT15E-2415WI	18 – 36 VDC	± 15 VDC	0mA	± 500mA	75mVp-p	25mA	762mA	86	± 165µF
MT15E-4833SI	36 – 75 VDC	3.3 VDC	0mA	4000mA	50mVp-p	10mA	357mA	81	10200µF
MT15E-4805SI	36 – 75 VDC	5 VDC	0mA	3000mA	50mVp-p	20mA	396mA	83	7050µF
MT15E-4812SI	36 – 75 VDC	12 VDC	10mA	1250mA	50mVp-p	15mA	377mA	87	1035µF
MT15E-4815SI	36 – 75 VDC	15 VDC	0mA	1000mA	50mVp-p	15mA	381mA	86	705µF
MT15E-4805WI	36 – 75 VDC	± 5 VDC	0mA	± 1500mA	75mVp-p	10mA	386mA	85	± 1020µF
MT15E-4812WI	36 – 75 VDC	± 12 VDC	0mA	± 625mA	75mVp-p	15mA	372mA	88	± 495µF
MT15E-4815WI	36 – 75 VDC	± 15 VDC	0mA	± 500mA	75mVp-p	15mA	377mA	87	± 165µF

Note

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C. MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment).
- Maximum value at nominal input voltage and full load
- Typical value at nominal input voltage and no load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.
- The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- The ON/OFF control pin voltage is referenced to -Vin.
To order positive logic ON-OFF control add the suffix-P (Ex: MT15E-2405SI-P)
To order negative logic ON-OFF control add the suffix-N (Ex: MT15E-2405SI-N)
- Heat sink is optional and P/N: 7G-0020C-F.
- The MT15E series can meet EN55022 Class A with parallel an external capacitor to the input pins.
Recommend: 12Vin : 6.8µF/50V 1812 MLCC . 24Vin : 2.2µF/50V 1812 MLCC . 48Vin : 1.5µF/100V 1812 MLCC.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Kaga USA suggest: Nippon chemi-con KY series, 220µF/100V, ESR 48mΩ.

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+ INPUT	+ INPUT
2	- INPUT	- INPUT
3	+ OUTPUT	+ OUTPUT
4	NO PIN	COMMON
5	- OUTPUT	- OUTPUT
6	CTRL (Option)	CTRL (Option)

- All dimensions in Inches (mm)
Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01(0.25)
- Pin dimension tolerance ±0.004 (0.1)

