

# 5 Watt Dual Series DC/DC Converters

## Features

- Low Input/Output Noise Operation
- Low Profile Case (0.40")
- Isolation Capacitance of 50pF
- Extended Operating Temperature Range of -40°C to +100°C.
- Fixed Frequency Operation
- 5 Year Warranty
- Available in both RoHS and non-RoHS Construction  
See ordering info below.

## 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.

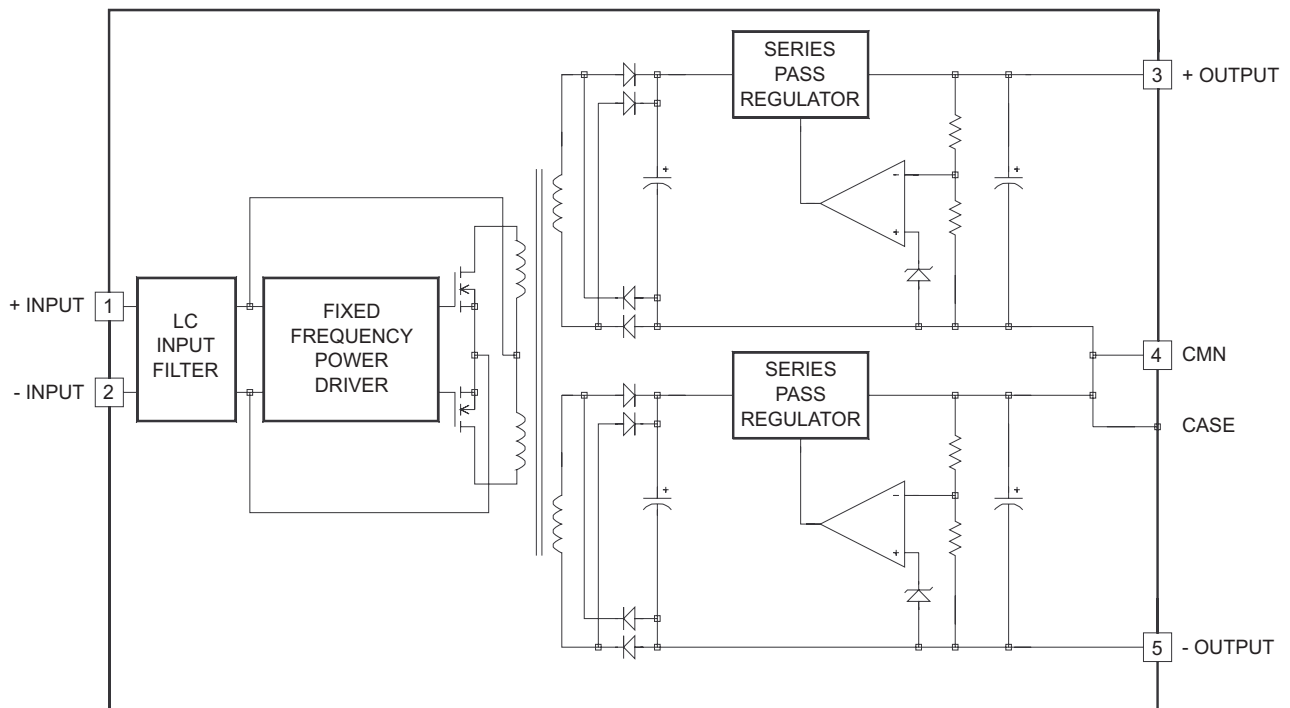
Available in standard 6 sided shielding, or the -5 model which has 5 sided shielding and is water washable.

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

To order RoHS: Add "(RoHS)" after the model number

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

Output Parameters					
Models		5D12.185B 5D12.185B-5	5D15.150B 5D15.150B-5	5D15.167B 5D15.167B-5	Units
Output Voltage		±12	±15	±15	VDC
Rated Current (3)	MIN MAX	0 ±185	0 ±150	0 ±167	mA
Voltage Range	MIN TYP MAX	11.940 12.000 12.060	14.925 15.000 15.075	14.925 15.000 15.075	VDC
Output Balance	TYP MAX	0.5 1.0			%
Load Regulation 0-100% Load	TYP MAX	0.01 0.07			%
Line Regulation Vin = Min - Max VDC	TYP MAX	0.01 0.07			%
Short Term Stability (4)	TYP MAX	<0.1			%
Long Term Stability	MAX	<0.2			% / kWhrs
Transient Response (5)	MAX	<1% Error			µs
Dynamic Response (6)	MIN	8			mV peak
Noise, 0-20MHz bw	TYP MAX	5 20			mV P-P
Temperature Coefficient	TYP MAX	50 150			ppm / °C
Short Circuit Protection to Common for all Outputs		Continuous (7)			

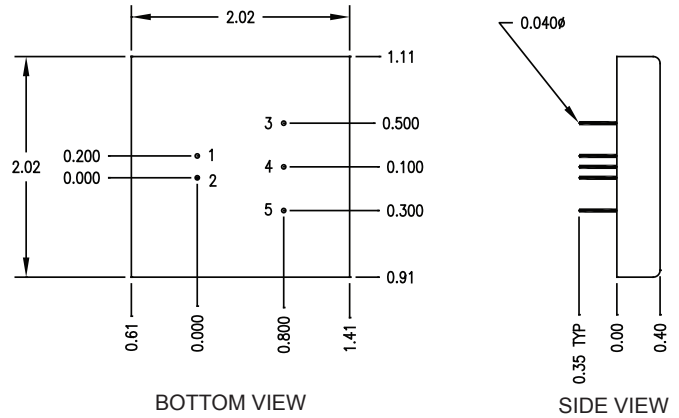
**Notes:**

- (1) 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.
- (2) To determine the correct fuse size, see CALEX Application Notes.
- (3) No minimum load current is required.
- (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 100% step load change (rise time of step = 2µSec.) to a 1% error band.
- (6) Dynamic response is the peak overshoot voltage during the transient response time defined in note 5 above.
- (7) Limited to 10 seconds maximum when both outputs are shorted to Common at the same time.
- (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 may reduce expected operational life. All 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.
- (11) RoHS Compliance: See Calex website [www.calex.com/RoHS.html](http://www.calex.com/RoHS.html) for the complete RoHS Compliance statement. The RoHS marking is as follows.



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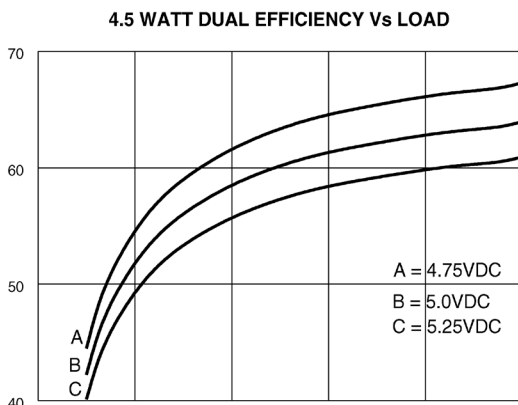
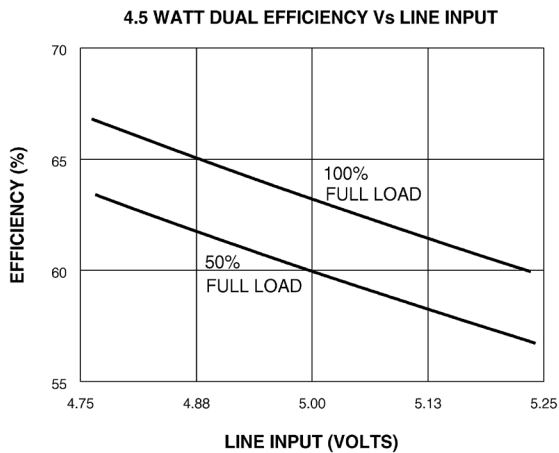
General Specifications			
All Models			Units
<b>Isolation</b>			
Isolation Voltage Input to Output 10 $\mu$ A Leakage	MIN	700	VDC
Input to Output Capacitance	TYP	50	pF
<b>Environmental</b>			
Case Operating Range No Derating	MIN MAX	-25 90	$^{\circ}$ C
Case Functional Range (8)	MIN MAX	-40 100	$^{\circ}$ C
Storage Range	MIN MAX	-55 105	$^{\circ}$ C
Thermal Impedance (9) Standard Models	TYP	10	$^{\circ}$ C/Watt
-5 Models	TYP	11	$^{\circ}$ C/Watt
<b>General</b>			
Unit Weight	TYP	1.7	oz
Mounting Kits	MS6 & MS15		



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

Mechanical tolerances unless otherwise noted:  
 X.XX dimensions:  $\pm 0.020$  inches  
 X.XX dimensions:  $\pm 0.005$  inches

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



## Case

The 5D12.185B, 5D15.150B and 5D15.167B use a six sided shielded 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.

