

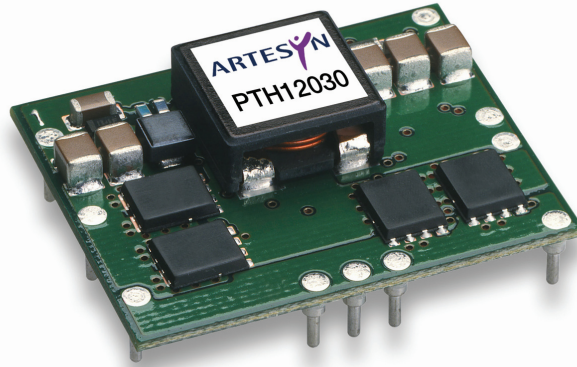


**THE DATASHEET OF
PTH12030WAZT**



PTH12030 12 Vin

Total Power: 143 Watts
of Outputs: Single



Special Features

- 26 A output current
- 12 V input voltage
- Wide-output voltage adjust
 - 1.2 Vdc to 5.5 Vdc for suffix 'W' and 0.8 Vdc to 1.8 Vdc for suffix 'L'
- Auto-track™ sequencing*
- Margin up/down controls
- Efficiencies up to 94.5%
- Output ON/OFF inhibit
- Output voltage sense
- Point-of-Load-Alliance (POLA) compatible
- Available RoHS compliant
- 2 Year Warranty

Safety

- UL/cUL CAN/CSA-C22.2 No. 60950-1-03/UL 60950-1, File No. E174104
- TÜV Product Service (EN60950) Certificate No. B 04 06 38572 044
- CB Report and Certificate to IEC60950, Certificate No. US/8292/UL

Specifications

Input		
Input voltage range:	(See Note 3, page 3)	10.2 - 13.8 Vdc
Input current:	No load	10 mA typ.
Remote ON/OFF:	(See Note 1, page 3)	Positive logic
Start-up time:		1 V/ms
Undervoltage lockout:		8.5 - 9.5 V typ.
Track input voltage:	Pin 11 (See Note 6, page 3)	± 0.3 Vin
Output		
Voltage adjustability: (See Note 4, page 3)	Suffix '-W' Suffix '-L'	1.2 - 5.5 Vdc 0.8 - 1.8 Vdc
Setpoint accuracy:		± 2.0% Vo
Line regulation:		± 5 mV typ.
Load regulation:		± 5 mV typ.
Total regulation:		± 3.0% Vo
Minimum load:		0 A
Ripple and noise: 20 MHz bandwidth (See Note 8, page 3)	Suffix '-W' Suffix '-L'	25 mV pk-pk 15 mV pk-pk
Temperature co-efficient:	-40 °C to +85 °C	± 0.5% Vo
Transient response: (See Note 5, page 3)		50 μs recovery time Overshoot/undershoot 150 mV
Margin adjustment:		± 5.0% Vo

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated
Cin = 560 μF, Cout = 0 μF

*Auto-track™ is a trade mark of Texas Instruments



Specifications Continued

EMC Characteristics		
Electrostatic discharge:	EN61000-4-2, IEC801-2	
Conducted immunity:	EN61000-4-6	
Radiated immunity:	EN61000-4-3	

General Specifications		
Efficiency:		See efficiency table on page 3
Insulation voltage:		Non-Isolated
Switching frequency:	Over V_{in} and I_o ranges	575 kHz typ.
Approvals and standards:		EN60950, UL/cUL60950
Material flammability:		UL94V-0
Dimensions:	(L x W x H)	34.80 x 28.45 x 9.00 mm 1.370 x 1.120 x 0.354 in
Weight:		7g (0.25 oz)
MTBF:	Telcordia SR-332	2,821,000 hours

Environmental Specifications

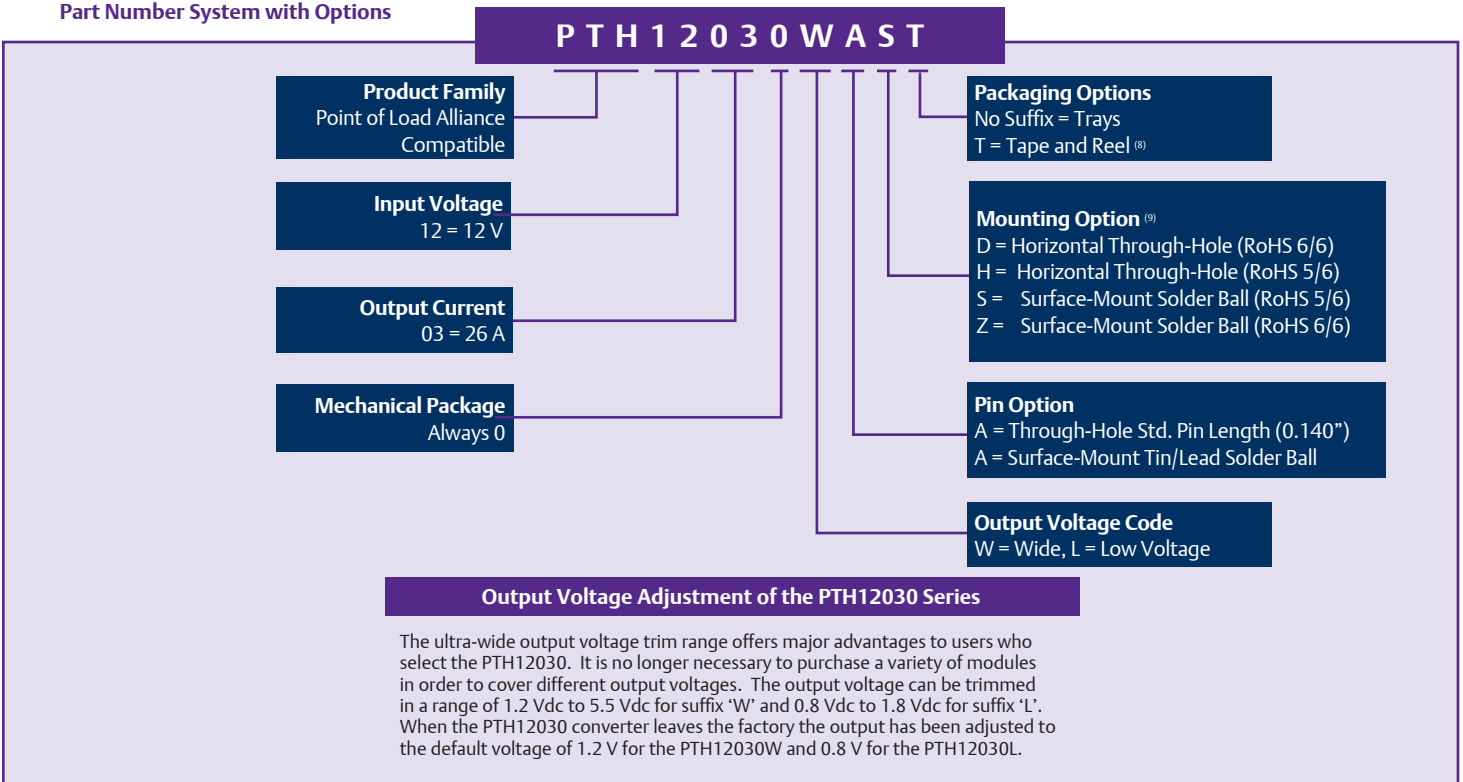
Thermal performance: (See Note 2, page 3)	Operating ambient, temperature Non-operating	-40° C to +85 °C -40° C to +125 °C
MSL ('Z' suffix only):	JEDEC J-STD-020C	Level 3

Protection		
Short circuit:	Auto reset	40 A typ.
Thermal:		Auto recovery

Ordering Information

Output Power (max)	Input Voltage	Output Voltage	Output Currents		Efficiency (max)	Regulation		Model Numbers ^(9, 10)
			Min	Max		Line	Load	
143 W	10.2 - 13.8 Vdc	0.8 - 1.8 Vdc	0 A	26 A	89%	±5 mV	±5 mV	PTH12030L
143 W	10.2 - 13.8 Vdc	1.2 - 5.5 Vdc	0 A	26 A	94.5%	±5 mV	±5 mV	PTH12030W

Part Number System with Options



Efficiency Table - PTH12030W (I_O = 18 A)

Output Voltage	Efficiency
V _o = 5.0 V	94.5%
V _o = 3.3 V	92.7%
V _o = 2.5 V	91.4%
V _o = 2.0 V	90.3%
V _o = 1.8 V	89.5%
V _o = 1.5 V	88.2%
V _o = 1.2 V	86.2%

Efficiency Table - PTH12030L (I_O = 18 A)

Output Voltage	Efficiency
V _o = 1.8 V	89%
V _o = 1.5 V	87%
V _o = 1.2 V	85%
V _o = 1.0 V	83%
V _o = 0.8 V	80%

Notes

- Remote ON/OFF. Active High
ON: Pin 4 open; or V > V_{in} - 0.5 V
OFF: Pin 4 GND; or V < 0.8 V (min - 0.2 V).
- See Figure 1 for safe operating curve of the PTH12030W and Figure 4 for safe operating curve of PTH12030L.
- A 560 μF electrolytic input capacitor is required for proper operation. The capacitor must be rated for a minimum of 800 mA rms of ripple current.
- An external output capacitor is not required for basic operation. Adding 330 μF of distributed capacitance at the load will improve the transient response.
- 1 A/μs load step, 50 to 100% I_{o,max}, C_{out} = 330 μF.
- If utilized V_{out} will track applied voltage by ±0.3 V (up to V_o set point).
- Tape and reel packaging only available on the surface-mount versions.
- The pk-pk output ripple voltage is measured with an external 10 μF ceramic capacitor. See Figure 3 Standard application schematic on the following page.
- To order Pb-free (RoHS compatible) surface-mount parts replace the mounting option 'S' with 'Z', e.g. PTH12030WAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTH12030WAD.
- NOTICE: Some models do not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at <http://www.PowerConversion.com> to find a suitable alternative.

PTH12030W Characteristic Data

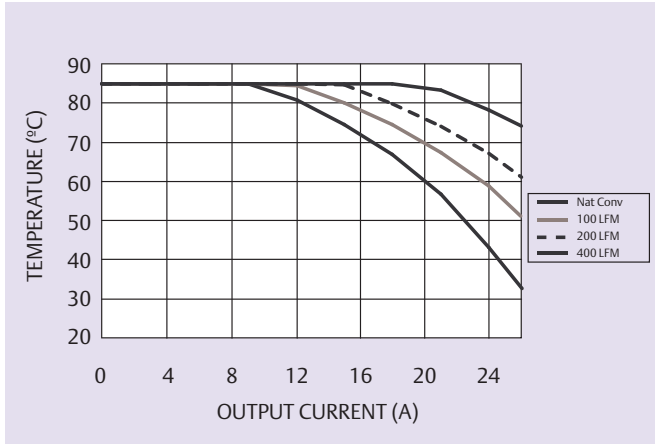


Figure 1 - Safe Operating Area
Vin = 12 V, Output Voltage = 3.3 V (See Note A)

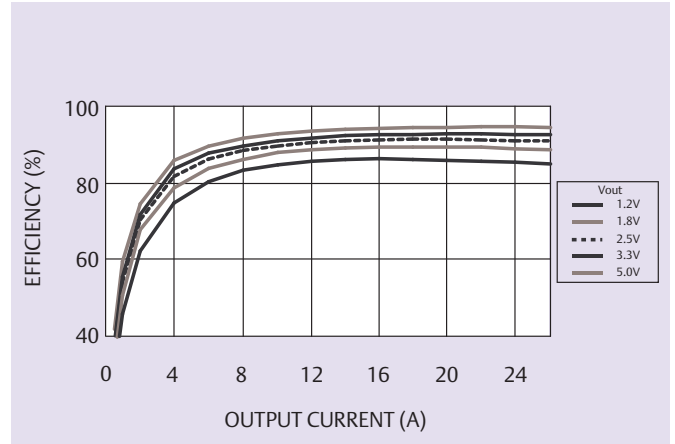


Figure 2 - Efficiency vs Load Current
Vin = 12 V (See Note B)

PTH12030W Characteristic Data

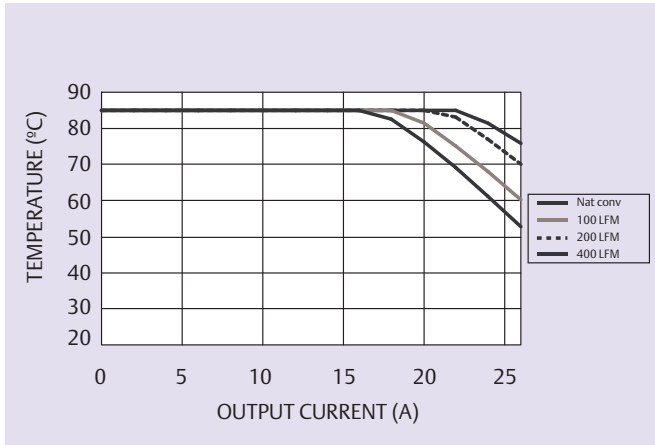


Figure 3 - Safe Operating Area
Vin = 12 V, Output Voltage ≤ 1.8 V (See Note A)

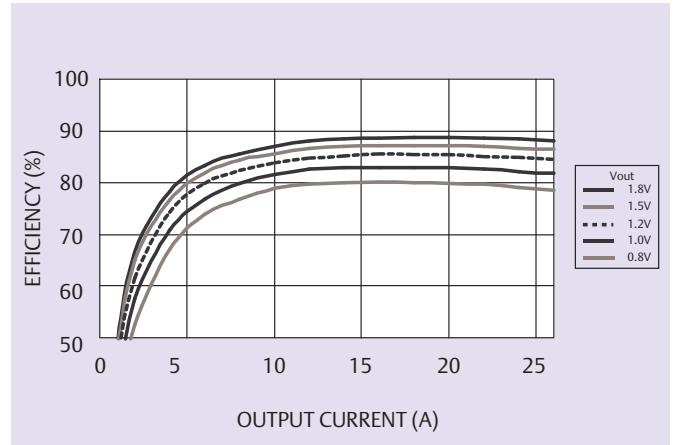


Figure 4 - Efficiency vs Load Current
Vin = 12 V (See Note B)

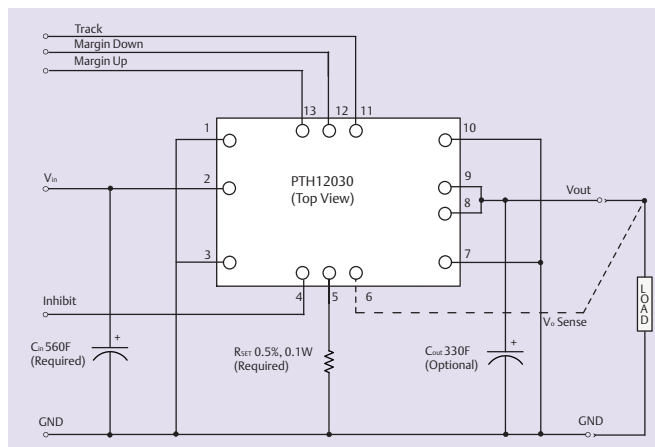


Figure 5 - Standard Application - All Models

Notes

- A SOA curves represent the conditions at which internal components are within the Emerson Network Power derating guidelines.
- B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

Mechanical Drawings

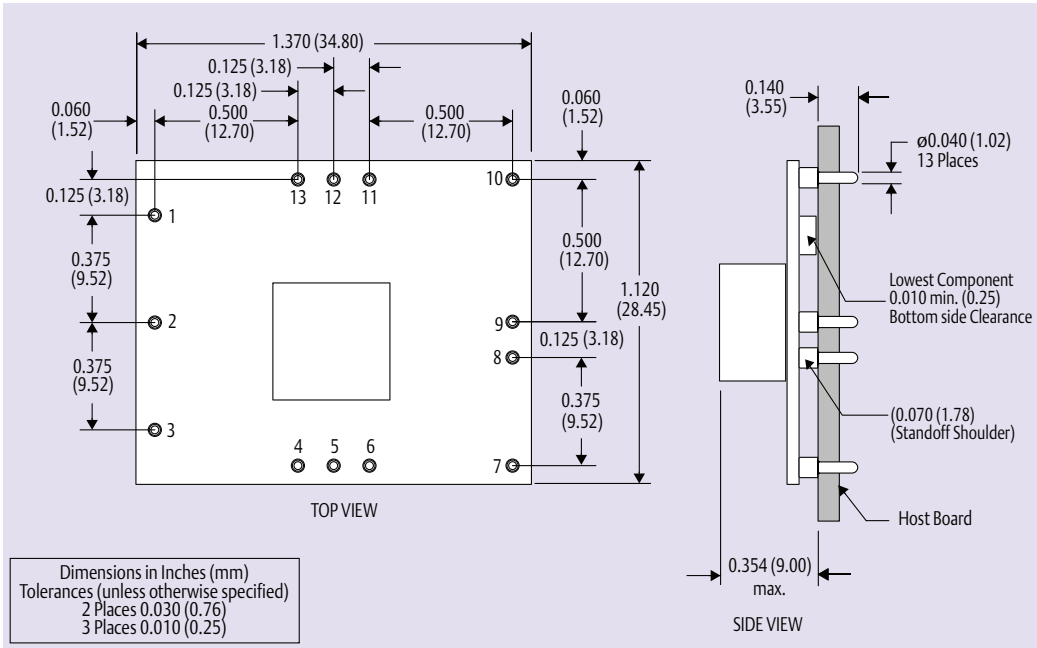


Figure 6 - Plated Through-Hole

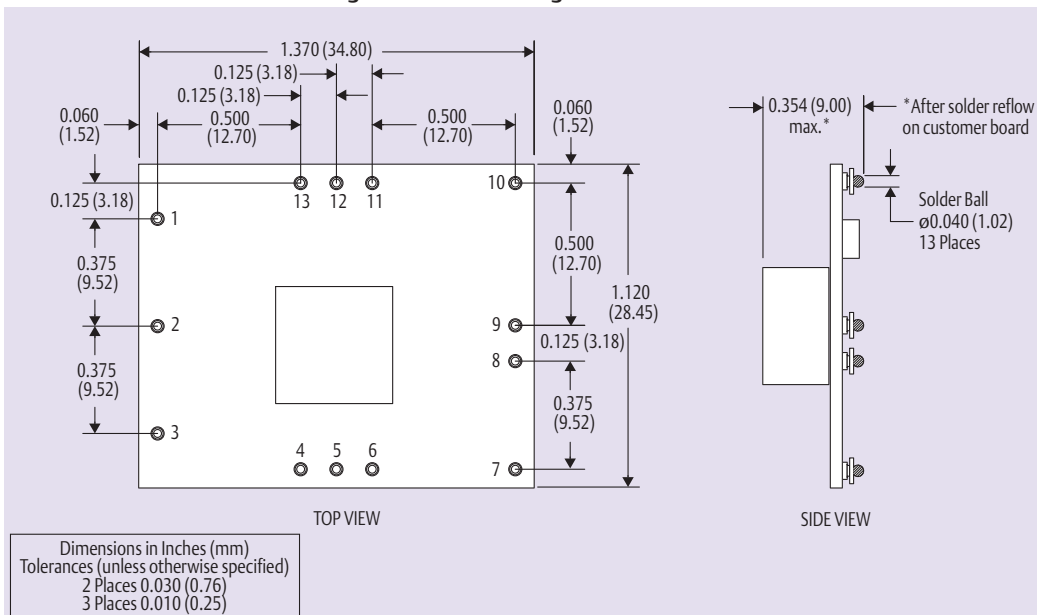


Figure 7 - Surface-Mount

Pin Connections	
Pin No.	Function
Pin 1	Ground
Pin 2	Vin
Pin 3	Ground
Pin 4	Inhibit*
Pin 5	Vo adjust

Pin Connections cont.	
Pin No.	Function
Pin 6	Vo sense
Pin 7	Ground
Pin 8	Vout
Pin 9	Vout
Pin 10	Ground

Pin Connections cont.	
Pin No.	Function
Pin 11	Track
Pin 12	Margin down*
Pin 13	Margin up*

* Denotes negative logic:
Open = Normal operation
Ground = Function active

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