ME100SE Series

Low Cost, 1W Ultra-Miniature SIP DC/DC Converters



Key Features:

- 1W Output Power
- Ultra-Miniature SIP Case
- Short Circuit Protected
- 1,500 VDC Isolation
- >3.5 MHour MTBF
- -40°C to +105°C Operation
- **LOW COST**

RoHS

Cost Cutter

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			±3.0		%
Capacitive Load				220	µF
Line Regulation	For VIN Change of 1%			±1.2	%
Load Regulation, See Note 1	See Model Selection Guide				
Ripple & Noise (20 MHz), See Note 2	Output Voltage ≤12 VDC		30		mV P - P
	15 VDC, 24 VDC Output		60		
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance, See Note 3	100 kHz, 1V		20		pF
Switching Frequency			100	300	kHz

EMI Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
EMI Compliance, See Note 5	Conducted	CISPR22/EN 55022 Level B			
EMC Compliance	Electrostatic Discharge (ESD)	EN 61000-4-2 Level B Contact ±8 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	0.46 x 0.23 x 0.394 Inches (11.6 x 6.0 x 10.0 mm)
Case Material	Non-Conductive Black Plastic (UL-94V0)
Weight	0.04 Oz (1.2g)

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	
	12 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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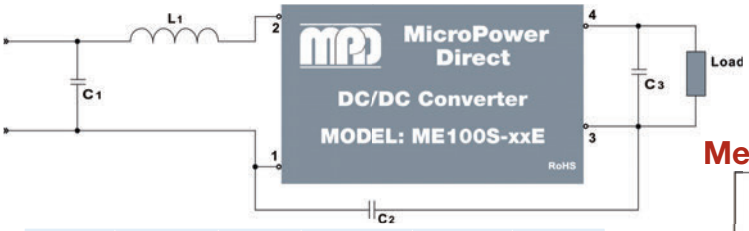
Model Selection Guide

Model Number	Input				Output			Load Regulation		Efficiency (%, Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)	% Typ.	% Max		
	Nominal	Range	Full-Load	No-Load							
ME103S-05E	3	2.97 - 3.63	380	30	5.0	200.0	20.0	12.0	15.0	80	750
ME105S-05E	5	4.5 - 5.5	250	20	5.0	200.0	20.0	12.0	15.0	80	500
ME105S-09E	5	4.5 - 5.5	250	20	9.0	111.0	12.0	8.0	15.0	80	500
ME105S-12E	5	4.5 - 5.5	248	20	12.0	84.0	9.0	7.0	15.0	81	500
ME105S-15E	5	4.5 - 5.5	248	20	15.0	67.0	7.0	6.0	15.0	81	500
ME105S-24E	5	4.5 - 5.5	248	20	24.0	42.0	4.0	5.0	15.0	81	500
ME112S-05E	12	10.8 - 13.2	104	15	5.0	200.0	20.0	12.0	15.0	80	200
ME112S-09E	12	10.8 - 13.2	104	15	9.0	111.0	12.0	8.0	15.0	80	200
ME112S-12E	12	10.8 - 13.2	103	15	12.0	84.0	9.0	7.0	15.0	81	200
ME112S-15E	12	10.8 - 13.2	103	15	15.0	67.0	7.0	6.0	15.0	80	200
ME115S-15E	15	13.5 - 16.5	82	10	15.0	67.0	7.0	6.0	15.0	81	200
ME124S-05E	24	21.6 - 26.4	52	7	5.0	200.0	20.0	12.0	15.0	80	100
ME124S-09E	24	21.6 - 26.4	52	7	9.0	111.0	12.0	8.0	15.0	80	100
ME124S-12E	24	21.6 - 26.4	50	7	12.0	84.0	9.0	7.0	15.0	81	100
ME124S-15E	24	21.6 - 26.4	50	7	15.0	67.0	7.0	6.0	15.0	82	100
ME124S-24E	24	21.6 - 26.4	50	7	24.0	42.0	4.0	5.0	15.0	82	100

Notes:
1. Output load regulation is specified for a load change of 10% to 100%.
2. When measuring output ripple, it is recommended that an external 0.33 µF ceramic capacitor be placed from the +Vout pin to the -Vout pin.
3. The isolation capacitance of model **ME124S-24E** is 30 pF.
4. Operation at no load will not damage these units, however, they may not meet all specifications.
5. 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.



VIN	C1	L1	C2	VOUT	C3
3.3 VDC	4.7 µF/50V	6.8 µH	---	5 VDC	10 µF
5 VDC	4.7 µF/50V	6.8 µH	---	9 VDC	4.7 µF
12 VDC	4.7 µF/50V	6.8 µH	---	12 VDC	2.2 µF
15 VDC	4.7 µF/50V	6.8 µH	470 pF/2kV	15 VDC	1.0 µF
24 VDC	4.7 µF/50V	6.8 µH	470 pF/2kV	24 VDC	0.47 µF

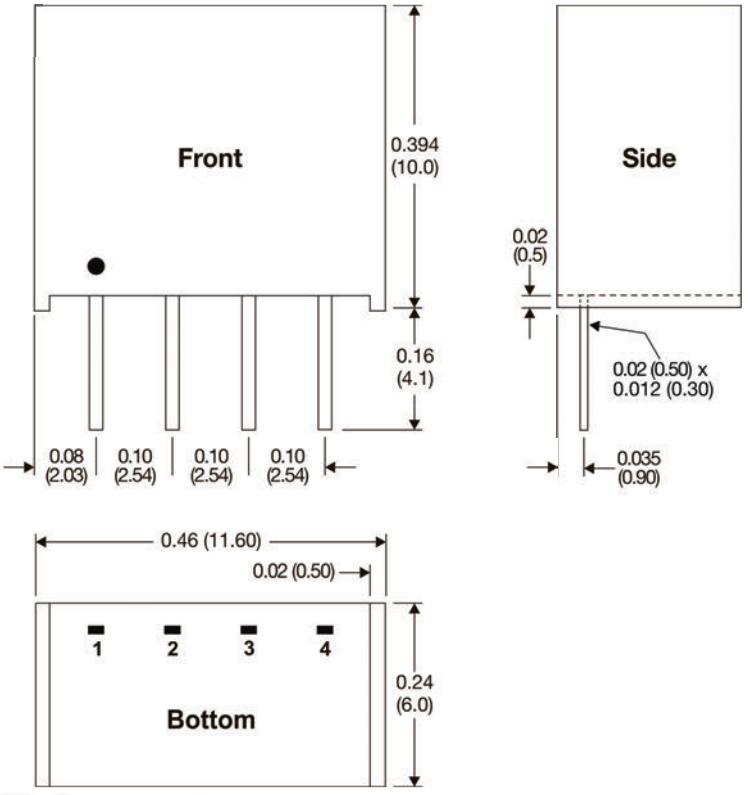
6. It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

Pin Connections

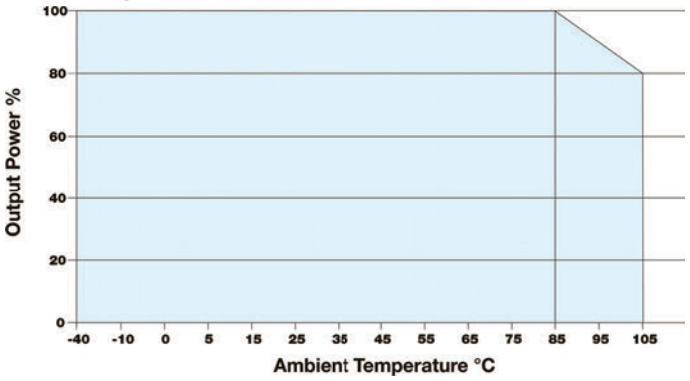
Pin	Description
1	-VIN
2	+VIN

Pin	Description
3	-VOUT
4	+VOUT

Mechanical Dimensions



Derating Curve



Notes:
- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the unit

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