

# 6 Watt Dual Output DC/DC Converters

3355 Vincent Road, Pleasant Hill, CA 94523-4389 800-542-3355 Telephone (415)932-3911 FAX: (415)932-6017



## FEATURES

T-57-11

- Low Profile Copper Case (0.375" High)
- Six-Sided Shielded Case
- Low Input/Output Noise Operation
- 500 VDC Input/Output Isolation
- Short Circuit Protected Output
- Fixed Frequency Operation Independent of Line and Load
- Highly Regulated/Low Drift Output
- Rugged High Speed MOSFET Power Chopper
- 5 Year Warranty

## SELECTION CHART

MODEL	INPUT RANGE VDC		OUTPUTS VDC	OUTPUTS mA	CASE
	MIN	MAX			
12D12.250	11.16	13.20	±12	±250	D
12D15.200	11.16	13.20	±15	±200	D
24D12.250	22.32	26.40	±12	±250	D
24D15.200	22.32	26.40	±15	±200	D
28D12.250	26.04	30.80	±12	±250	D
28D15.200	26.04	30.80	±15	±200	D
48D12.250	44.64	52.80	±12	±250	D
48D15.200	44.64	52.80	±15	±200	D

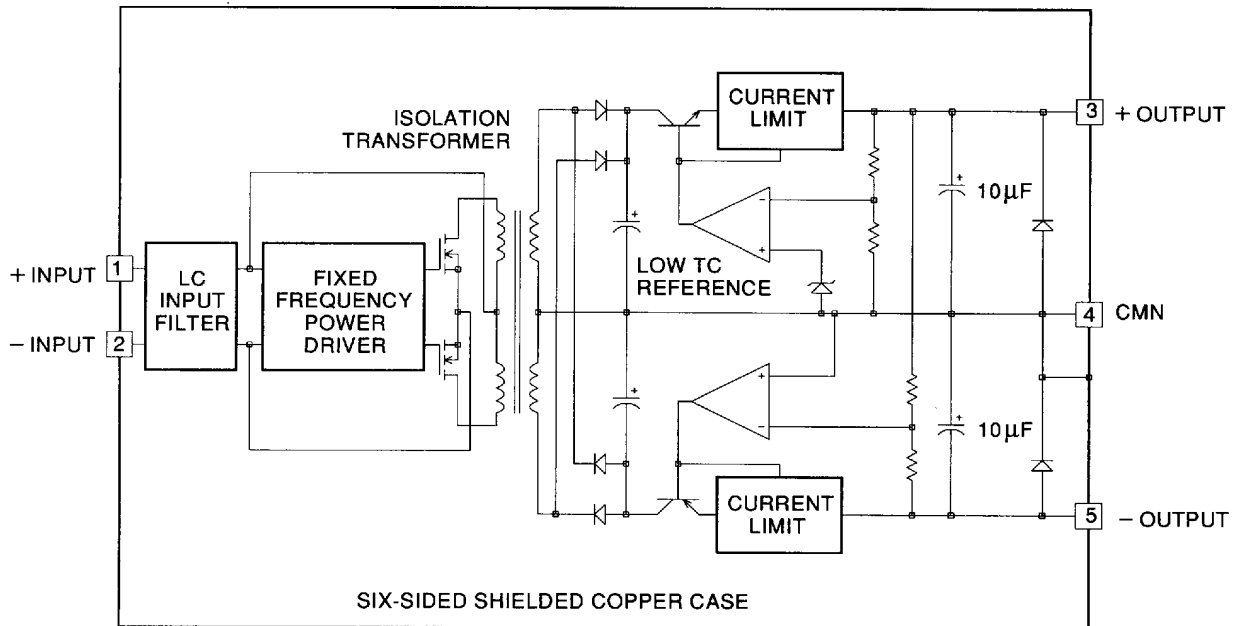
## DESCRIPTION

Ideal for industrial applications, these 6 Watt Dual Output converters are suitable for use in telecommunications, medical and other systems that require dual floating outputs.

These DC/DC converters operate at a fixed frequency that is independent of line and load. The isolation transformer provides 500 VDC isolation between input and output grounds allowing the outputs to be floated above or below the input ground. Designed for maximum performance, each unit has an LC input filter, high speed MOSFET power chopper and short circuit protected linear post regulators.

The copper case, measuring only 0.375" high, is shielded on all six sides to minimize radiated noise. All converters in this series are guaranteed under the GALEX 5 Year Warranty.

6 WATT DUAL SERIES BLOCK DIAGRAM





# 6 Watt Dual Output DC/DC Converters

INPUT PARAMETERS (1)						
MODEL		12D12.250	12D15.200	24D12.250	24D15.200	UNITS
Voltage Range	MIN	11.16		22.32		VDC
	MAX	13.20		26.40		
Reflected Ripple (2), 0-20MHz BW	TYP	10		5		mA p-p
	MAX	25		15		
Input Current Full Load	TYP	746	710	373	360	mA
	No Load	TYP	55	50	27	
Efficiency	TYP	67	71	67	70	%
Switching Frequency	TYP	85				kHz
Maximum Input Over Voltage, 100mS No Damage	MAX	15		30		VDC
Turn-on Time, 1% Output Error	TYP	2				mSec
Recommended Fuse		(3)				
MODEL		28D12.250	28D15.200	48D12.250	48D15.200	UNITS
Voltage Range	MIN	26.04		44.64		VDC
	MAX	30.80		52.80		
Reflected Ripple (2), 0-20MHz BW	TYP	5		10		mA p-p
	MAX	15		25		
Input Current Full Load	TYP	320	303	195	190	mA
	No Load	TYP	26	26	19	
Efficiency	TYP	67	71	64	66	%
Switching Frequency	TYP	85				kHz
Maximum Input Over Voltage, 100mS No Damage	MAX	35		60		VDC
Turn-on Time, 1% Output Error	TYP	2				mSec
Recommended Fuse		(3)				

OUTPUT PARAMETERS (1)						
MODEL		12D12.250 28D12.250	24D12.250 48D12.250	12D15.200 28D15.200	24D15.200 48D15.200	UNITS
Output Voltage		±12		±15		VDC
Rated Current (4)	MIN	0		0		mA
	MAX	±250		±200		
Voltage Range 100% Load	MIN	11.90		14.90		VDC
	TYP	12.00		15.00		
	MAX	12.10		15.10		
Output Balance (Plus to Minus Output, Full Load)	TYP	0.6		0.6		%
	MAX	1.0		1.0		
Load Regulation 0-100% Load	TYP	0.02				%
	MAX	0.07				
Line Regulation Vin = Min-Max VDC	TYP	0.05				%
	MAX	0.10				
Short Term Stability (5)	TYP	0.02				%
Long Term Stability	TYP	0.2				%/kHrs
Transient Response (6)	TYP	20				µSec
Dynamic Response (7)	TYP	10				mV peak
Input Ripple Rejection (8)	TYP	60				dB
Noise, 0-20MHz BW	TYP	10				mV p-p
	MAX	40				
Temperature Coefficient	TYP	75		50		ppm/°C
	MAX	250		150		
Short Circuit Protection to Common for all Outputs		Continuous, 8 Hours Minimum Current Limit				

### Notes:

- (1) All parameters measured at 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% of its final value.
- (3) 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.
- (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 = 2 µSec.) to a 1% error band.
- (7) Dynamic response is the peak overshoot voltage during the transient response time as defined in note 6 above.
- (8) The input ripple rejection is specified for DC to 120Hz ripple with a modulation amplitude of 1% Vin.

# 6 Watt Dual Output DC/DC Converters

CALEX MANUFACTURING CO

52E D

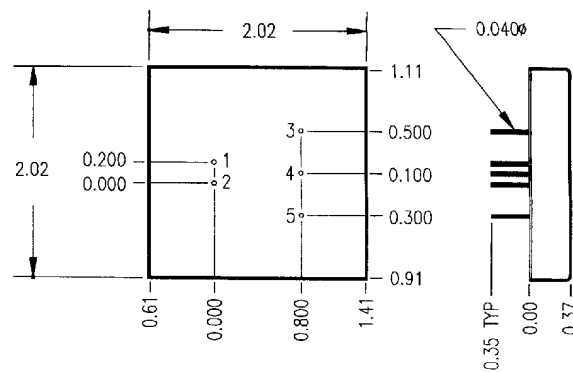
1811250 0001144 535 CEX

T-57-11

3355 Vincent Road, Pleasant Hill, CA 94523-4389 800-542-3355 Telephone (415)932-3911 FAX: (415)932-6017



GENERAL SPECIFICATIONS (1)			
MODEL	ALL MODELS		UNITS
<b>ISOLATION</b>			
Isolation Voltage	MIN	500	VDC
Input-Output 10µA Leakage			
Input to Output Capacitance	TYP	75	pF
<b>ENVIRONMENTAL</b>			
Case Operating Range, No Derating	MIN MAX	-25 80	°C
Case Functional Range (9)	MIN MAX	-40 85	°C
Storage Range	MIN MAX	-55 100	°C
Thermal Impedance (10)	TYP	10	°C/Watt
Unit Weight	TYP	1.7	oz
Case	D		
Mounting Kits	MS6 & MS15		



BOTTOM VIEW

Mechanical tolerances unless otherwise noted:

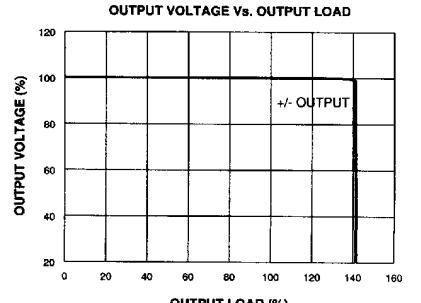
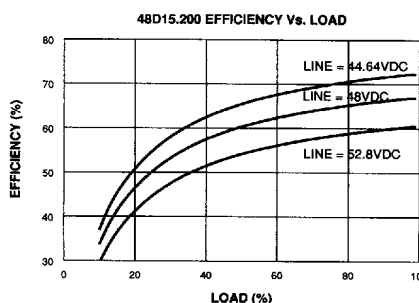
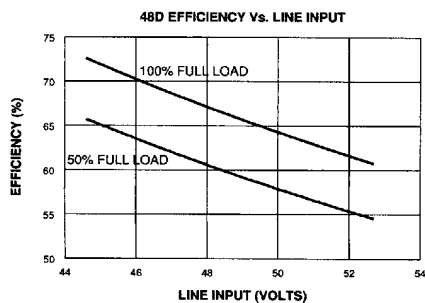
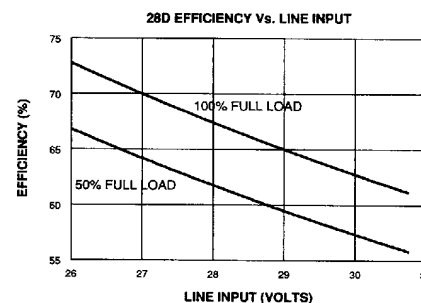
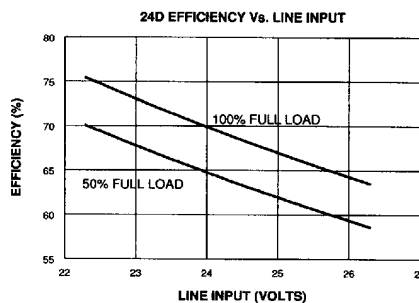
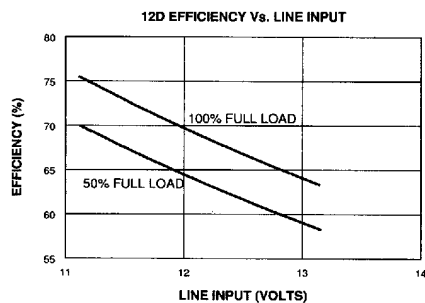
X.XX dimensions:  $\pm 0.020$  inches

X.XXX dimensions:  $\pm 0.005$  inches

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

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

PIN	FUNCTION
1	+INPUT
2	-INPUT
3	+OUTPUT
4	CMN
5	-OUTPUT





# 6 Watt Dual Output DC/DC Converters

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

T-57-11

