

# EA SERIES

## Dual output

For new design-ins see the AFC5 Series Instead

- Short circuit protection
- Low profile 0.38 inch
- High reliability
- Transformer isolated
- Single output operation permissible



## 2 YEAR WARRANTY

The EA Series of DC/DC converters offer compact size and excellent performance for applications where circuit board component density is high and card cage spacing is critical. At 2.0 x 1.0 x 0.38 inches, the EA series delivers up to 1.8 Watts of output power with no derating to +71°C operating temperature. This series offers  $\pm 12\text{VDC}$  or  $\pm 15\text{VDC}$  from a 5VDC input. Short circuit protection and input filter are standard features. Ripple and noise is held to 100mV rms maximum with

$\pm 1.0\%$  line regulation and  $\pm 0.5\%$  load regulation. The EA series offers 500VDC isolation between input and output with  $1 \times 10^8$  ohms minimum isolation resistance. The EA series is ideally suited for use in RS232 interfaces – or wherever it is desirable to develop a well isolated voltage from a 5V bus to drive analog circuitry.

## SPECIFICATION

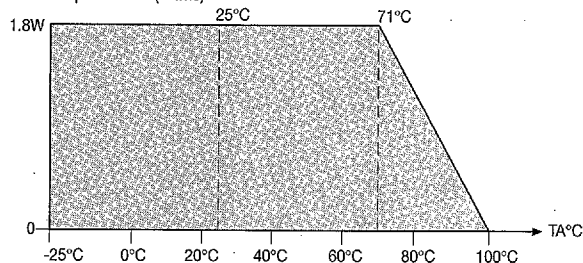
ALL SPECIFICATIONS ARE TYPICAL AT NOMINAL INPUT, FULL LOAD AND 25°C UNLESS OTHERWISE STATED

OUTPUT SPECIFICATIONS		
Voltage accuracy	-Vout after warmup	$\pm 2\%$ , max.
Voltage balance	+Vout after warmup	$\pm 1\%$ , max.
Line regulation	HL to LL	$\pm 1.0\%$
Load regulation	FL to NL	$\pm 0.5\%$
Ripple and noise	20MHz BW	100mV pk-pk, max 2mV rms, max.
Transient response	FL to NL	1.0% error band, 25 $\mu$ s recovery
Temperature coefficient		$\pm 0.03\%/^{\circ}\text{C}$ , max.
Short circuit protection	+ or - output to common + to - output	Continuous automatic recovery 10s, max.
INPUT SPECIFICATIONS		
Input voltage range	5VDC	4.65 to 5.5VDC
Input filter	See Note 6	Balun

GENERAL SPECIFICATIONS		
Efficiency	$\pm 12\text{VDC}$ $\pm 15\text{VDC}$	55% 60%
Isolation voltage	Input/output	500VDC, min.
Switching frequency	Fixed	40kHz
Case material	Non-conductive black plastic	
Weight	28g (1oz)	
MTBF	MIL-HDBK-217B	560,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient	-25°C to +71°C
	Non-operating amb.	-55°C to +100°C
	Case	+95°C max.
	Derating, see curve	None to 71°C
	Cooling	Free air convection

## DERATING CURVE

Output Power (Watts)



## Note

The same derating curve should be applied to the 12V output model with 1.44W maximum output power.

# 1.8 Watt Nominal input DC/DC converters

INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT <sup>(1)</sup>	EFFICIENCY	REGULATION <sup>(2)</sup>		MODEL NUMBER
					LINE <sup>(3)</sup>	LOAD <sup>(4)</sup>	
5VDC	±12VDC	±60mA	520mA	55%	±1.0%	±0.5%	EA05D12/60R
5VDC	±15VDC	±60mA	600mA	60%	±1.0%	±0.5%	EA05D15/60R

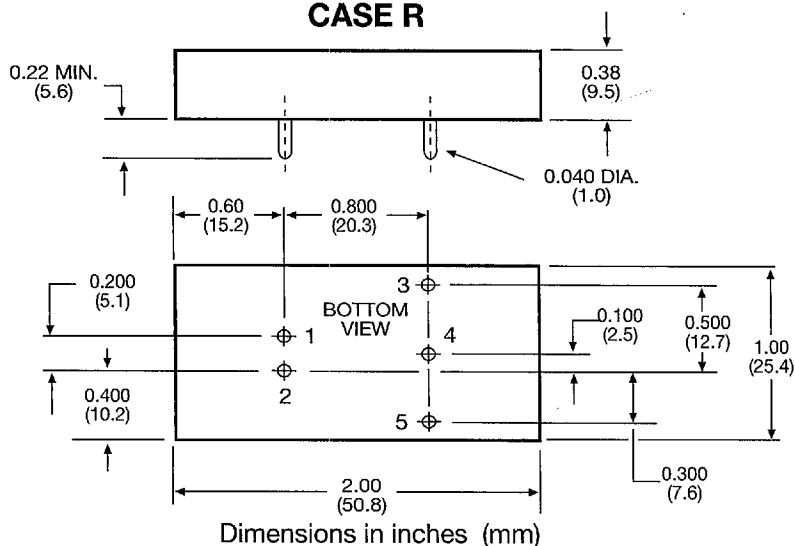
## Notes

- 1 The no-load input current is 75mA.
- 2 Maximum.
- 3 Measured from high line to low line.
- 4 Measured from full load to no-load.
- 5 Standard specifications are conservative and can be optimized for specific applications. In particular, converter start-up at lower than specified temperature, wider input voltage range and output voltage adjustment are all relatively simple modifications to the standard product. Consult factory for details.
- 6 Fixed frequency design provides for easier input filtering and better noise performance.

## PIN CONNECTIONS

PIN NUMBER	DUAL OUTPUT
1	+ Input
2	- Input
3	+ Output
4	Common
5	- Output

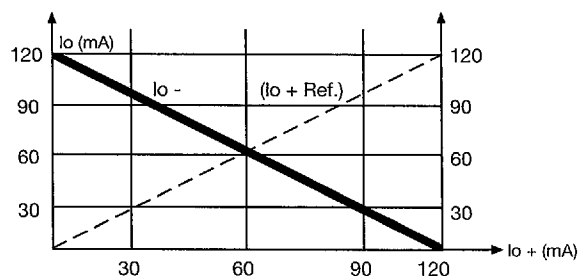
## CASE R



## Note

Single-ended or unbalanced operation is permissible per the following graph:

## SINGLE ENDED OR UNBALANCED OPERATION



For single-ended operation with capacitive loads use a reverse-biased diode (IN914, IN4148, IN4001, etc.) across each output to output common, i.e., any combination of  $+I_o$  and  $-I_o$  which does not exceed a total of 120mA. Output noise and load regulation will degrade linearly to 4mV rms, and 1.0% with single-ended operation.