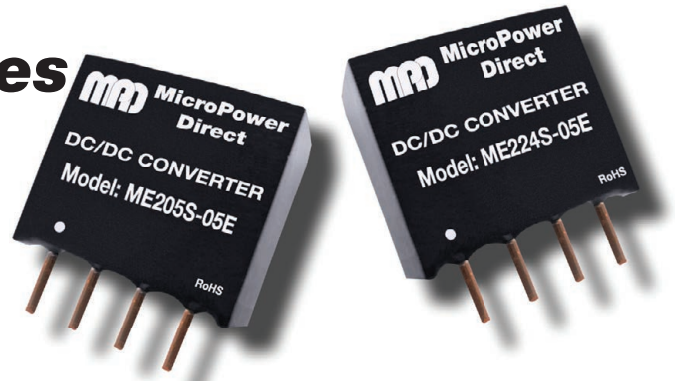


# ME200SE Series

## Low Cost, 2W Ultra-Miniature SIP DC/DC Converters



### Key Features:

- 2W Output Power
- Ultra-Miniature SIP Case
- Short Circuit Protected
- 1,500 VDC Isolation
- >3.5 MHour MTBF
- -40°C to +85°C Operation
- **LOW COST**

**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	5 VDC Input	4.50	5.0	5.50	VDC
	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	I <sub>OUT</sub> = 10% to 100%		10	15	%
Ripple & Noise (20 MHz)	See Note 1		75		mV P - P
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	100 kHz, 0.1V		20		pF
Switching Frequency			100	300	kHz

#### EMI Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
EMI Compliance, See Note 3	Conducted		CISPR22/EN 55022 Level B		
	Radiated		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	+85	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	See Mechanical Diagram (Page 2)				
Case Material	Non-Conductive Black Plastic (UL-94V0)				
Weight	0.06 Oz (1.8g)				

#### 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)	5 VDC Input	-0.7		9.0	VDC
	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			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					
ME205S-05E	5	4.5 - 5.5	506	23	5.0	400.0	40.0	79	1,000
ME224S-05E	24	21.6 - 26.4	105	6	5.0	400.0	40.0	79	250

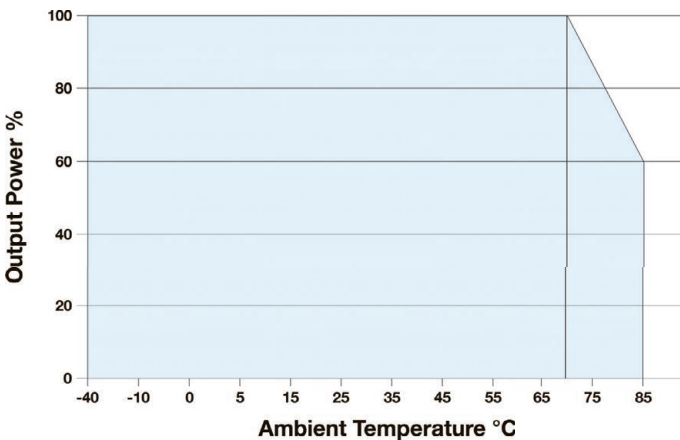
- Notes:
- When measuring output ripple, it is recommended that an external 1.0  $\mu$ F to 10  $\mu$ F ceramic capacitor be placed from the +Vout pin to the -Vout pin.
  - Operation at no load will not damage these units, however, they may not meet all specifications.
  - These converters are specified 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 at right will typically meet EN 55022 Class B.
  - 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.

Typical Connection



V <sub>IN</sub>	C <sub>1</sub>	L <sub>1</sub>	V <sub>OUT</sub>	C <sub>3</sub>
5 VDC	4.7 $\mu$ F/50V	6.8 $\mu$ H	5 VDC	10 $\mu$ F
24 VDC				

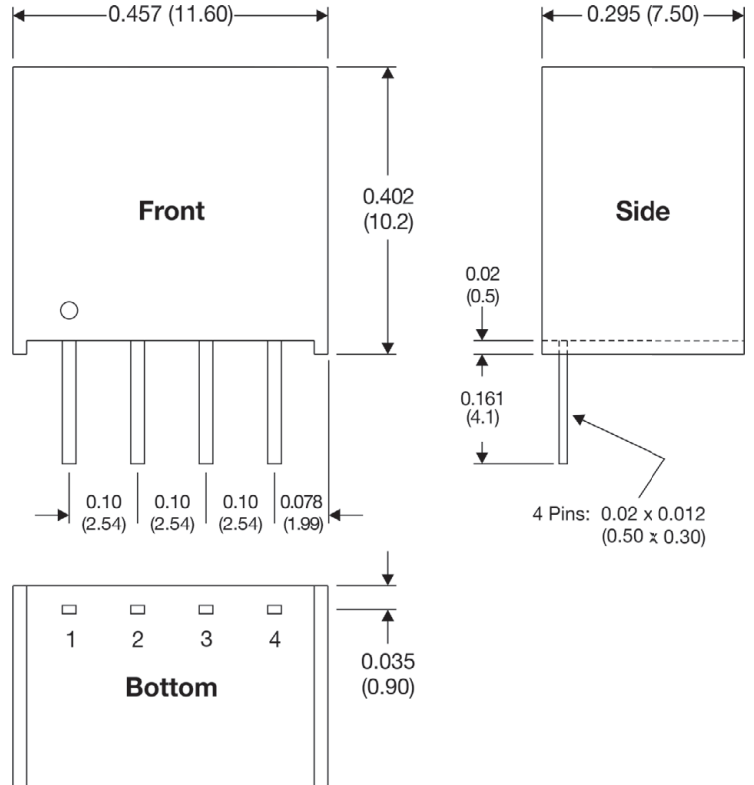
Derating Curve



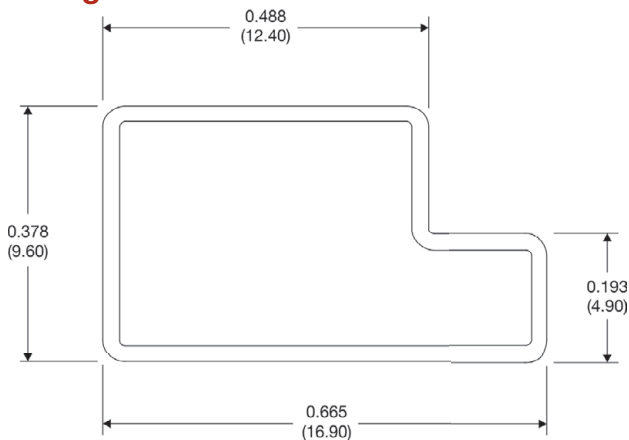
Pin Connections

Pin	Description	Pin	Description
1	-V <sub>IN</sub>	3	-V <sub>OUT</sub>
2	+V <sub>IN</sub>	4	+V <sub>OUT</sub>

Mechanical Dimensions



Packing Tube Dimensions



- Notes:
- Tube length equals 20.866 (530), unit quantity equals 43 pcs.
  - Tube length equals 8.661 (220), unit quantity equals 17 pcs.
  - All dimensions are typical in inches (mm)
  - Tolerance x.xx =  $\pm 0.02$  ( $\pm 0.50$ )

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