1.8 Watt Dual Series DC/DC Converters

Features

- Low Profile Case (0.375" High)
- Low Noise Operation
- “LC” Section Input Filter to Reduce Reflected Ripple
- Wide Input Voltage Range
- High Isolation Breakdown Voltage (500 VDC Minimum)
- Long Term Output Fault Survival
- 100% Burn-In, 100% Tested
- 5 Year Warranty

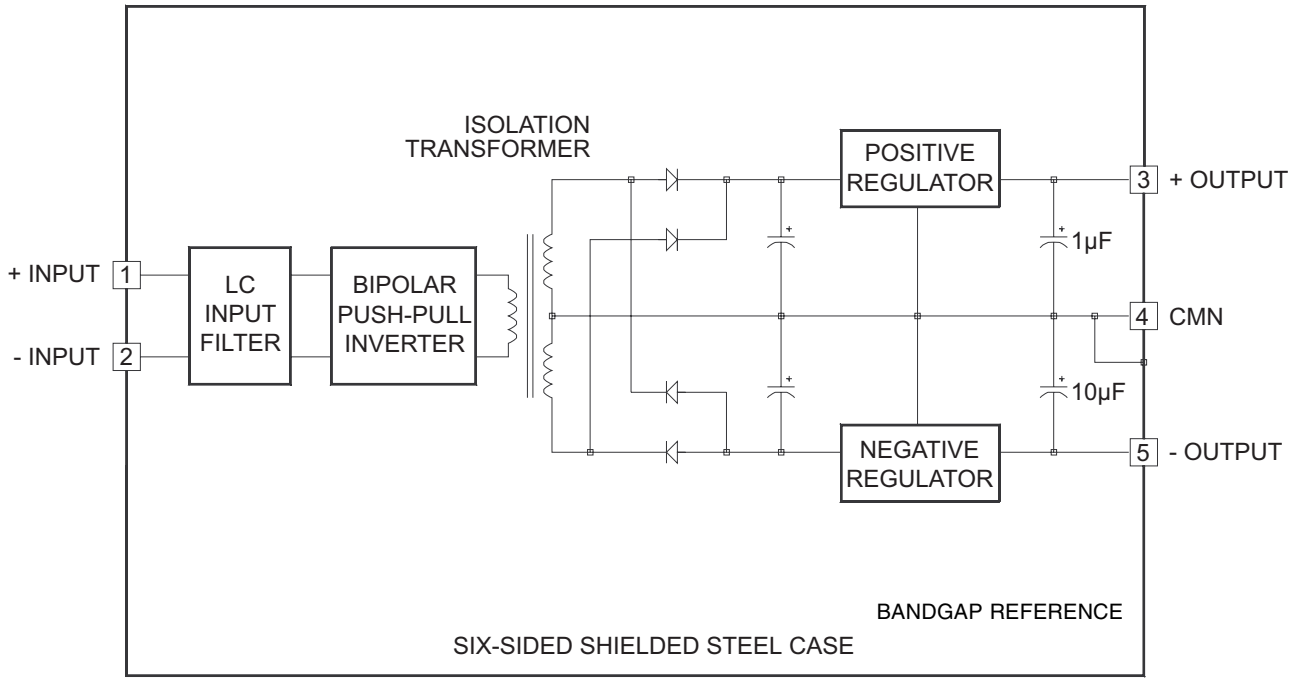
Description

These 1.8 Watt Dual DC/DC Converters are designed for high performance Industrial data acquisition systems and board level products. The converter consists of a rugged bipolar switching stage, isolation transformer, and high regulation linear post regulator for low noise/highly stable DC outputs.

Selection Chart

Model	Input Range VDC		Outputs VDC	Outputs mA
	MIN	MAX		
5D12.075	4.60	5.50	±12.0	±75
5D15.060	4.60	5.50	±15.0	±60
12D12.075	10.80	13.80	±12.0	±75
12D15.060	10.80	13.80	±15.0	±60

1.8 Watt Dual Series Block Diagram



Input Parameters*				
Model		**5D12.075 5D15.060**	**12D12.075 12D15.060**	**Units**
Voltage Range	MIN MAX	4.60 5.50	10.80 13.80	VDC
Reflected Ripple, 0-20MHz bw	TYP MAX	100 200	80 150	mA P-P
Input Current Full Load No Load	TYP TYP	650 130	265 45	mA
Efficiency	TYP	55	57	%
Switching Frequency	TYP	55	55	kHz
Maximum Input Overvoltage, 100ms No Damage	MAX	6.2	14.5	VDC
Turn-on Time, 1% Output Error (2)	TYP	4	4	ms
Recommended Fuse		Slow Blow Type (3)		

Output Parameters*				
Model		**5D12.075 12D12.075**	**5D15.060 12D15.060**	**Units**
Output Voltage		±12	±15	VDC
Rated Load (4)	MIN MAX	0 ±75	0 ±60	mA
Voltage Range 100% Load	MIN TYP MAX	11.88 12.00 12.12	14.85 15.00 15.15	VDC
Output Balance (Plus to Minus Output, Full Load)	MAX	1.0		%
Load Regulation 0-100% Load	TYP MAX	0.1 0.2		%
Line Regulation Vin = Min-Max VDC	TYP MAX	0.1 0.2		%
Short Term Stability (5)	TYP	0.1		%
Long Term Stability	TYP	0.4		%/kHrs
Transient Response (6)	TYP	100		µs
Dynamic Response (7)	TYP	15		mV peak
Input Ripple Rejection (7)	TYP	60		dB
Noise, 0-20MHz bw	TYP MAX	15 30		mV P-P
Temperature Coefficient	TYP MAX	150 300		ppm/°C
Short Circuit Protection to Common for all Outputs		Short Term, 1 Minute Maximum		

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) Turn on time is defined as the time from the application of power until the output is within 1% if its final value.

(3) Determine the correct fuse size by calculating the maximum DC current drain at low line input, maximum load (or use the supplied curves) and then adding 20 to 25% to get the desired fuse size.

(4) No minimum load required.

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

(6) The transient response is specified as the time required for the output to settle from a 100% step load change (rise time of step = 2µ Sec) to a 1% error band.

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

(8) 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.

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

(10) 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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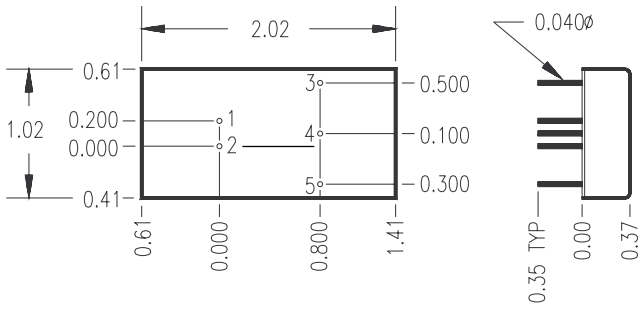
General Specifications *			
All Models			**Units**
Isolation			
Isolation Voltage 10µA Leakage Input-Output	MIN	500	VDC
Input to Output Capacitance	TYP	30	pF
Environmental			
Case Operating Range No Derating	MIN MAX	-25 80	°C
Case Functional Range (8)	MIN MAX	-30 90	°C
Storage Range	MIN MAX	-55 100	°C
Thermal Impedance (9)	TYP	16.5	°C/Watt
General			
Unit Weight	TYP	0.9	oz
Mounting Kits		MS6 & MS15	



BOTTOM VIEW SIDE VIEW

Mechanical tolerances unless otherwise noted:

X.XX dimensions: ±0.020 inches

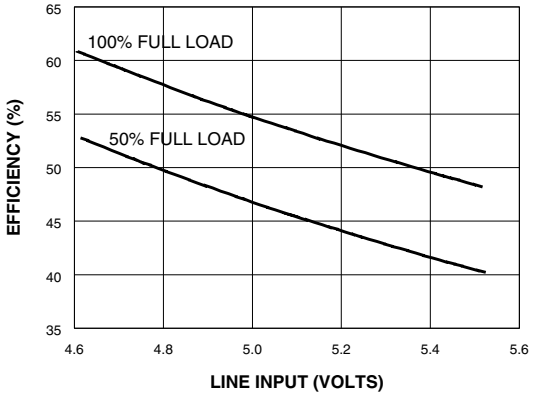
X.XXX dimensions: ±0.005 inches

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

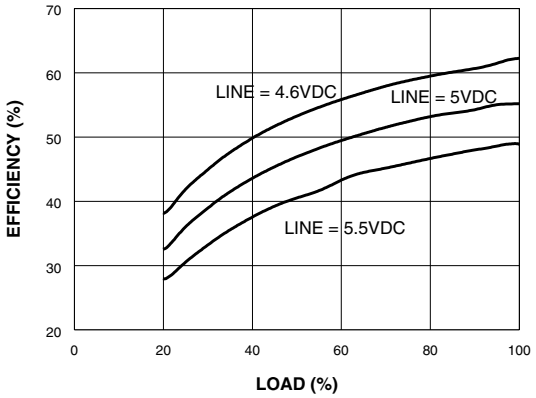
Pin	Function
1	+INPUT
2	-INPUT
3	+OUTPUT
4	CMN
5	-OUTPUT

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

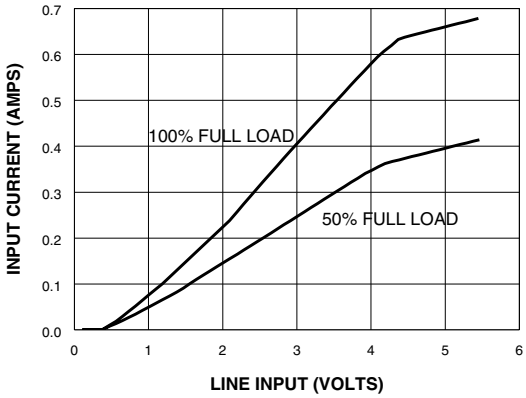
5D EFFICIENCY Vs. LINE INPUT



5D EFFICIENCY Vs. LOAD

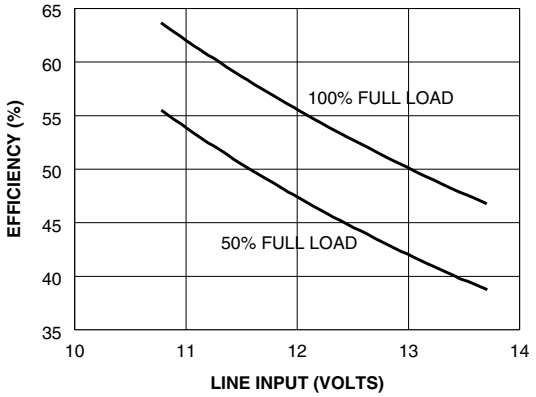


5D INPUT CURRENT Vs. LINE INPUT

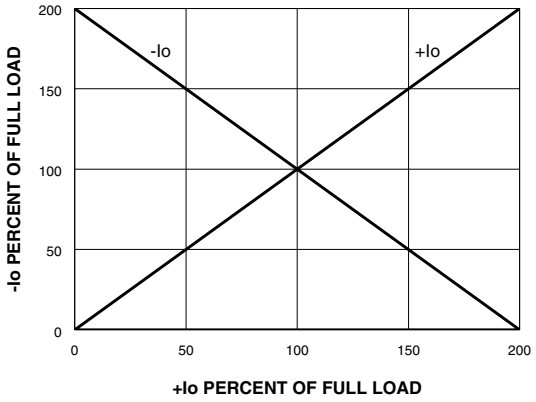


Typical Performance (Tc=25°C; Full Rated Load).

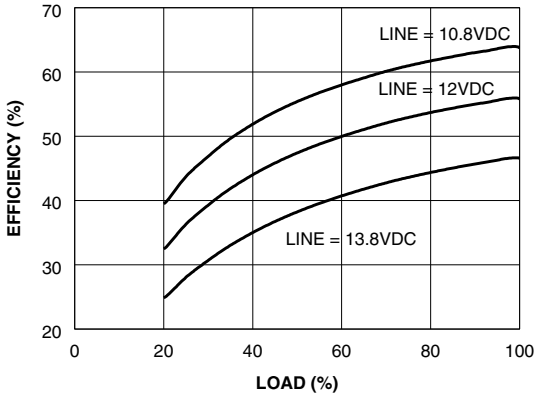
12D EFFICIENCY Vs. LINE INPUT



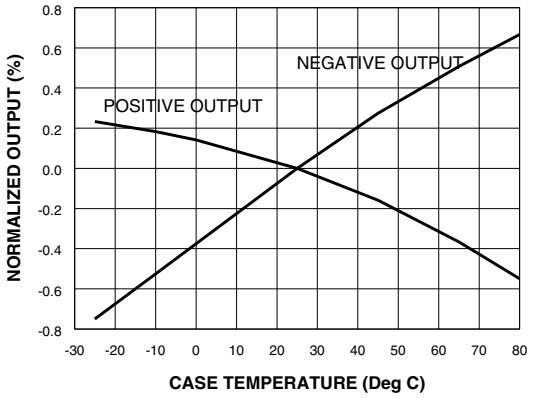
OUTPUT LOADING CHART



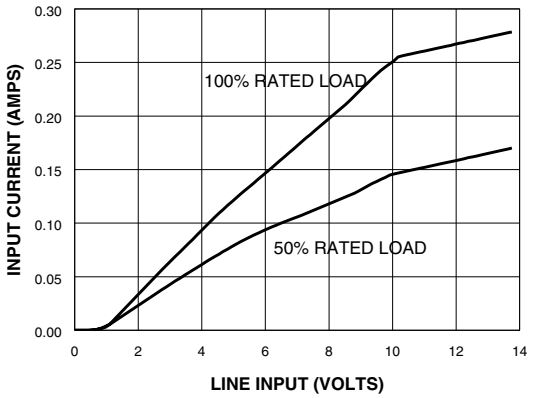
12D EFFICIENCY Vs. LOAD



OUTPUT VOLTAGE Vs CASE TEMPERATURE



12D INPUT CURRENT Vs. LINE INPUT



OUTPUT IMPEDANCE Vs. FREQUENCY