



# 10 WATT MA/MH SERIES

## FEATURES

Industry-standard pinout

High efficiency

Input/output isolation

Wide input range option

Output current limiting; unlimited duration

UL, CSA recognized

Within FCC Class A limits



The flexible, compact 10 Watt MA/MH Series modules are perfect for your applications with input voltages between 4.5 V and 18 V, such as computers, peripherals, and industrial and office equipment, in addition to telecommunications, distributed power architectures, digital circuits, and voice and data multiplexing. These modules offer isolated outputs, allowing you to design versatile polarity configurations and grounding connections for noise immunity.

The MA/MH Series modules operate as controlled constant-frequency switching converters, providing highly efficient power conversion. Highly reliable, these modules operate within FCC Class A limits and have UL and CSA recognition.

Remote on/off allows you to control the sequence of your power-up. We will gladly add remote on/off to any of these modules at your request.

## SELECTION CHART

Input Vdc	Output Vdc	Optional Features
4.5-5.5 = <b>H</b>	5 = <b>A</b>	<b>1</b> = Remote on/off
10-18 = <b>A</b>	12 = <b>B</b>	(negative logic)
	15 = <b>C</b>	
	±12 = <b>B</b> <b>K</b>	
	±15 = <b>C</b> <b>L</b>	
Part No. ↓	↓	↓
<div style="border: 1px solid black; padding: 5px; display: inline-block;">             M <input type="checkbox"/> 0 1 0 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>		

We can provide output voltages between 5 V and 15 V.

## TYPICAL INPUT CHARACTERISTICS

Reflected Ripple Current	80 mA <sub>p-p</sub>
Ripple Rejection	50 dB

## TYPICAL OUTPUT CHARACTERISTICS

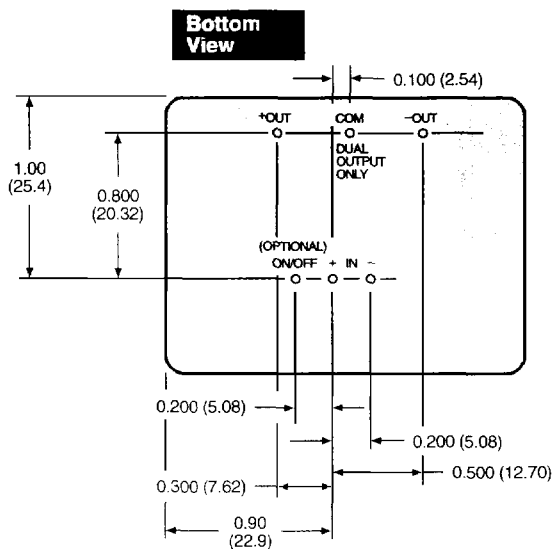
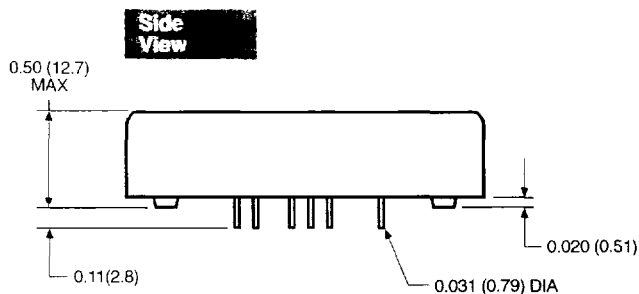
Set Point Accuracy	±2%
Load Regulation	±0.05%
Cross-Regulation (Dual)	±5%
Line Regulation	±0.01%
Output Temperature Drift	±0.01%/°C
Output Ripple	
5 V Output	80 mV <sub>p-p</sub> , 30 mV <sub>rms</sub>
12 V, 15 V Output	100 mV <sub>p-p</sub> , 50 mV <sub>rms</sub>
±12 V, ±15 V Output	20 mV <sub>p-p</sub> , 5 mV <sub>rms</sub>
Overvoltage Clamp Set Point	120%
Current Limit Inception	180%
Short Circuit Current	200%
Efficiency	
5 V Input; 5 V, ±12 V, ±15 V Output	73%
12 V, 15 V Output	78%
12 V Input; 5 V, ±12 V, ±15 V Output	76%
12 V, 15 V Output	78%

## OPTIONS

- Wide operating input voltage range (4.5-10 V)
- Remote on/off
- Metal case with ground pin

## PRODUCT ATTRIBUTES

Isolation	
Voltage	500 Vdc
Capacitance	1200 pF
Resistance	>10 MΩ
Operating Ambient Temp.	-10° to 50°C
Storage Temperature	-40° to 110°C
Maximum Weight	1.6 oz (45 grams)
Case Dimensions	2.00" L, 1.60" W, 0.50" H
Calculated MTBF (40°C case)	4.98 million hrs.



Pins are solder-plated brass, 0.031 (0.79) DIA. Dimensions are in inches and (millimeters).

## Compare to other 10 watt modules

This module provides:

- Lower input and output noise
- Higher efficiency
- Smaller footprint

For more specific technical information, call 1-800-526-7319.

For product-specific data sheet and application/technical notes, call 1-800-372-2447.

- **MA010** Data Sheet DS91-204EPS
- **MH010** Data Sheet DS91-206EPS
- **Remote On/Off** App. Note AP91-036EPS