



1.77"W x 2.64"L x 0.92"H

- Universal 90-264VAC Input
- High Efficiency
- Improved EMI Performance
- 4000VAC Isolation
- Single, Dual & Triple Outputs
- Full Safety Approvals



Model Number	Output Voltage	Output Amps(max)
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SINGLE OUTPUT

EFM-1500/M	3.3 Volts	3.5 Amps
EFM-1501/M	5 Volts	3 Amps
EFM-1522/M	9 Volts	1.66Amps
EFM-1502/M	12 Volts	1.25 Amps
EFM-1503/M	15 Volts	1 Amps
EFM-1518/M	18 Volts	0.83Amps
EFM-1505/M	24 Volts	0.63 Amps

DUAL OUTPUT

EFM-1506/M	±12 Volts	±0.63 Amps
EFM-1507/M	±-15 Volts	±-0.5 Amps
EFM-1508/M	5/ 12 Volts	1.8 / 0.8 Amps

TRIPLE OUTPUT

EFM-1509/M	5/ ±12 Volts	2.5/±0.1 Amps
EFM-1511/M	5/ ±15 Volts	2.5/±0.1 Amps

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

15W Ultraminiature Medical Grade Switching Power Supplies

EFM15/M series

INPUT SPECIFICATIONS

Input Voltage Range	90-264 VAC (100-240VAC nom.)
Frequency Range	47-63 Hz
Inrush Current, typ, cold start	20A @ 115VAC; 40A @ 230VAC
Leakage Current	<0.3mA @ 264VAC, 50Hz

OUTPUT SPECIFICATIONS

Voltage and Current	See Selection Chart
Load Regulation (20%-FL)	Single: $\pm 1\%$, max.
	Duals: $\pm 3\%$ (EFM-1508: 1/3%)
	Triple: 0.6/ $\pm 0.5\%$
Line Regulation, max.	Single/Dual $\pm 1\%$
	Triple: 0.6/ $\pm 0.2\%$
Cross Regulation, max.	Duals 3% (EFM-1508: 1/5%)
	Triple: NA/ $\pm 0.5\%$
Preset Accuracy	Single/Dual 1%
	(except EFM-1508: 2/5%)
	Triple: 1/ $\pm 5\%$
DC Voltage Adjust (typ)	$\pm 6\%$ of FS (Primary)
Temperature Coefficient	$\pm 0.03\%/^{\circ}\text{C}$
Ripple/Noise	Single/Dual: 100mV Pk-Pk, max.
	EFM-1508: 100/150mV pk-pk
	Triple: 75/ $\pm 50\text{mV}$ pk-pk
Over Voltage Protection	Clamp
Short Circuit Protection	Continuous, self-recovering
Hold Up Time	20 mS, typ
DC Output Power	15 Watts, max

PHYSICAL SPECIFICATIONS

Size	1.77" x 2.64" x 0.92"
Construction	Open Frame
Weight	2.5oz (71g)

GENERAL SPECIFICATIONS

Isolation	3KVAC Input-Output
Efficiency, typ. @ nom input	Single: 72~77% (3.3Vout: 67%)
	Dual: 72-74%
	Triple: 68%
Switching Frequency	100Khz, (fixed, typical)
Safety	UL/cUL: ANSI/AAMI ES60601-1 3rd ed. CSA C22.2 No. 60601-1 3rd ed.
	UL-EU: EN60601-1 3rd ed.
	CB: IEC60601-1 3rd ed.
	CE: EN60601-1-2
EMC	EN55011 Class B

ENVIRONMENTAL SPECIFICATIONS

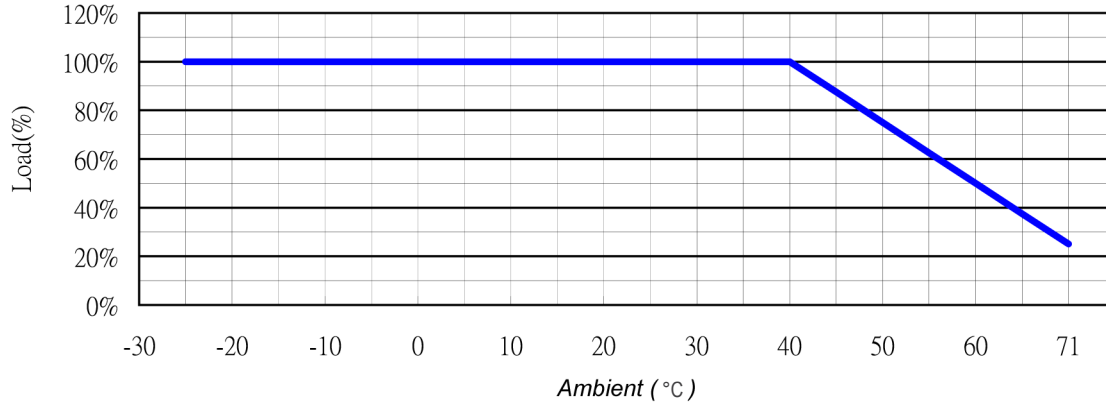
Oper. Temperature	0 to +40°C (See Derate)
Storage Temperature	-25 to +71°C *
Relative Humidity	0 to + 95%, non-cond *
MTBF (Mil Std 217, 25°C)	270,000 Hrs min.

NOTES

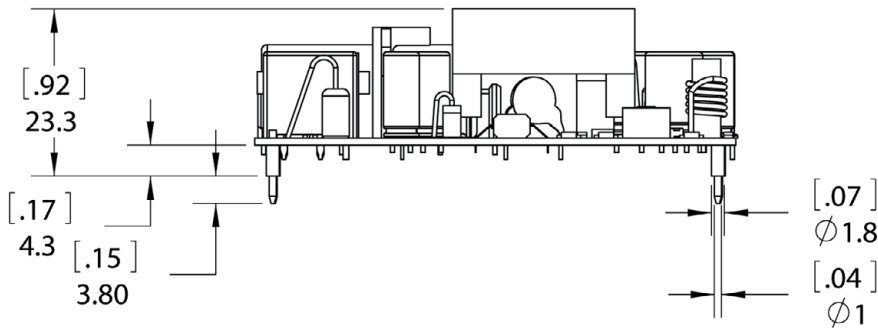
1. Ripple and Noise depend upon output voltage as specified per particular model.
2. Short Circuit Protection is self-recovering when overcurrent condition is removed.
3. Isolation for up to 1 minute duration.
4. Specified for free-air convection cooling.
5. Minimum load is NOT required for proper operation. However, auxiliary outputs should be reduced as a function of primary output minimum load or load regulation will be higher.
6. Load regulation measured from 20% to full load.
7. Line regulation measured from 90VAC to 264VAC.
8. Preset accuracy measured at nominal load, 120VAC input.
9. O/P noise measured directly at pins/terminals at nom. load, 0.1uF//10uF bypass capacitor, pk-pk @20MHz bandwidth.
10. Cross Reg-Duals: Measured at nom. load with the other output varied between 60% and 100% output load.

* These are stress ratings. Exposure of the devices to any of these conditions may adversely affect long term reliability. Proper operation under conditions other than the standard operating conditions is neither warranted nor implied.

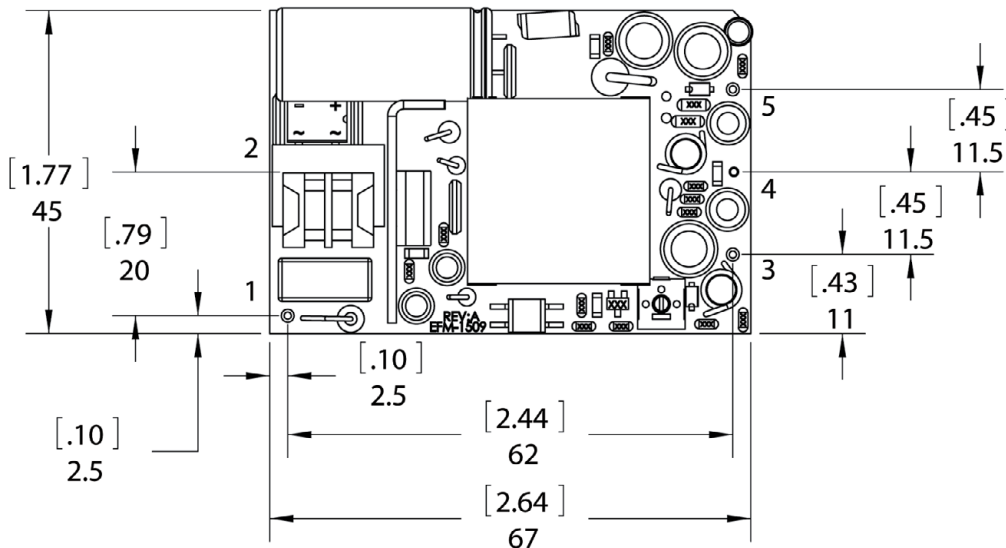
OUTPUT DERATING CURVE



MECHANICAL DIMENSIONS - SINGLE + DUAL OUTPUTS



Single	Dual	Dual(1508)
ACL	ACL	ACL
ACN	ACN	ACN
+Vout	+Vout	+12V
NC	Com	+5V
-Vout	-Vout	Com



MECHANICAL DIMENSIONS - TRIPLE OUTPUTS

