8.5 Watt UW Triple Series DC/DC Converters

Features

- Wide 4:1 Input Voltage Range (9-36 or 18-72VDC)
- Triple Low Noise, Highly Regulated Outputs
- Efficiency 70% for All Line Conditions
- No Derating to 80°C Case Temperature
- Six-Sided Shielded Low Thermal Gradient Copper Case
- 500 VDC Minimum Input to Output Isolation
- Overvoltage Protected Outputs
- Pulse by Pulse Digital Current Limiting
- Five Year Warranty

Selection Chart

Model	Input Range VDC		Outputs VDC	Outputs mA
	MIN	MAX		
12T5.12UW	9.00	36.00	5, ±12	800, ±185
12T5.15UW	9.00	36.00	5, ±15	800, ±150
48T5.12UW	18.00	72.00	5, ±12	800, ±185
48T5.15UW	18.00	72.00	5, ±15	800, ±150

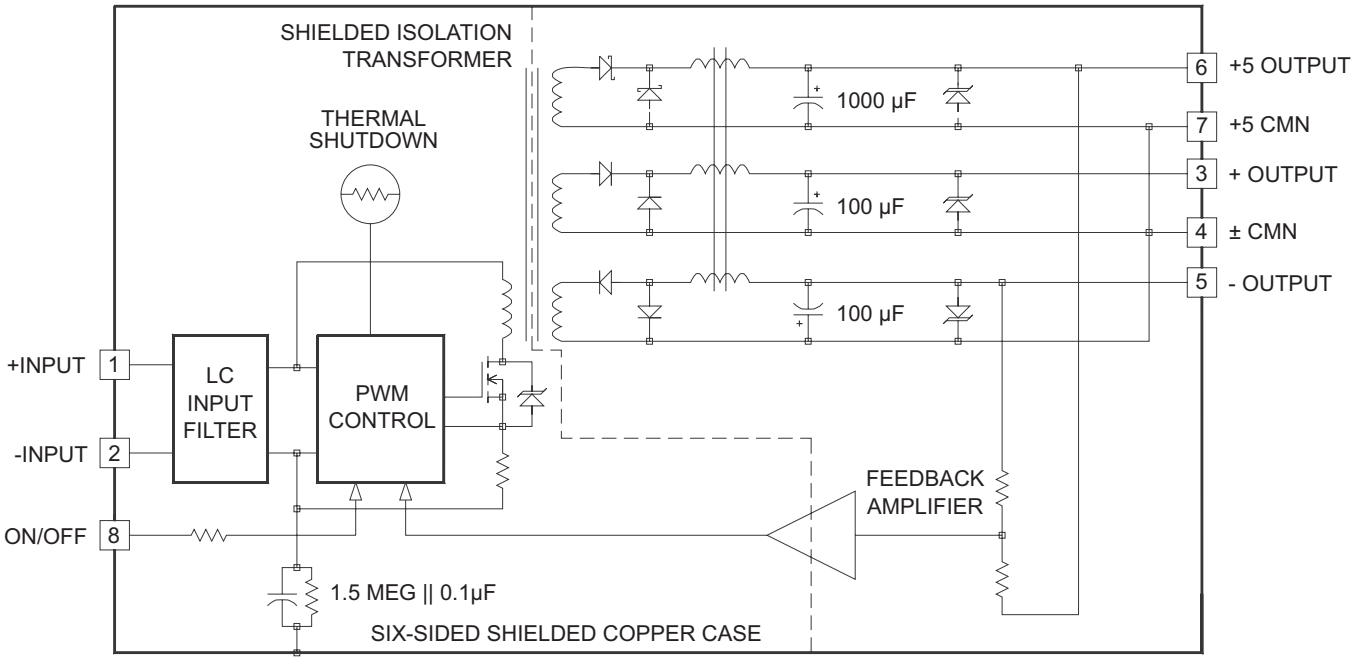
Description

The 8.5 Watt Triple Output DC/DC converters are ideal for wide (4:1) input range applications. These units are particularly well suited for solar powered RTUs and instruments.

They are designed with a high accuracy feedback control circuit and coupled inductor magnetics. Each converter has both a logic shut down pin and thermal overload protection circuitry. All outputs and the power switch are overvoltage protected.

These converters are encased in a six-sided, completely shielded copper case. The UW Triple Series is covered under the CALEX 5 Year Warranty.

8.5 Watt UW Triple Series Block Diagram



8.5 Watt UW Triple Series DC/DC Converters

Input Parameters*						
Model		**12T5.12UW**	**12T5.15UW**	**48T5.12UW**	**48T5.15UW**	**Units**
Voltage Range	MIN MAX	9.00 36.00		18.00 72.00		VDC
Reflected Ripple, 0-20MHz bw	TYP MAX	30 60				mA P-P
Input Current Full Load No Load	TYP TYP	908 19	908 19	230 15	230 15	mA
Efficiency	TYP	78				%
Switching Frequency	TYP	55				kHz
Maximum Input Overvoltage, 100ms No damage	MAX	45		85		VDC
Turn-on Time, 1% Output Error	TYP	120				ms
Recommended Fuse		(2)				

Output Parameters*					
Model		**12T5.12UW 12T5.15UW 48T5.12UW 48T5.15UW**	**12T5.12UW 48T5.12UW**	**12T5.15UW 48T5.15UW**	**Units**
Output Voltage		5	±12	±15	VDC
Rated Current (3)	MIN MAX	200 800	50 185	50 150	mA
Voltage Range 100% Load	MIN TYP MAX	4.90 5.00 5.10	11.76 12.00 12.24	14.55 15.00 15.45	VDC
Load Regulation Min-Max Load	TYP MAX	2.0 3.5	2.0 3.0	2.0 3.0	%
Line Regulation Vin = Min-Max VDC	TYP MAX	0.5 1.5	0.5 1.0	0.5 1.0	%
Short Term Stability (4)	TYP	0.02			%
Long Term Stability	TYP	0.2			%/kHrs
Transient Response (5)	TYP	40			µs
Dynamic Response (6)	TYP	75	70	50	mV peak
Input Ripple Rejection (7)	TYP	35			dB
Noise, 0-20MHz bw	TYP MAX	20 50			mV P-P
Temperature Coefficient	TYP MAX	120 200			ppm/°C
Overvoltage Clamp (8)	TYP	6.8	15.0	18.0	VDC
Short Circuit Protection to Common for all Outputs		Continuous, 8 Hours Minimum Current Limit and Thermal Overload			

NOTES:

* **All parameters measured at Tc=25°C, nominal input voltage and full rated load unless otherwise noted. Refer to the CALEX Application Notes for the definition of terms, measurement circuits and other information.**

(2) Determine the correct fuse size by calculating the maximum DC current drain at low line input, maximum load and then adding 20 to 25 percent.

(3) The module will not be damaged if run at less than minimum load. Regulation can degrade with less than minimum load or substantial load imbalance.

(4) Short term stability is specified after a 30 minute warm-up at full load, and with constant line, load and ambient conditions.

(5) The transient response is specified as the time required to settle from 25 to 75% step load change (rise time of step = 2µ Sec.) to a 1% error band.

(6) Dynamic response is the peak overshoot voltage during the transient response time defined in note 5 above.

(7) The input ripple rejection is specified for DC to 120Hz ripple with a modulation amplitude of 1% Vin.

(8) For module protection only, see also note 2.

(9) The logic shutdown pin is Open Collector TTL, CMOS, and relay compatible. The input to this pin is referenced to input minus.

(10) The functional temperature range is intended to give an additional data point for use in evaluating this power supply. At the low functional temperature the power supply will function with no side effects, however, sustained operation at the high functional temperature will reduce expected operational life. The data sheet specifications are not guaranteed over the functional temperature range.

(11) The case thermal impedance is specified as the case temperature rise over ambient per package watt dissipated.

(12) Specifications subject to change without notice.

(13) Water Washability - Calex DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.

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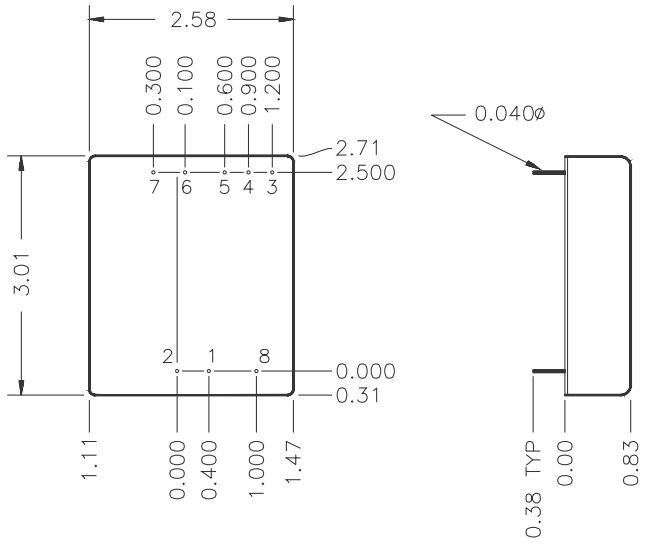
General Specifications *			
All Models			**Units**
Logic Shutdown (9)			
ON Logic Level or Leave Pin Open	MIN	2.4	VDC
OFF Logic Level	MAX	1.2	VDC
Input Resistance	TYP	10	kohms
Converter Idle Current, Shut Down Pin Low	TYP	6.0	mA
Isolation			
Isolation Voltage 10µA Leakage Input-Output	MIN	500	VDC
Input to Output Capacitance	TYP	190	pF
Environmental			
Case Operating Range No Derating	MIN MAX	-25 80	°C
Case Functional Range (10)	MIN MAX	-40 90	°C
Storage Range	MIN MAX	-55 100	°C
Thermal Impedance (11)	TYP	4.4	°C/Watt
Thermal Shutdown Case Temperature	TYP	90	°C
General			
Unit Weight	TYP	7.0	oz
Mounting Kit		MS9	



BOTTOM VIEW SIDE VIEW

Mechanical tolerances unless otherwise noted:

X.XX dimensions: ±0.020 inches

X.XXX dimensions: ±0.005 inches

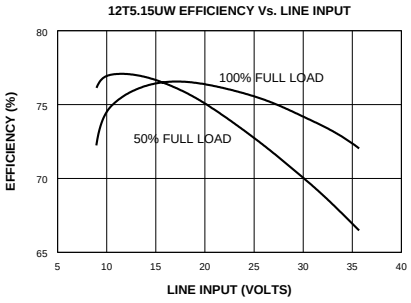
Seal around terminals is not hermetic. Do not immerse units in any liquid.

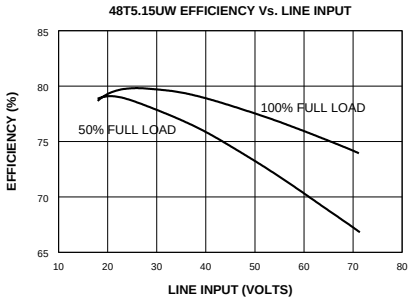
Pin	Function
1	+INPUT
2	-INPUT
3	+12/ +15 OUTPUT
4	±OUTPUT CMN [1]
5	-12/-15 OUTPUT
6	+5 OUTPUT
7	+5 CMN [1]
8	ON/OFF

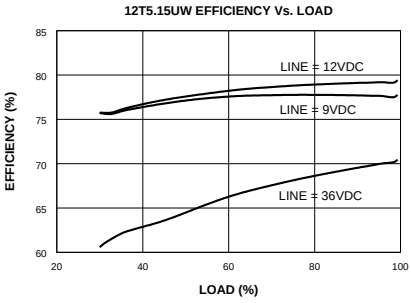
[1] Note: Pins 4 & 7 are connected internally.

Typical Performance (Tc=25°C, Full Rated Load).

CURVES APPLICABLE TO BOTH ±12 AND ±15 VDC







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