

2W SINGLE AND DUAL OUTPUT DC-DC CONVERTERS

FEATURES

- Indefinite Short-Circuit Protection
- 500 VDC Input/Output Isolation
- Pi Input Filter
- Tight Line/Load Regulation
- Continuous Shielding, Copper Case
- Compact 1" x 2" x 0.38" Package
- 5-Year Warranty
- 800,000 Hours Minimum MTBF



DC1-2 and DC2-2 models have a copper case with six-sided shielding and are encapsulated with a flame-retardant epoxy.

APPLICATIONS

- Board Level Subsystems
- Portable/Battery Driven Equipment
- Telecommunications Equipment
- Data Communications Equipment

GENERAL SPECIFICATIONS

DC INPUT VOLTAGE	See voltage/current rating chart.
INPUT CURRENT	See voltage/current rating chart.
REFLECTED RIPPLE CURRENT	25 mA _{pp} , maximum.
EMI FILTER	Pi input filter, standard.
DC OUTPUT	See voltage/current rating chart.
CONTINUOUS OUTPUT POWER	2 watts, maximum.
OUTPUT VOLTAGE TOLERANCE	±3 percent (DC1-2); ±2 percent (DC2-2).
OUTPUT VOLTAGE BALANCE	±4 percent, maximum (DC2-2).
EFFICIENCY	See voltage/current rating chart.
CURRENT LIMIT	Pulsed overload (DC1-2); thermal limited (DC2-2).
OUTPUT NOISE & RIPPLE	30 mV _{pp} , maximum.
LINE/LOAD REGULATION	See voltage/current rating chart.
CROSS-REGULATION	±0.1 percent, maximum (DC2-2).
ISOLATION VOLTAGE	500 VDC, input to output.
ISOLATION CAPACITANCE	100 pF, typical.
TRANSIENT RESPONSE	50 μs, maximum, to within 1 percent of V _{OUT} with 25 percent step load change. (See Note 5.)
FREQUENCY OF OPERATION	45-55 kHz.

ENVIRONMENTAL OPERATING CHARACTERISTICS

TEMPERATURE RANGE	-25°C to +70°C, no derating.
TEMPERATURE COEFFICIENT	±0.02 percent/°C.
COOLING	Free-air convection.
RELATIVE HUMIDITY	0 to 95 percent, non-condensing.
ALTITUDE	0 to 10,000 feet.

STORAGE CHARACTERISTICS

TEMPERATURE RANGE	-40°C to +100°C.
RELATIVE HUMIDITY	0 to 95 percent, non-condensing.

RELIABILITY

MEAN TIME BETWEEN FAILURES	>800,000 hours, per MIL-HDBK 217E Parts Stress Method. (Ground benign, T _A =+25°C.)
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DC1-2 AND DC2-2 SERIES

Model Number		DC Input Voltage			Input Current		DC Output Voltage (V)	Output Current (mA)	Line Reg. (LL-HL)	Load Reg. (NL-FL)	Efficiency
		Min. (V)	Nom. (V)	Max. (V)	No. Load (mA)	Full Load (mA)					
In L Case	In M Case										
DC1-2-5/5	DC1-2-5/5A	4.5	5.0	5.5	125	700	5.0	400	±0.1%	±0.1%	57%
—	DC1-2-5/9A	4.5	5.0	5.5	130	640	9.0	222	±0.1%	±0.1%	63%
DC1-2-5/12	DC1-2-5/12A	4.5	5.0	5.5	140	640	12	167	±0.1%	±0.1%	62%
DC1-2-5/15	DC1-2-5/15A	4.5	5.0	5.5	145	640	15	133	±0.1%	±0.1%	62%
—	DC1-2-5/24A	4.5	5.0	5.5	160	668	24	83	±0.1%	±0.1%	60%
DC1-2-12/5	DC1-2-12/5A	10.8	12	13.2	60	300	5.0	400	±0.1%	±0.1%	57%
—	DC1-2-12/9A	10.8	12	13.2	60	285	9.0	222	±0.1%	±0.1%	60%
DC1-2-12/12	DC1-2-12/12A	10.8	12	13.2	60	275	12	167	±0.1%	±0.1%	60%
DC1-2-12/15	DC1-2-12/15A	10.8	12	13.2	65	275	15	133	±0.1%	±0.1%	60%
—	DC1-2-12/24A	10.8	12	13.2	68	275	24	83	±0.1%	±0.1%	61%
DC1-2-24/5	DC1-2-24/5A	21.6	24	26.4	20	135	5.0	400	±0.1%	±0.1%	62%
—	DC1-2-24/9A	21.6	24	26.4	20	130	9.0	222	±0.1%	±0.1%	67%
DC1-2-24/12	DC1-2-24/12A	21.6	24	26.4	25	128	12	167	±0.1%	±0.1%	66%
DC1-2-24/15	DC1-2-24/15A	21.6	24	26.4	25	125	15	133	±0.1%	±0.1%	67%
—	DC1-2-24/24A	21.6	24	26.4	28	130	24	83	±0.1%	±0.1%	65%
—	DC1-2-28/5A	25.2	28	30.8	18	120	5.0	400	±0.1%	±0.1%	64%
—	DC1-2-28/9A	25.2	28	30.8	23	110	9.0	222	±0.1%	±0.1%	65%
—	DC1-2-28/12A	25.2	28	30.8	22	110	12	167	±0.1%	±0.1%	67%
—	DC1-2-28/15A	25.2	28	30.8	22	108	15	133	±0.1%	±0.1%	67%
—	DC1-2-28/24A	25.2	28	30.8	25	110	24	83	±0.1%	±0.1%	65%
DC1-2-48/5	DC1-2-48/5A	43.2	48	52.8	13	70	5.0	400	±0.1%	±0.1%	61%
—	DC1-2-48/9A	43.2	48	52.8	12	62	9.0	222	±0.1%	±0.1%	67%
—	DC1-2-48/12A	43.2	48	52.8	12	62	12	167	±0.1%	±0.1%	68%
—	DC1-2-48/15A	43.2	48	52.8	12	61	15	133	±0.1%	±0.1%	69%
—	DC1-2-48/24A	43.2	48	52.8	17	65	24	83	±0.1%	±0.1%	65%
DC2-2-5/12	—	4.5	5.0	5.5	115	700	±12	80	±0.2%	±0.2%	58%
DC2-2-5/15	—	4.5	5.0	5.5	115	700	±15	65	±0.2%	±0.2%	58%
DC2-2-12/12	—	10.8	12	13.2	38	286	±12	80	±0.2%	±0.2%	58%
DC2-2-12/15	—	10.8	12	13.2	40	285	±15	65	±0.2%	±0.2%	59%
DC2-2-24/12	—	21.6	24	26.4	20	138	±12	80	±0.2%	±0.2%	60%
DC2-2-24/15	—	21.6	24	26.4	20	135	±15	65	±0.2%	±0.2%	63%
DC2-2-28/12	—	25.2	28	30.8	20	120	±12	80	±0.2%	±0.2%	60%
DC2-2-28/15	—	25.2	28	30.8	20	116	±15	65	±0.2%	±0.2%	62%
DC2-2-48/12	—	43.2	48	52.8	14	70	±12	80	±0.2%	±0.2%	60%
DC2-2-48/15	—	43.2	48	52.8	14	70	±15	65	±0.2%	±0.2%	61%

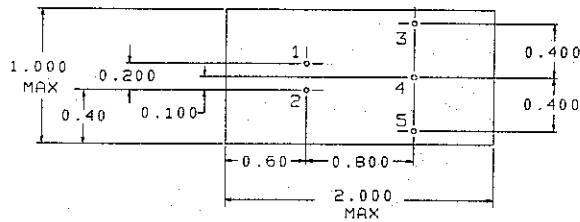
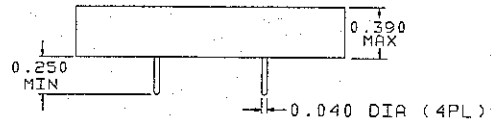
Notes:

1. Converters with ±12V or ±15V output can be used as 24V or 30V supplies.
2. Total output power must not exceed 2 watts.
3. All measurements are at nominal input, full load and +25°C, unless otherwise specified.
4. Peak-to-peak and RMS metering equipment shall have a 20 MHz response with probes and cables maintaining a frequency response of 20 Hz to 20 MHz. Output ripple and spikes are measured directly at the output terminals of the power supply across a 0.1 µF ceramic capacitor without use of the probe ground.
5. Maximum transient response deviation=10 mV for DC1-2, 150 mV for DC2-2.

DC1-2 AND DC2-2 SERIES

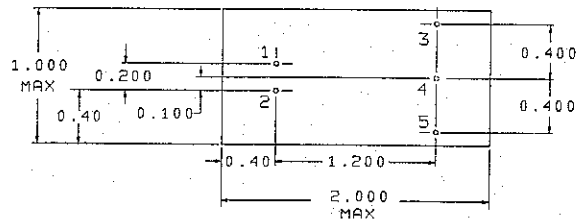
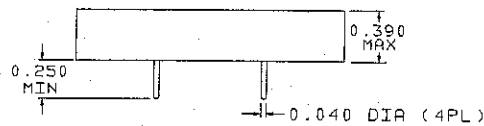
MECHANICAL OUTLINE AND PIN CONFIGURATION

L CASE



BOTTOM VIEW

M CASE



BOTTOM VIEW

Notes:

1. Dimensions shown are in inches.
2. Tolerance = 0.00 ±0.02.
0.000 ±0.005.
3. Module weight = 0.9 oz (0.026 kg).

PIN-OUT

Single Output L Case		Single Output M Case		Dual Output L Case	
Pin	Designation	Pin	Designation	Pin	Designation
1	+V IN	1	-V IN	1	+V IN
2	-V IN	2	+V IN	2	-V IN
3	+V OUT	3	-V OUT	3	+V OUT
4	No Pin	4	No Pin	4	COMMON
5	-V OUT	5	+V OUT	5	-V OUT