



1.77"W x 2.64"L x 0.91"H

- Universal 90-264VAC Input
- High Efficiency
- Improved EMI Performance
- 3000V Isolation
- Single, Dual & Triple Outputs
- UL60950-1, EN60950-1



Model Number	Output Voltage	Output Amps(max)
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SINGLE OUTPUT

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

DUAL OUTPUT

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

TRIPLE OUTPUT

EFM-1509	5/ ±12 Volts(DC)	2.5/±0.1 Amps
EFM-1511	5/ ±15 Volts(DC)	2.5/±0.1 Amps



15W Ultraminiature Open Frame Switching Power Supplies

EFM15 series

INPUT SPECIFICATIONS

Input Voltage Range	90-264 VAC
Frequency Range	47-63 Hz
Inrush Current, typ:	20A @ 115Volts(DC)
	40A @ 230Volts(DC)

OUTPUT SPECIFICATIONS

Voltage and Current	See Selection Chart
Load Regulation (20%-FL)	Singles: $\pm 3\%$, Duals: $\pm 3\%$ (EFM-1508: 0.2/0.2%) Triple: 0.5/ $\pm 0.2\%$
Line Regulation, typ	Singles $\pm 0.1\sim 1\%$ Duals $\pm 0.3\sim 1\%$ (EFM-1508: 0.5/3%) Triple: 0.5/ $\pm 0.3\%$
Cross Regulation	Duals 2% (EFM-1508: 0.5/3%) Triple: NA/ $\pm 0.1\%$
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/Duals 100mV Pk-Pk, typ EFM-1508: 50/50mV pk-pk Triple: 50/ $\pm 50\text{mV}$ pk-pk
Over Voltage Protection	Clamp
Over Temp. Protection	Latching, recov after cooling and power restored.
Short Circuit Protection	Continuous, self-recovering
Hold Up Time	20 mS, typ
DC Output Power	15 Watts, max

GENERAL SPECIFICATIONS

Isolation	3KVAC Input-Output
	2500VAC Input-Ground
	1000VAC Output-Ground

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

* 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.

Efficiency, typ	Single/Dual 75%~78% (EFM-1508: 74%) Triple: EFM-1509: 70% EFM-1511: 71%
Switching Frequency	100Khz, (fixed, typical)
Safety	UL60950-1, EN60950-1
EMC	EN55022

PHYSICAL SPECIFICATIONS

Size	1.77" x 2.64" x 0.91"
Construction	Open Frame
Weight	2.5oz (70g)

ENVIRONMENTAL SPECIFICATIONS

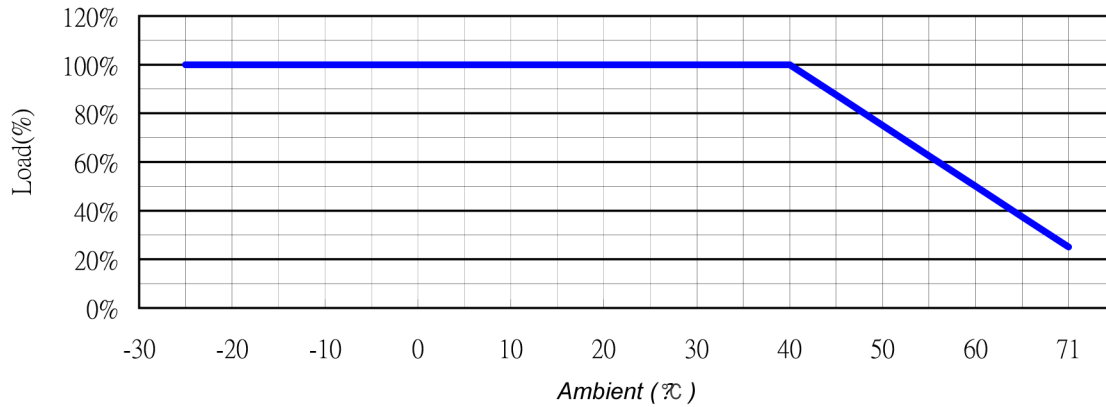
Oper. Temperature	0 to +40°C (See Derate)
Storage Temperature	-25 to +71°C *
Relative Humidity	0 to + 95%, non-cond *
MTBF	(Mil Std 217, 25°C) 559,000 Hrs

NOTES

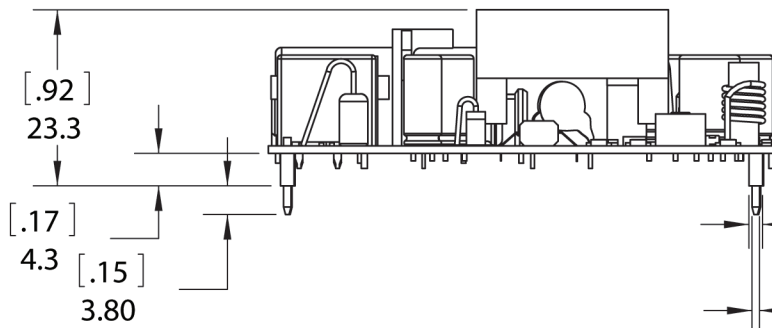
1. Ripple and Noise depend upon output voltage as specified per particular model.
2. Short Circuit Protection is self-recovering when overcurrent condition is removed.
3. Isolation for up to 1 minute duration.
4. Specified for free-air convection cooling.
5. Minimum load is NOT required for proper operation. 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 bypass, pk-pk @20MHz bandwidth.
10. Cross Reg-Duals: Measured at nom. load with the other output varied between 60% and 100% inom.

Astrodyne products are not authorized or warranted for use as critical components in life support systems, equipment used in hazardous environments, nuclear controls systems, or other mission-critical applications.

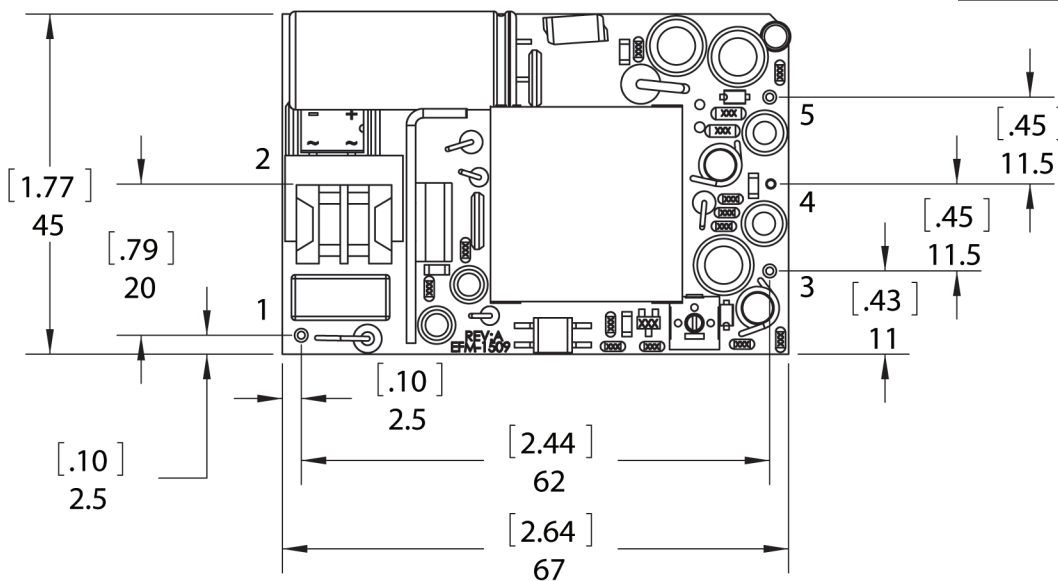
OUTPUT DERATING CURVE



MECHANICAL DIMENSIONS - SINGLE + DUAL OUTPUTS



Pin#	Single	Dual	Dual(1508)
1	ACL	ACL	ACL
2	ACN	ACN	ACN
3	+Vout	+Vout	+12V
4	NC	Com	+5V
5	-Vout	-Vout	Com



MECHANICAL DIMENSIONS - TRIPLE OUTPUTS

