

# 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

## Description

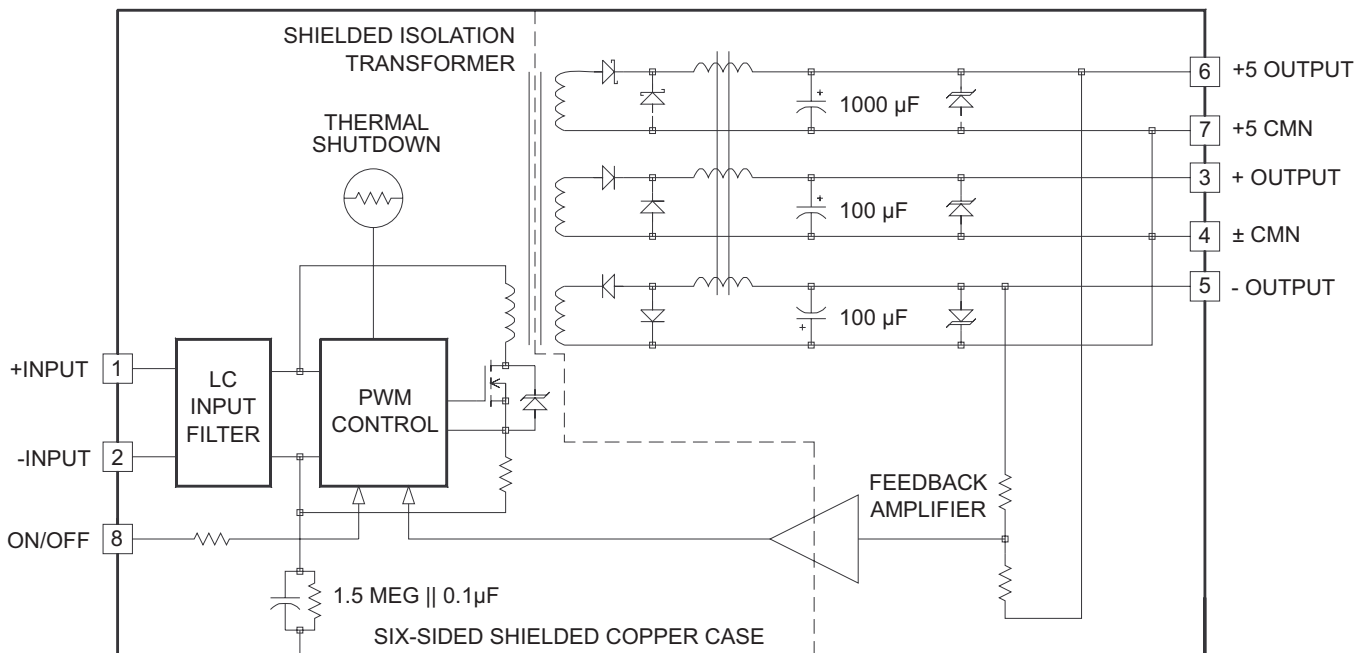
The 8.5 Watt Triple Output DC/DC converters are ideal for wide (4:1) input range applications. These units are particularly well suited for solar powered RTUs and instruments.

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.

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

8.5 Watt UW Triple Series Block Diagram



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Input Parameters*						
Model		12T5.12UW	12T5.15UW	48T5.12UW	48T5.15UW	Units
Voltage Range	MIN	9.00		18.00		VDC
	MAX	36.00		72.00		
Reflected Ripple, 0-20MHz bw	TYP	30				mA P-P
	MAX	60				
Input Current Full Load	TYP	908	908	230	230	mA
	No Load	19	19	15	15	
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)				

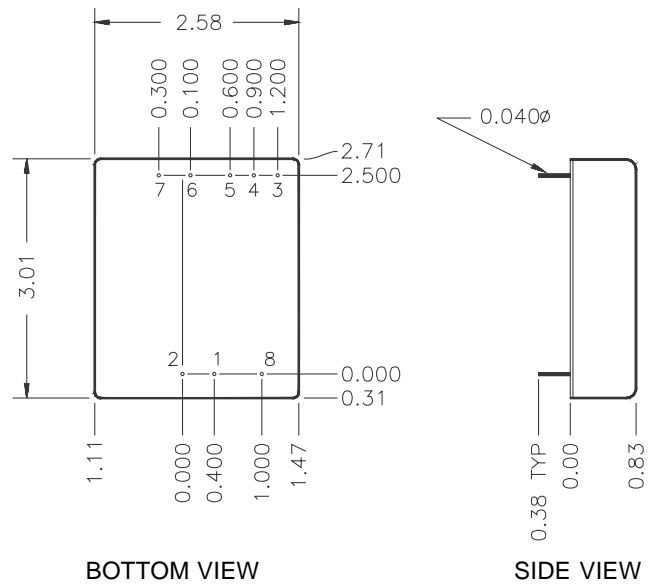
Output Parameters*					
Model		12T5.12UW 12T5.15UW 48T5.12UW 48T5.15UW	12T5.12UW 48T5.12UW	12T5.15UW 48T5.15UW	Units
Output Voltage		5	±12	±15	VDC
Rated Current (3)	MIN	200	50	50	mA
	MAX	800	185	150	
Voltage Range 100% Load	MIN	4.90	11.76	14.55	VDC
	TYP	5.00	12.00	15.00	
	MAX	5.10	12.24	15.45	
Load Regulation Min-Max Load	TYP	2.0	2.0	2.0	%
	MAX	3.5	3.0	3.0	
Line Regulation Vin = Min-Max VDC	TYP	0.5	0.5	0.5	%
	MAX	1.5	1.0	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	20			mV P-P
	MAX	50			
Temperature Coefficient	TYP	120			ppm/°C
	MAX	200			
Overvoltage Clamp (8)	TYP-O	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.

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General Specifications *			
All Models			Units
<b>Logic Shutdown (9)</b>			
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
<b>Isolation</b>			
Isolation Voltage 10 $\mu$ A Leakage Input-Output	MIN	500	VDC
Input to Output Capacitance	TYP	190	pF
<b>Environmental</b>			
Case Operating Range No Derating	MIN	-25	$^{\circ}$ C
	MAX	80	$^{\circ}$ C
Case Functional Range (10)	MIN	-40	$^{\circ}$ C
	MAX	90	$^{\circ}$ C
Storage Range	MIN	-55	$^{\circ}$ C
	MAX	100	$^{\circ}$ C
Thermal Impedance (11)	TYP	4.4	$^{\circ}$ C/Watt
Thermal Shutdown Case Temperature	TYP	90	$^{\circ}$ C
<b>General</b>			
Unit Weight	TYP	7.0	oz
Mounting Kit		MS9	



Mechanical tolerances unless otherwise noted:

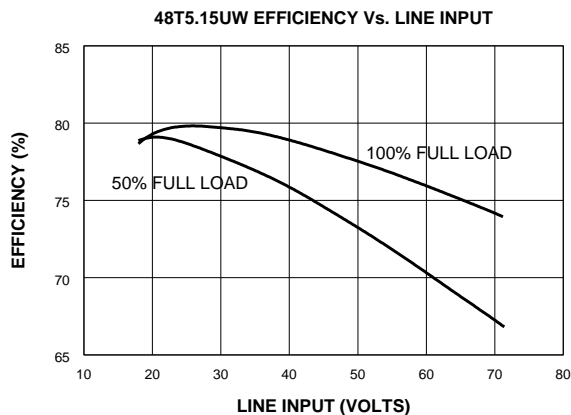
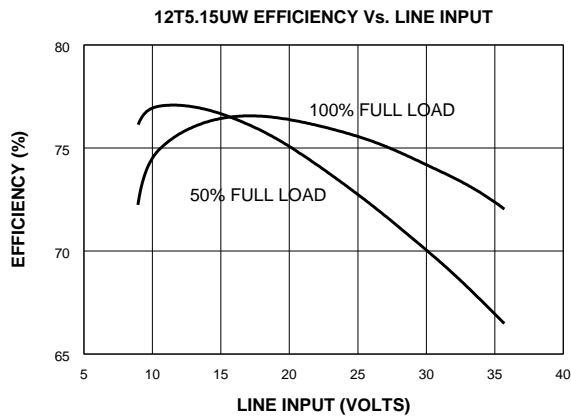
X.XX dimensions:  $\pm 0.020$  inches

X.XXX dimensions:  $\pm 0.005$  inches

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

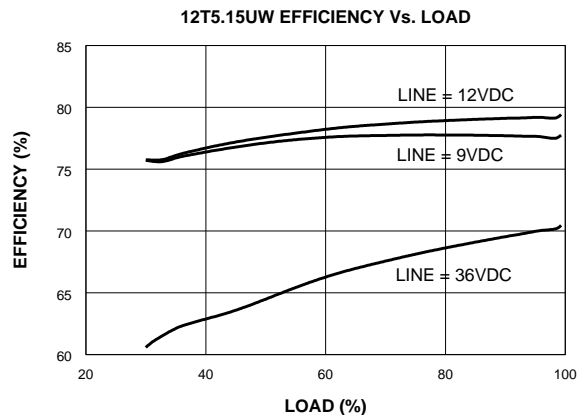
Pin	Function
1	+INPUT
2	-INPUT
3	+12/ +15 OUTPUT
4	$\pm$ OUTPUT CMN [1]
5	-12/-15 OUTPUT
6	+5 OUTPUT
7	+5 CMN [1]
8	ON/OFF

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



Typical Performance ( $T_c=25^{\circ}$ C, Full Rated Load).

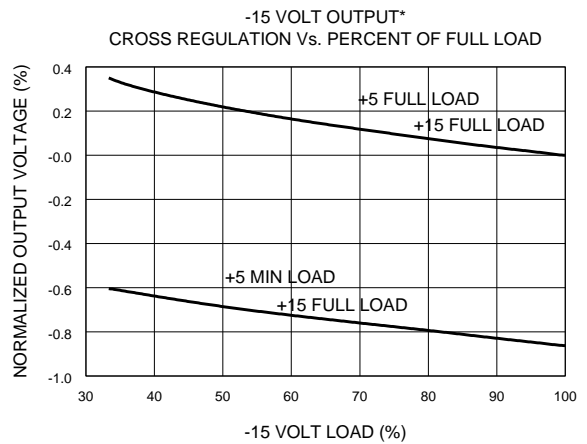
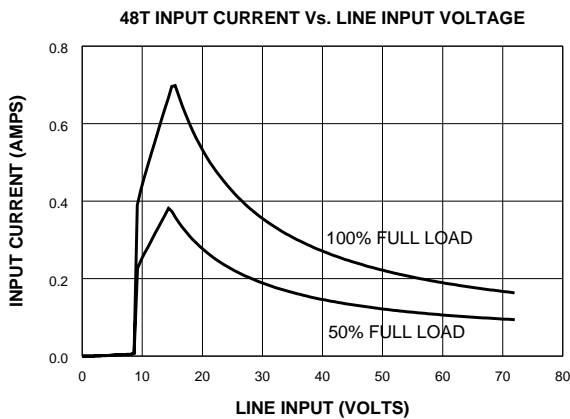
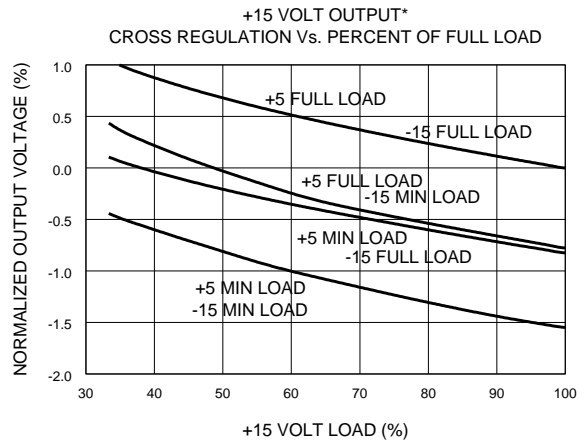
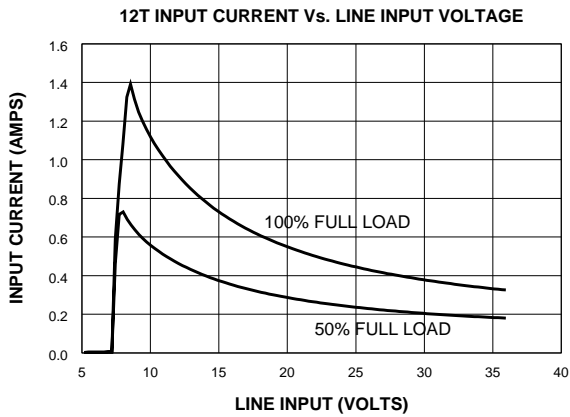
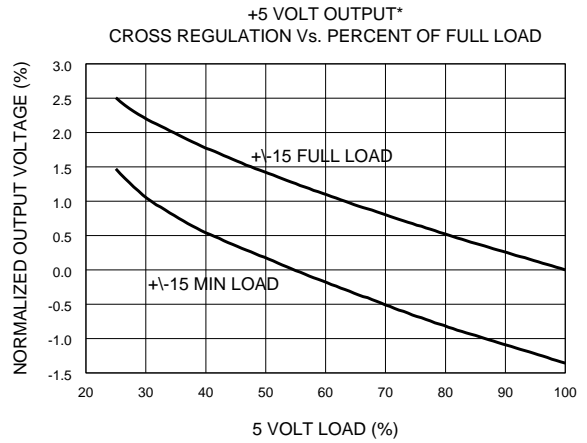
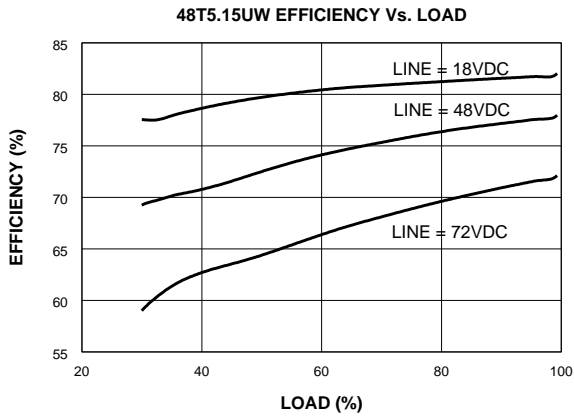
**CURVES APPLICABLE TO BOTH  $\pm 12$  AND  $\pm 15$  VDC**



# 8.5 Watt UW Triple Series DC/DC Converters

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

**CURVES APPLICABLE TO BOTH ±12 AND ±15 VDC**



# 8.5 Watt UW Triple Series DC/DC Converters

Typical Performance ( $T_c=25^\circ\text{C}$ , Full Rated Load).

CURVES APPLICABLE TO BOTH  $\pm 12$  AND  $\pm 15$  VDC

