



## ON-BOARD UNIVERSAL INPUT AC-DC ENCAPSULATED MODULAR POWER SUPPLIES 16 WATTS TRIPLE OUTPUT HAM16-T SERIES



### FEATURES:

- ON-BOARD AC/DC MODULAR POWER SUPPLIES
- UNIVERSAL INPUT RANGE
- COMPACT IN SIZE
- MEET UNIVERSAL SAFETY STANDARDS
- EMI MEET CISPR PUB.22 / FCC CLASS B
- CE MARKING COMPLIANCE

### SPECIFICATION

#### INPUT SPECIFICATION

**Input Voltage:** 90-264Vac.  
**Input Frequency:** 47-63 Hz. (50/60 Hz. Nom.).  
**Input Current:** 0.33A @115Vac./0.16A @230Vac typical.  
**Inrush Current:** 32.5A peak @230Vac typical.  
**Input Fuse:** Use external fuse. 1.0A/250Vac for the primary fuse is suggested.  
**Dielectric Withstand:** Meet IEC950.  
     3,000Vac-Output/Input.  
     1,500Vac-Input/GND.  
     500Vac-Output/GND.  
**EMI:** Meet CISPR PUB.22 / FCC Class B.  
**Hold-up time:** 20mS @115Vac, 100mS @230Vac typical.  
**Earth Leakage:** Less than 3.5mA @230Vac.  
**Remote On/Off:** TTL/CMOS-Compatible Output Control.  
     **Positive Logic** version for Standard set up:  
         ON(Enable)=Open(or 2.5-5.0Vdc above Com)  
         OFF(Disable)=Short(or 0-0.8Vdc above Com)  
     **Negative Logic** version option available by adding a "N"suffix to the end of Model #.

#### OUTPUT SPECIFICATION

**Output Voltage:** See Ratings Chart.  
**Output Current:** See Ratings Chart.  
**Output Wattage:** 15-16.5 Watts typical.  
**Output Indicator:** LED.  
**Line Regulation:** Various with output voltage  $\pm 0.5\%$  typical.  
**Load Regulation:** Various with output voltage.  
     VO1  $\pm 5.0$  typical, VO2  $\pm 4.0\%$  typical, VO3  $\pm 2.0\%$  typical.  
**Noise & ripple:** 1.0% typical peak to peak.  
**OVP:** Built-in on main output.  
**Adjustability:** From -10% of main output till OVP.  
**Overload Protection (OLP):**  
     Fully protected against output overload and short circuit.  
     OLP set at about 125-150% rating output wattage.  
     Consult the factory for OLP setting.

#### GENERAL SPECIFICATION

**Efficiency:** 70-76% typical. (Various with output voltage).  
**Switching Frequency:** 83KHz.  
**Circuit Topology:** Fixed Frequency Flyback circuit.  
**Transient Response:** Typical peak deviation 250mV,  
     Recovery time < 3mS for a 25% load change.  
**Case:** Impact resistant thermo-plastic enclosure.  
**Power Density:** 3.12 Watts. / Cubic inch.  
**Safety Standard:** EN60950/ UL1950 Class I.  
**MTBF:** 110,000 hours. Mil Std 217, 25°C.  
**Operating Temperature:** -10 to +70°C range.  
     -10°C to +50°C full load without derating.  
     From +50°C, derating linearly to half load @+70°C.  
     (Refer to Derating Chart.)  
**Storage Temperature:** -20°C to +85°C.  
**Temperature Coefficient:**  $\pm 0.032\%$  /°C.  
**Humidity:** Up to 95%RH, Non-condensing.  
**Cooling:** Convection cooling for +50°C @ full load.  
     At least 100LFM moving air is recommended for full load >+50°C in a confined area.  
**Commercial Grade only.**

NOTE: (1) All measurements are at nominal input, full load, and +25°C unless otherwise specified.

(2) Load Regulation measured from Full-Load (F-L) to Half-Load (H-L) at nominal input and others loaded at half load.



Due to requests in market and advances in technology, specifications subject to change without notice.

# OUTPUT VOLTAGE/ CURRENT RATINGS CHART

## TRIPLE OUTPUT

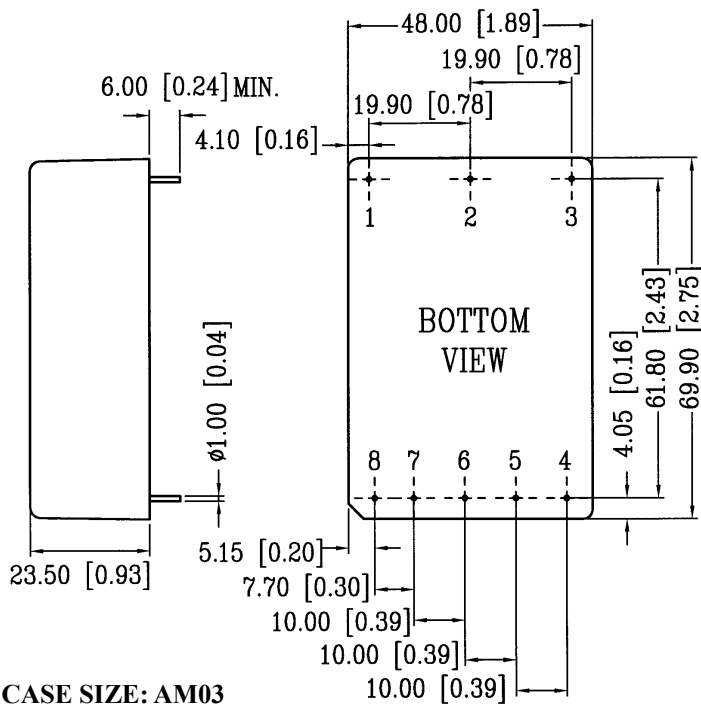
MODEL NO.	+VO1 @ ★			+VO2 †			-VO3 ‖		
	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.	TYP.	VOLT.	MAX.
HAM16T-5/09	1.8A	+5.0V	2.0A	0.40A	+9.0V	0.46A	0.40A	-9.0V	0.46A
HAM16T-5/12	1.8A	+5.0V	2.0A	0.30A	+12.0V	0.34A	0.30A	-12.0V	0.34A
HAM16T-5/15	1.8A	+5.0V	2.0A	0.24A	+15.0V	0.27A	0.24A	-15.0V	0.27A
HAM16T-5/24	1.8A	+5.0V	2.0A	0.16A	+24.0V	0.18A	0.16A	-24.0V	0.18A
HAM16T-3/05	1.8A	+3.3V	2.0A	0.75A	+5.0V	0.86A	0.75A	-5.0V	0.86A
HAM16T-3/12	1.8A	+3.3V	2.0A	0.30A	+12.0V	0.35A	0.30A	-12.0V	0.35A
HAM16T-3/15	1.8A	+3.3V	2.0A	0.25A	+15.0V	0.28A	0.25A	-15.0V	0.28A
HAM16T-3/5,12	1.8A	+3.3V	2.0A	0.75A	+5.0V	0.86A	0.30A	-12.0V	0.34A
HAM16T-3/24	1.8A	+3.3V	2.0A	0.16A	+24.0V	0.18A	0.16A	-24.0V	0.18A

Symbols: "★" OVP built-in. "@" Adjustable. "‖" Double Feedback. "†" Stacked on main O/P.

Note: (1) Max. (maximum load) is the continuous operating load of each rail, but the max. load of each rail can not be drawn from all outputs at the same time.  
 (2) Peak output, less than 60 Sec. with duty cycle <10%.

## MECHANICAL DIMENSIONS: MM [INCHES]

**WEIGHT:** 145.0g(5.11Oz)



## PIN ASSIGNMENT

PIN NO.	TRIPLE OUTPUT
PIN #1.	AC-GROUND
PIN #2.	AC-NEUTRAL
PIN #3.	AC-LINE
PIN #4.	-VO3
PIN #5.	+VO1
PIN #6.	DC-COM
PIN #7.	+VO2
PIN #8.	Remote ON/ OFF

## DERATING CHART

