MA800RW Series

2:1 Input Range, 8W Single & Dual Output DC/DC Converters

Key Features:

- 8W Output Power
- 2:1 Input Voltage Range
- Compact DIP Case
- 1,500 VDC I/O Isolation
- Meets EN 55022 “A”
- Single & Dual Outputs
- Wide Temperature Operation
- Industry Standard Pin-Out

RoHS

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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	12 VDC Input	9.0	12.0	18.0	VDC
	24 VDC Input	18.0	24.0	36.0	
	48 VDC Input	36.0	48.0	72.0	
Input Filter	π (Pi) Filter (Meets EN 55022 Class “A”)				
Input Reflected Ripple Current			35.0		mA P - P

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0		%
Line Regulation	V_{IN} = Min to Max			±0.5	%
Load Regulation, See Note 1	Single Output			±0.5	%
	Dual Output			±1.0	
Cross Regulation, Dual Output	See Note 2			±5.0	%
Ripple & Noise (20 MHz)	See Note 3			75	mV P - P
Output Power Protection			150		% I_{OUT}
Temperature Coefficient			±0.02		%/°C
Output Short Circuit Protection	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage (Input/Output)	3 Seconds	1,500			VDC
Isolation Voltage (Case/Input, Output)	3 Seconds	1,000			
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz/1V		1,000		pF
Switching Frequency			330		kHz

EMI Characteristics

Parameter	Standard	Level
Radiated Emissions	EN 55022	Class A
Conducted Emissions, See Note 4	EN 55022	Class A
ESD	EN 61000-4-2	Criteria B
RS	EN 61000-4-3	Criteria A
EFT, See Note 4	EN 61000-4-4	Criteria B
Surge, See Note 4	EN 61000-4-5	Criteria B
CS	EN 61000-4-6	Criteria A
PFMF	EN 61000-4-8	Criteria A

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40		+85	°C
Operating Temperature Range	Case			+100	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing		95		%

Physical

Case Size	1.25 x 0.80 x 0.40 Inches (31.8 x 20.3 x 10.2 mm)
Case Material	Copper With Nickel Coating (UL94V-0)
Weight	0.60 Oz (17g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	910			kHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		50.0	
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C

Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

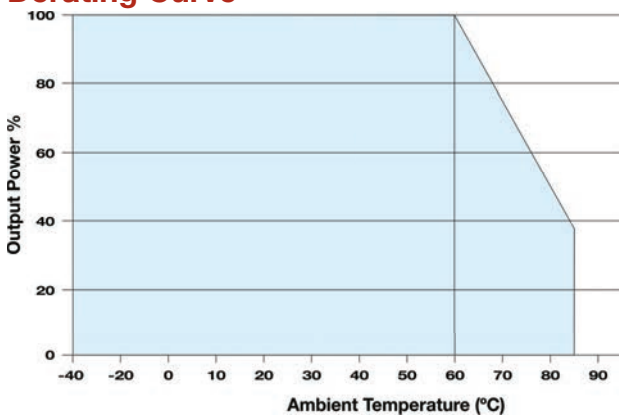
Model Selection Guide

Model Number	Input				Output			Max Capacitive Load	Efficiency	Fuse Rating Slow-Blow
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)	(µF Max)	(%, Typ)	(mA)
	Nominal	Range	Full-Load	No-Load						
MA812S-03RW	12	9.0 - 18.0	687	20	3.3	2,000	0.0	3,300	80	2,000
MA812S-05RW	12	9.0 - 18.0	762	20	5.0	1,500	0.0	2,200	82	2,000
MA812S-12RW	12	9.0 - 18.0	784	20	12.0	665	0.0	470	85	2,000
MA812S-15RW	12	9.0 - 18.0	803	20	15.0	535	0.0	220	83	2,000
MA812D-05RW	12	9.0 - 18.0	813	20	±5.0	±800	±0.0	±1,000	82	2,000
MA812D-12RW	12	9.0 - 18.0	794	20	±12.0	±335	±0.0	±220	84	2,000
MA812D-15RW	12	9.0 - 18.0	794	20	±15.0	±265	±0.0	±100	84	2,000
MA824S-03RW	24	18.0 - 36.0	344	15	3.3	2,000	0.0	3,300	80	1,000
MA824S-05RW	24	18.0 - 36.0	381	15	5.0	1,500	0.0	2,200	82	1,000
MA824S-12RW	24	18.0 - 36.0	392	15	12.0	665	0.0	470	85	1,000
MA824S-15RW	24	18.0 - 36.0	397	15	15.0	535	0.0	220	84	1,000
MA824D-05RW	24	18.0 - 36.0	407	15	±5.0	±800	±0.0	±1,000	82	1,000
MA824D-12RW	24	18.0 - 36.0	402	15	±12.0	±335	±0.0	±220	83	1,000
MA824D-15RW	24	18.0 - 36.0	392	15	±15.0	±265	±0.0	±100	85	1,000
MA848S-03RW	48	36.0 - 72.0	172	15	3.3	2,000	0.0	3,300	80	500
MA848S-05RW	48	36.0 - 72.0	191	15	5.0	1,500	0.0	2,200	82	500
MA848S-12RW	48	36.0 - 72.0	198	15	12.0	665	0.0	470	84	500
MA848S-15RW	48	36.0 - 72.0	198	15	15.0	535	0.0	220	84	500
MA848D-05RW	48	36.0 - 72.0	203	15	±5.0	±800	±0.0	±1,000	82	500
MA848D-12RW	48	36.0 - 72.0	196	15	±12.0	±335	±0.0	±220	85	500
MA848D-15RW	48	36.0 - 72.0	196	15	±15.0	±265	±0.0	±100	85	500

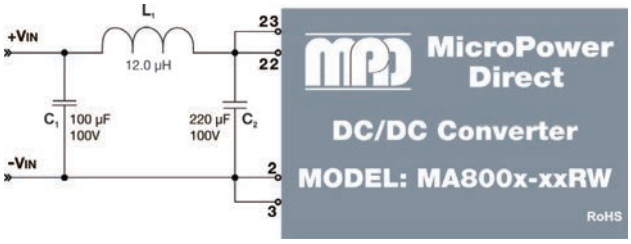
Notes:

1. Load regulation is specified for a load change of 0% to 100%. Load regulation for 3.3V output models is ±1.5% max for a load change of 0% to 100%.
2. When measuring cross regulation, the load on one output is varied from 25% to 100% while the other output is held at 100%.
3. When measuring output ripple, it is recommended that an external 1.0 µF ceramic capacitor be placed from the +VOUT pin to the -VOUT pin for single output units and from each output to common for dual output units. For noise sensitive applications, the use of 3.3 µF capacitors will reduce the output ripple.
4. To help meet conducted emissions requirements, the Pi filter components (C_1, & L_1) in the diagram below should be used. These components should be mounted as close to the module as possible. To meet the requirements of EN 61000-4-4 and EN 61000-4-5, an external filter capacitor (C_2 in the diagram below) is required.
5. Operation at no-load will not damage these units. However, they may not meet all specifications.
6. Dual output units may be connected to provide a 10 VDC, 24 VDC or 30 VDC output. To do this, connect the load across the positive (+VOUT) and negative (-VOUT) outputs and float the output common.
7. It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

Derating Curve



Recommended Input Components

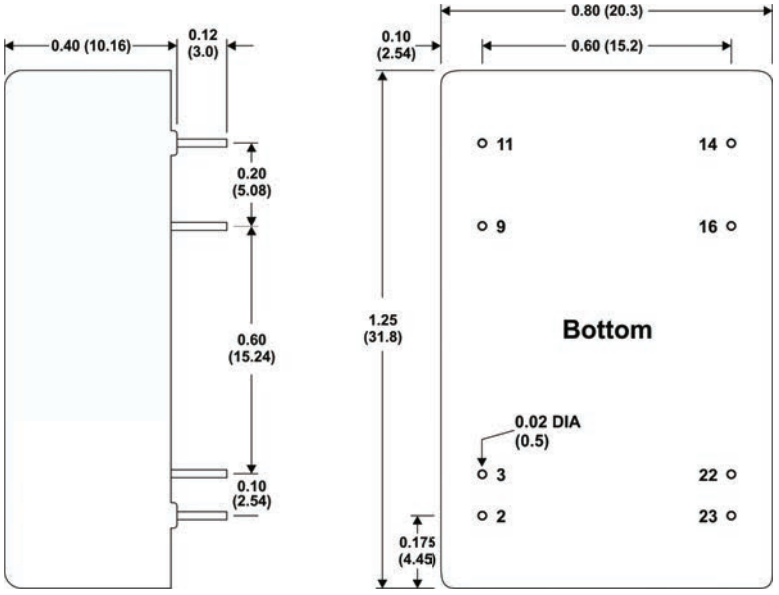


Pin Connections

Pin	Single	Dual
2	-VIN	-VIN
3	-VIN	-VIN
9	No Pin	Common
11	NC	-VOUT
14	+VOUT	+VOUT
16	-VOUT	Common
22	+VIN	+VIN
23	+VIN	+VIN

NC: No Connection

Mechanical Dimensions



Mechanical Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.02 (±0.50)

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