

5 Watt Dual Series DC/DC Converters

Features

- Low Input/Output Noise Operation
- Low Profile Case (0.38")
- Isolation Capacitance of 50 pF
- Extended Operating Temperature Range of -40°C to +100°C.
- Fixed Frequency Operation
- 5 Year Warranty

Description

The versatile 5 Watt Dual Output converter is particularly suitable for use in microprocessor systems where 5 Volts is the primary power source, and where a low noise plus and minus output voltage is required.

The shielded transformer provides low I/O capacitance and high common mode input to output isolation.

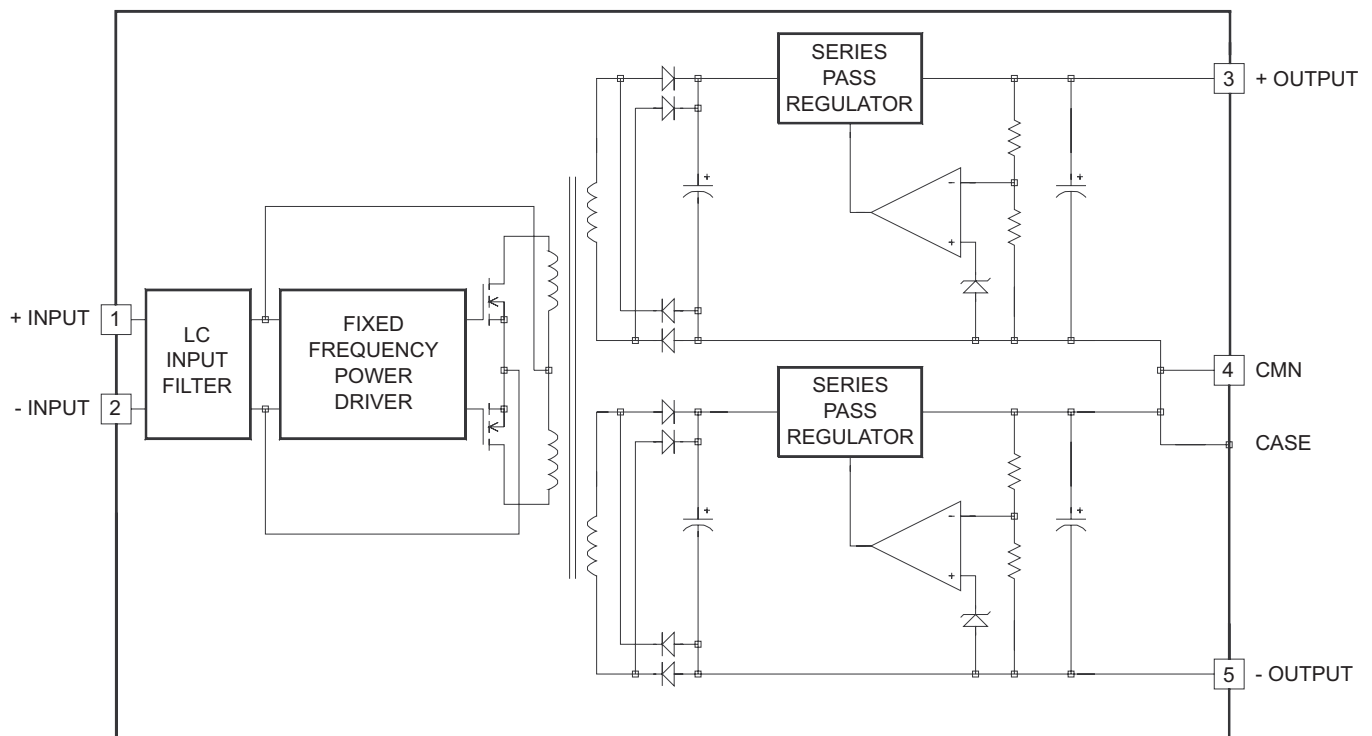
The low guaranteed output noise of 20mV P-P maximum is achieved by a built-in linear post regulator.

Available in standard 6 sided shielding, or the -5 model which has 5 sided shielding and is water washable.

Each converter is completely specified, fully ATE tested, contains overload protection, and is covered under CALEX's 5 year warranty.

Selection Chart				
Model	Input Range VDC		Outputs VDC	Outputs mA
	MIN	MAX		
5D12.185B	4.75	5.25	±12	±185
5D12.185B-5	4.75	5.25	±12	±185
5D15.150B	4.75	5.25	±15	±150
5D15.150B-5	4.75	5.25	±15	±150
5D15.167B	4.75	5.25	±15	±167
5D15.167B-5	4.75	5.25	±15	±167

5 Watt Dual Series Block Diagram



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Input Parameters*					
Model		5D12.185B 5D12.185B-5	5D15.150B 5D15.150B-5	5D15.167B 5D15.167B-5	Units
Voltage Range	MIN	4.75	4.75	4.75	VDC
	MAX	5.25	5.25	5.25	
Reflected Ripple, 0-20MHz bw	TYP	15	15	15	mA P-P
	MAX	40	40	40	
Input Current Full Load No Load	TYP	1435	1435	1560	mA
	TYP	80	80	80	
Efficiency	TYP	62	63	64	%
Switching Frequency	TYP	60			kHz
Maximum Input Over Voltage, 100ms No Damage	MAX	8			VDC
Turn-on Time, 1% Output Error	TYP	2			ms
Recommended Fuse		(1)			

Output Parameters*					
Model		5D12.185B 5D12.185B-5	5D15.150B 5D15.150B-5	5D15.167B 5D15.167B-5	Units
Output Voltage		±12			VDC
Rated Current (2)	MIN	0			mA
	MAX	±185			
Voltage Range	MIN	11.940	14.925	14.925	VDC
	TYP	12.000	15.000	15.000	
	MAX	12.060	15.075	15.075	
Output Balance	TYP	0.5			%
	MAX	1.0			
Load Regulation 0-100% Load	TYP	0.01			%
	MAX	0.07			
Line Regulation Vin = Min-Max VDC	TYP	0.01			%
	MAX	0.07			
Short Term Stability (3)	TYP	< 0.1			%
Long Term Stability	TYP	< 0.2			%/kHrs
Transient Response (4)	TYP	< 1% Error			µs
Dynamic Response (5)	TYP	8			mV peak
Noise, 0-20MHz bw	TYP	5			mV P-P
	MAX	20			
Temperature Coefficient	TYP	50			ppm/°C
	MAX	150			
Short Circuit Protection to Common for all Outputs		Continuous (6)			

NOTES:

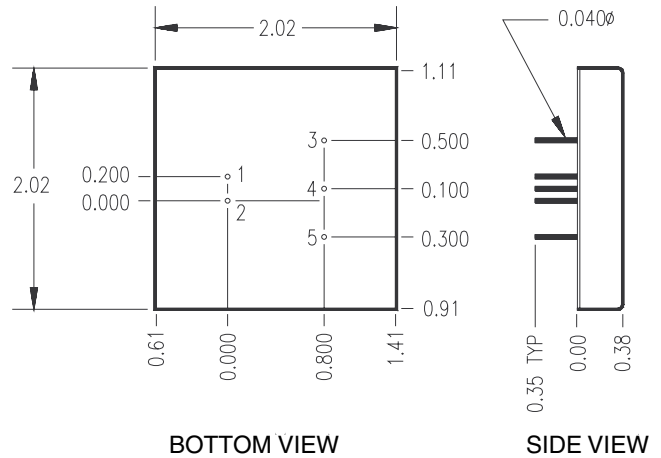
* All parameters measured at Tc=25° C, nominal voltage and full rated load unless otherwise noted. Refer to the CALEX Application Notes for the definition of terms, measurement circuits and other information.

- (1) To determine the correct fuse size, see CALEX Application Notes.
- (2) No minimum load current is required.
- (3) Short term stability is specified after a 30 minute warm-up at full load, and with constant line, load and ambient conditions.
- (4) The transient response is specified as the time required to settle from 100% step load change (rise time of step = 2µSec.) to a 1% error band.
- (5) Dynamic response is the peak overshoot voltage during the transient response time defined in note 4 above.

- (6) Limited to 10 seconds maximum when both outputs are shorted to Common at the same time.
- (7) 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 may reduce expected operational life. All data sheet specifications are not guaranteed over the functional temperature range.
- (8) The case thermal impedance is specified as the case temperature rise over ambient per package watt dissipated.
- (9) 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 Input to Output 10µA Leakage	MIN	700	VDC
Input to Output Capacitance	TYP	50	pF
Environmental			
Case Operating Range No Derating	MIN MAX	-25 90	°C
Case Functional Range (7)	MIN MAX	-40 100	°C
Storage Range	MIN MAX	-55 105	°C
Thermal Impedance (8) Standard Models	TYP	10	°C/Watt
-5 Models	TYP	11	°C/Watt
General			
Unit Weight	TYP	1.7	oz
Mounting Kits	MS6 & MS15		

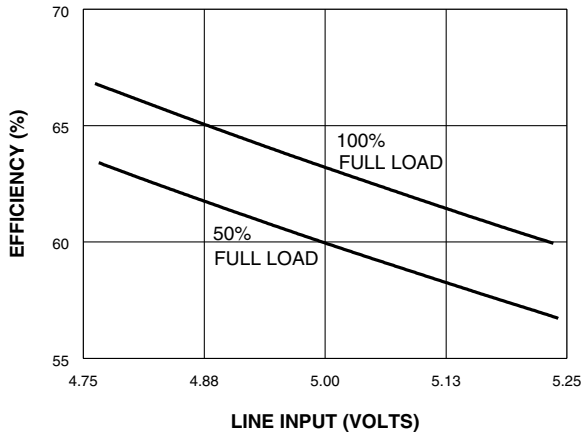


Mechanical tolerances unless otherwise noted:
 X.XX dimensions: ±0.020 inches
 X.XXX dimensions: ±0.005 inches

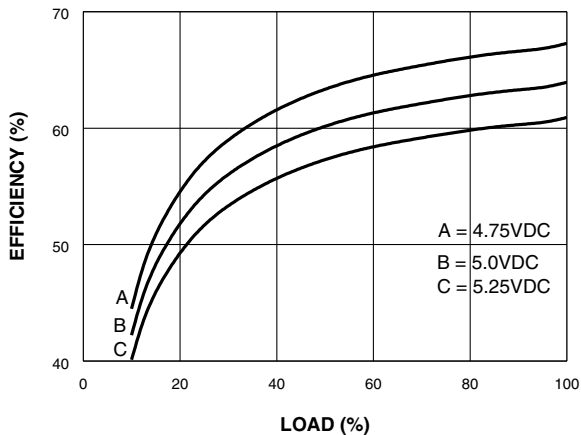
Pin	Function
1	+INPUT
2	-INPUT
3	+OUTPUT
4	CMN
5	-OUTPUT

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

5 WATT DUAL EFFICIENCY Vs LINE INPUT



5 WATT DUAL EFFICIENCY Vs LOAD



Case

The 5D12.185B, 5D15.150B and 5D15.167B use a six sided shielded copper case system. It is filled with a silicon rubber compound and the outside is painted black. The seal around the terminals is not hermetic and the unit should not be immersed in any liquid.

The 5D12.185B-5, 5D15.150B-5 and 5D15.167B-5 use a 5 sided shielded steel case system. The case is specially tin plated to deter rusting. The assembly is filled with a compound which seals it and will withstand water washing in the typical manufacturing cleaning process.

5 WATT DUAL SERIES POWER DERATING

