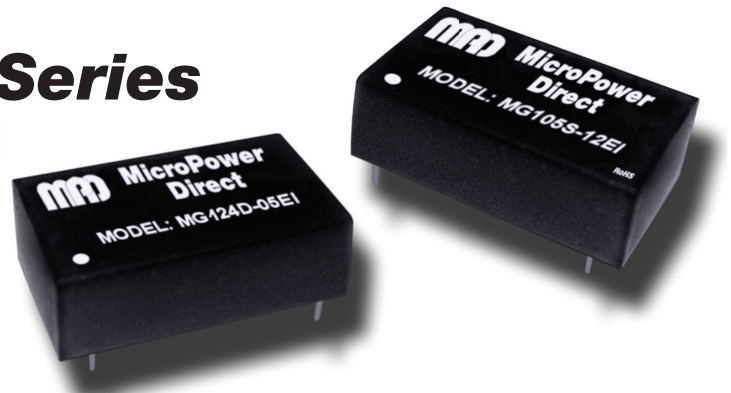


MG100xEI Series

High Isolation, 1W Compact MiniDIP DC/DC Converters



Key Features:

- 1W Output Power
- Compact MiniDIP Case
- 3,000 VDC Isolation
- High Efficiency
- Single and Dual Outputs
- >3.5 MHour MTBF
- -40°C to +105°C Operation
- **LOW COST**

RoHS



Cost Cuts



MicroPower Direct

292 Page Street
Suite D
Stoughton, MA 02072
USA

T: (781) 344-8226
F: (781) 344-8481
E: sales@micropowerdirect.com
W: www.micropowerdirect.com



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	3.3 VDC Input	2.97	3.3	3.63	VDC	
	5 VDC Input	4.50	5.0	5.50		
	12 VDC Input	10.80	12.0	13.20		
	15 VDC Input	13.50	15.0	16.50		
	24 VDC Input	21.60	24.0	26.40		
Input Filter	Internal Capacitor					
Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage Accuracy			±2.5		%	
Line Regulation, For Vin Change of 1%	3.3 Vout Models			±1.5	%	
	All Other Models			±1.2		
Load Regulation, See Note 1	See Model Selection Guide					
Ripple & Noise (20 MHz)	See Note 2					
Temperature Coefficient				±0.03	mV P - P %/°C	
Output Short Circuit	Continuous (Autorecovery)					
General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage	60 Seconds	3,000			VDC	
Isolation Resistance	500 VDC	1,000			MΩ	
Isolation Capacitance	100 kHz, 0.1V		20	300	pF	
Switching Frequency			100		kHz	
EMI Characteristics						
Parameter	Conditions	Min.	Typ.	Max.	Units	
EMI Compliance, See Note 4	Conducted				CISPR22/EN 55022 Level B	
	Radiated				CISPR22/EN 55022 Level B	
EMC Compliance, Single Output	Electrostatic Discharge (ESD)				EN 61000-4-2 Level B Contact ±8 kV	
EMC Compliance, Dual Output					EN 61000-4-2 Level B Contact ±6 kV	
Environmental						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Operating Temperature Range	Ambient	-40	+25	+105	°C	
Storage Temperature Range		-55		+125	°C	
Cooling	Free Air Convection					
Humidity	RH, Non-condensing			95	%	
Physical						
Case Size	0.787 x 0.394 x 0.276 Inches (20.0 x 10.0 x 7.0 mm)					
Case Material	Non-Conductive Black Plastic (UL-94V0)					
Weight	0.07 Oz (2.1g)					
Reliability Specifications						
Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	3.5			MHours	
Absolute Maximum Ratings						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Input Voltage Surge (1 Sec)	3.3 VDC Input	-0.7		5.0	VDC	
	5 VDC Input	-0.7		9.0		
	12 VDC Input	-0.7		18.0		
	15 VDC Input	-0.7		21.0		
	24 VDC Input	-0.7		30.0		
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C	

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

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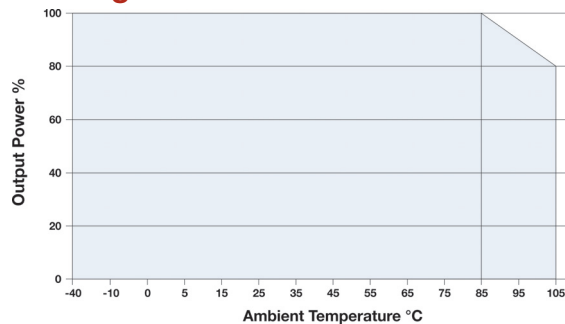
Model Number	Input				Output			Load Regulation % Typ.	Output Capacitive Load (μF Max)	Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)				
	Nominal	Range	Full-Load	No-Load							
MG103S-03EI	3.3	2.97 - 3.63	415	30	3.3	303	31.0	18.0	220	73	750
MG103S-05EI	3.3	2.97 - 3.63	388	30	5.0	200	20.0	12.0	220	78	750
MG105S-03EI	5	4.50 - 5.50	267	20	3.3	303	31.0	18.0	220	75	750
MG105S-05EI	5	4.50 - 5.50	250	20	5.0	200	20.0	12.0	220	80	750
MG105S-12EI	5	4.50 - 5.50	250	20	12.0	83	9.0	8.0	220	80	750
MG105S-15EI	5	4.50 - 5.50	247	20	15.0	67	7.0	7.0	220	81	750
MG105S-24EI	5	4.50 - 5.50	247	20	24.0	42	5.0	6.0	220	81	750
MG105D-05EI	5	4.50 - 5.50	253	20	± 5.0	± 100	± 10.0	12.0	100	79	750
MG105D-12EI	5	4.50 - 5.50	252	20	± 12.0	± 42	± 5.0	8.0	100	80	750
MG105D-15EI	5	4.50 - 5.50	252	20	± 15.0	± 34	± 4.0	7.0	100	81	750
MG105D-24EI	5	4.50 - 5.50	249	20	± 24.0	± 21	± 3.0	6.0	100	81	750
MG112S-03EI	12	10.8 - 13.2	111	15	3.3	303	31.0	18.0	220	75	250
MG112S-05EI	12	10.8 - 13.2	104	15	5.0	200	20.0	12.0	220	80	250
MG112S-12EI	12	10.8 - 13.2	104	15	12.0	83	9.0	8.0	220	80	250
MG112S-15EI	12	10.8 - 13.2	103	15	15.0	67	7.0	7.0	220	81	250
MG112S-24EI	12	10.8 - 13.2	103	15	24.0	42	5.0	6.0	220	81	250
MG112D-05EI	12	10.8 - 13.2	105	15	± 5.0	± 100	± 10.0	12.0	100	80	250
MG112D-12EI	12	10.8 - 13.2	105	15	± 12.0	± 42	± 5.0	8.0	100	80	250
MG112D-15EI	12	10.8 - 13.2	103	15	± 15.0	± 34	± 4.0	7.0	100	81	250
MG112D-24EI	12	10.8 - 13.2	103	15	± 24.0	± 21	± 3.0	6.0	100	81	250
MG115S-05EI	15	13.5 - 16.5	83	10	5.0	200	20.0	12.0	220	80	200
MG115S-15EI	15	13.5 - 16.5	84	10	15.0	67	7.0	7.0	220	81	200
MG115D-05EI	15	13.5 - 16.5	83	10	± 5.0	± 100	± 10.0	12.0	100	80	200
MG115D-15EI	15	13.5 - 16.5	82	10	± 15.0	± 34	± 4.0	7.0	100	81	200
MG124S-03EI	24	21.6 - 26.4	55	7	3.3	303	31.0	18.0	220	75	100
MG124S-05EI	24	21.6 - 26.4	53	7	5.0	200	20.0	12.0	220	79	100
MG124S-12EI	24	21.6 - 26.4	51	7	12.0	83	9.0	8.0	220	81	100
MG124S-15EI	24	21.6 - 26.4	51	7	15.0	67	7.0	7.0	220	81	100
MG124S-24EI	24	21.6 - 26.4	51	7	24.0	42	5.0	6.0	220	81	100
MG124D-05EI	24	21.6 - 26.4	53	7	± 5.0	± 100	± 10.0	12.0	100	79	100
MG124D-12EI	24	21.6 - 26.4	51	7	± 12.0	± 42	± 5.0	8.0	100	81	100
MG124D-15EI	24	21.6 - 26.4	52	7	± 15.0	± 34	± 4.0	7.0	100	81	100
MG124D-24EI	24	21.6 - 26.4	52	7	± 24.0	± 21	± 3.0	6.0	100	81	100

Notes:

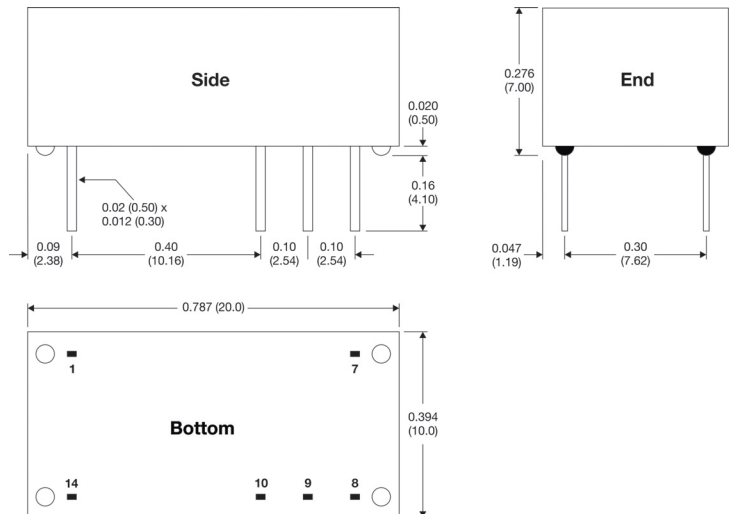
- Output load regulation is specified for a load change of 10% to 100%.
- When measuring output ripple, it is recommended that an external $1\ \mu\text{F}$ ceramic capacitor & $10\ \mu\text{F}$ electrolytic capacitor be placed in parallel from the +Vout pin to the -Vout pin for single output models, or from each output to common for dual output models.
- Operation at no load will not damage these units, however, they may not meet all specifications.
- These converters are specified for operation without external components. However, in some applications the addition of input/output capacitors will enhance stability and reduce output ripple. The simple connection shown below will typically meet EN 55022 Class B. For dual output units, a capacitor should be connected from each output to common.



Derating Curve



Mechanical Dimensions



- It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

Pin Connections

Pin	Single	Dual	Pin	Single	Dual
1	-VIN	-VIN	9	No Pin	Common
7	NC	NC	10	-VOUT	-VOUT
8	+VOUT	+VOUT	14	+VIN	+VIN

NC = No Connection



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Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ± 0.02 (± 0.50)
- Pin 1 is marked by a "dot" or indentation on the unit