ARTESYN TECHNOLOGIES

EM600 SERIES

Single and dual output

- **70% efficiency typical**
- **Unregulated outputs**
- **24 pin DIP package**
- **No derating**
- **Short circuit protection**

This series of low cost, unregulated DC/DC converters comes in ultra miniature 24 pin DIP packages. Five different models with a Pi network input filter that suppresses input reflected ripple current. The units feature 5V output at 1 Watt, and 12V, ±12V, and ±15V outputs at 1.5 Watts; input voltages are either 5V or 12V with ±10% input range. These DC/DC converters are ideal for high density PC board applications where space is at a premium and where high efficiency is more important than line and load regulation. Pertinent specifications include 70% efficiency, ±3% output voltage accuracy, 100mV pk-pk output ripple and noise, and 300VDC Isolation. Switching frequency is fixed and operating temperature range is –25°C to +71°C with no output derating. The case size is 1.25 x 0.8 x 0.4 inches.

[2 YEAR WARRANTY]

SPECIFICATION

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATIONS		
Set point accuracy		±3.0%
Line regulation	All outputs	1.2% change Vout, per 1.0% change in Vin
Load regulation	20% FL to 100% FL	6.0% typ.
Ripple and noise	20MHz See Notes 1, 8	100mV pk-pk, max.
Short circuit protection		Yes, automatic restart
INPUT SPECIFICATIONS		
Input voltage range	5VDC 12VDC	4.5 to 5.5VDC 10.8 to 13.2VDC
Input filter		Pi network

GENERAL SPECIFICATIONS		
Efficiency		60 to 80%
Isolation voltage		300VDC, min.
Switching frequency	Fixed	35kHz to 60kHz.
Case material		Non-conductive black plastic
Weight		14g (0.5oz)
MTBF		1,000,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient Non-operating amb. Case Derating Cooling	–25°C to +71°C –40°C to +85°C +95°C, max. None Free air convection cooled
Relative humidity	Non-condensing	20% to 80% RH
Altitude	Operating Non operating	10,000 feet max. 40,000 feet max.
Vibration	5Hz to 500Hz	2.5G rms (approx.)

1 to 1.5 Watt
Nominal input DC/DC converters

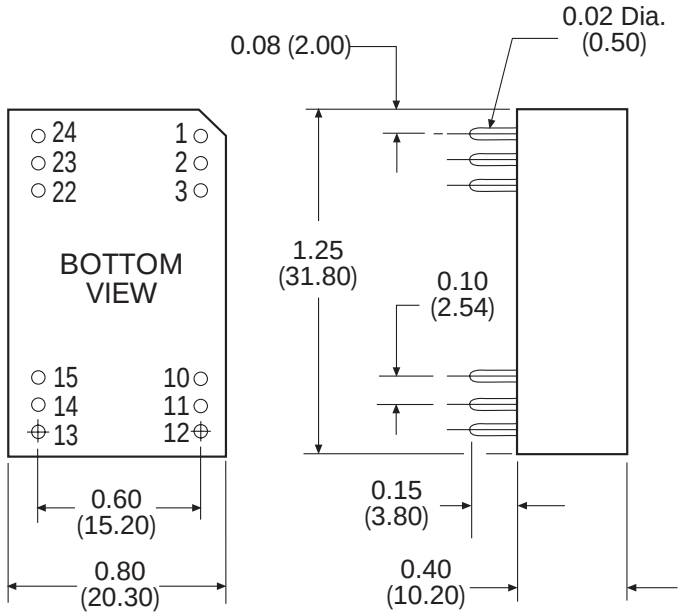
INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT (2)	REFLECTED RIPPLE CURRENT (3)	REGULATION		MODEL NUMBER
					LINE (4)	LOAD (5)	
5VDC	5VDC	220mA	345mA	90mA	1.2%	8.0%	EM621
5VDC	±12VDC	±62mA	450mA	90mA	1.2%	6.0%	EM671
5VDC	±15VDC	±50mA	450mA	90mA	1.2%	6.0%	EM672
12VDC	5VDC	220mA	125mA	90mA	1.2%	8.0%	EM631
12VDC	12VDC	125mA	170mA	90mA	1.2%	6.0%	EM633

Notes

1 15µF, 35V tantalum capacitor across each output.
2 Maximum value at full load.
3 Figure is peak-to-peak.
4 Line regulation is per 1.0% change in input voltage.
5 Load regulation is for load change from 100% to 20% (see graph).
6 Standard specifications are conservative and can be optimised 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.
7 On dual output models the four common pins are internally connected. The outputs can be returned through one pin while the others remain floating.
8 Fixed frequency design provides for easier input filtering and better noise performance.

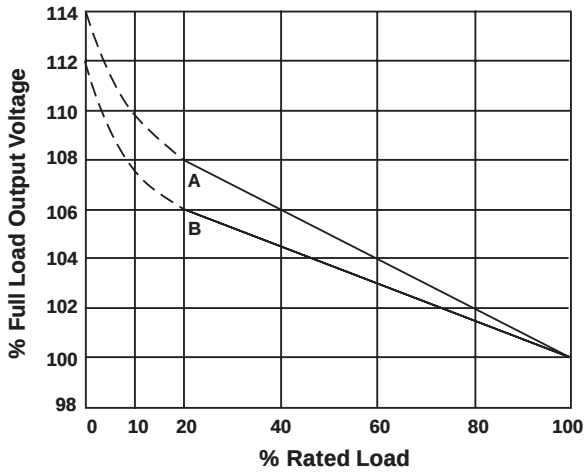
PIN CONNECTIONS		
PIN NUMBER	SINGLE OUTPUT	DUAL OUTPUT (7)
1	+V Input	+V Input
2	Do not connect	–V Output
3	Do not connect	Common
10	–V Output	Common
11	+V Output	+V Output
12	–V Input	–V Input
13	–V Input	–V Input
14	+V Output	+V Output
15	–V Output	Common
22	Do not connect	Common
23	Do not connect	–V Output
24	+V Input	+V Input

CASE F



ALL DIMENSIONS INCHES (mm)

Typical Load Regulation



Line A-EM621
Line B-All Other Models