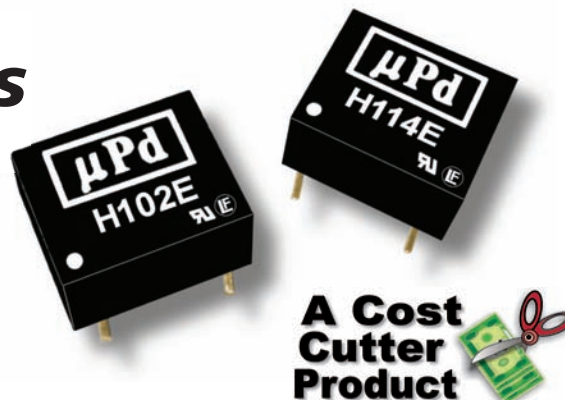


# H100E Series

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



### Key Features:

- 1W Output Power
- Miniature MiniDIP Case
- UL Approved (File E245422)
- 1,000 VDC Isolation
- >3.5 MHour MTBF
- 17 Standard Models
- Industry Standard Pin-Out
- **LOWEST COST!**



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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	3.3 VDC Input	3.0	3.3	3.6	VDC
	5 VDC Input	4.5	5.0	5.5	
	12 VDC Input	10.8	12.0	13.2	
	24 VDC Input	21.6	24.0	26.4	
Input Filter	Internal Capacitor				
Reverse Polarity Input Current				0.3	A

#### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±3.0	%
Line Regulation, 3.3V Output Models	For Vin Change of 1%			±1.5	%
Line Regulation, All Other Models				±1.2	
Load Regulation	See Model Selection Guide				
Ripple & Noise (20 MHz)			75	100	mV P - P
Output Power Protection		120			%
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Momentary (1.0 Sec.)				

#### General

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

#### 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, Single Output Models	0.50 x 0.393 x 0.30 Inches (12.70 x 10.00 x 7.70 mm)				
Case Material	Non-Conductive Black Plastic (UL94-V0)				
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
Safety Standards				UL 1950, EN 60950, IEC 60950	
Safety Approvals	Not 3.3 Vout Models			UL, cUL; File No. E245422	

#### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	3.3 VDC Input	-0.7		7.0	VDC
	5 VDC Input	-0.7		9.0	
	12 VDC Input	-0.7		18.0	
	24 VDC Input	-0.7		30.0	
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C
Internal Power Dissipation	All Models			450	mW

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

## Model Selection Guide

Model Number	Input				Output			Load Regulation (% , 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						
H101E	5	4.5 - 5.5	278	25	3.3	303.0	30.0	20	72	500
H102E	5	4.5 - 5.5	286	25	5.0	200.0	20.0	15	70	500
H103E	5	4.5 - 5.5	256	25	9.0	111.0	12.0	10	78	500
H104E	5	4.5 - 5.5	252	25	12.0	83.0	9.5	10	79	500
H105E	5	4.5 - 5.5	251	25	15.0	67.0	7.0	10	80	500
H111E	12	10.8 - 13.2	116	16	3.3	303.0	30.0	20	72	200
H112E	12	10.8 - 13.2	118	16	5.0	200.0	20.0	15	71	200
H113E	12	10.8 - 13.2	109	16	9.0	111.0	12.0	10	76	200
H114E	12	10.8 - 13.2	106	16	12.0	83.0	9.0	10	78	200
H115E	12	10.8 - 13.2	105	16	15.0	67.0	7.0	10	80	200
H121E	24	21.6 - 26.4	56	8	3.3	303.0	30.0	20	74	100
H122E	24	21.6 - 26.4	57	8	5.0	200.0	20.0	15	73	100
H123E	24	21.6 - 26.4	53	8	9.0	111.0	12.0	10	78	100
H124E	24	21.6 - 26.4	53	8	12.0	83.0	9.0	10	79	100
H125E	24	21.6 - 26.4	53	8	15.0	67.0	7.0	10	80	100
H151E	3.3	3.0 - 3.6	421	55	3.3	303.0	30.0	20	72	750
H152E	3.3	3.0 - 3.6	410	55	5.0	200.0	20.0	20	74	750

### Notes:

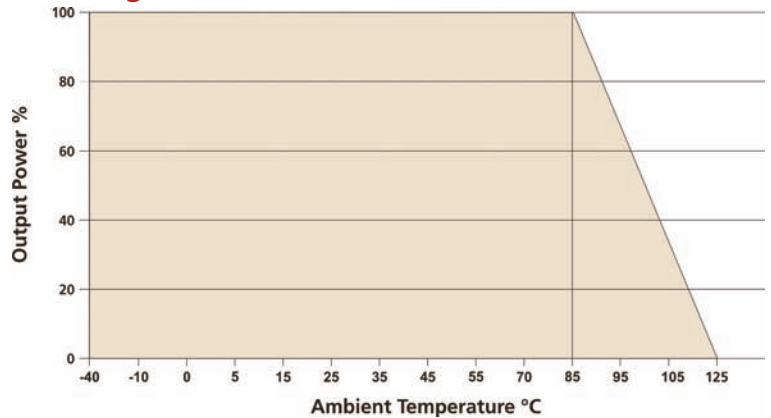
- Output load regulation is specified for a load change of 10% to 100%.
- When measuring output ripple, it is recommended that an external 0.33  $\mu\text{F}$  ceramic capacitor be placed from the +Vout pin to the -Vout pin.
- During operation, care must be taken not to exceed the specified input range of the unit or to allow the output load to drop below the specified minimum (10% of full load). Operating the unit under either of these conditions could cause damage to the unit.
- 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. Recommended capacitor values are:

Vin	Input Capacitor	Vout	Output Capacitor
3.3 VDC	4.7 $\mu\text{F}$	3.3 VDC	10.0 $\mu\text{F}$
5 VDC	4.7 $\mu\text{F}$	5 VDC	10.0 $\mu\text{F}$
12 VDC	2.2 $\mu\text{F}$	9 VDC	4.7 $\mu\text{F}$
24 VDC	1.0 $\mu\text{F}$	12 VDC	2.2 $\mu\text{F}$
		15 VDC	1.0 $\mu\text{F}$

For applications requiring very low output noise levels, a simple LC filter should be effective.

- 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.

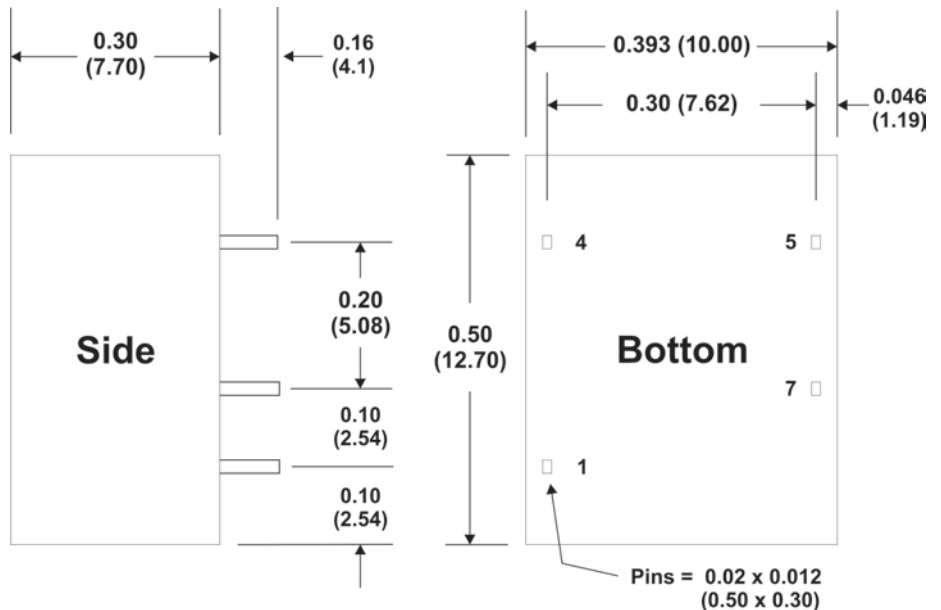
## Derating Curve



## Mechanical Dimensions

### Pin Connections

Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout



### 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 top of the unit



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