

PTH12020 12 Vin

Total Power: 99 Watts
of Outputs: Single



Rev. 08.11.11_166
PTH12020 Series
1 of 6



Special Features

- 18 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 95%
- 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
- TÜV Product Service (EN60950)
- CB Report and Certificate to IEC60950

Specifications

Input		
Input voltage range:	(See Note 3, page 3)	10.8 - 13.2 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:		9.2 - 9.7 V typ.
Track input voltage:	Pin 8 (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	Suffix '-W' Suffix '-L'	32 mV pk-pk 1% Vo
Temperature co-efficient:	-40 °C to +85 °C	± 0.5% Vo
Transient response: (See Note 5, page 3)		70 µs recovery time Overshoot/undershoot 130 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:	Suffix '-W' Suffix '-L'	260 kHz to 380 kHz 200 kHz to 300 kHz
Approvals and standards:		EN60950, UL/cUL60950
Material flammability:		UL94V-0
Dimensions:	(L x W x H)	37.97 x 22.10 x 9.00 mm 1.495 x 0.870 x 0.354 in
Weight:		7g (0.25 oz)
MTBF:	Telcordia SR-332	5,236,000 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

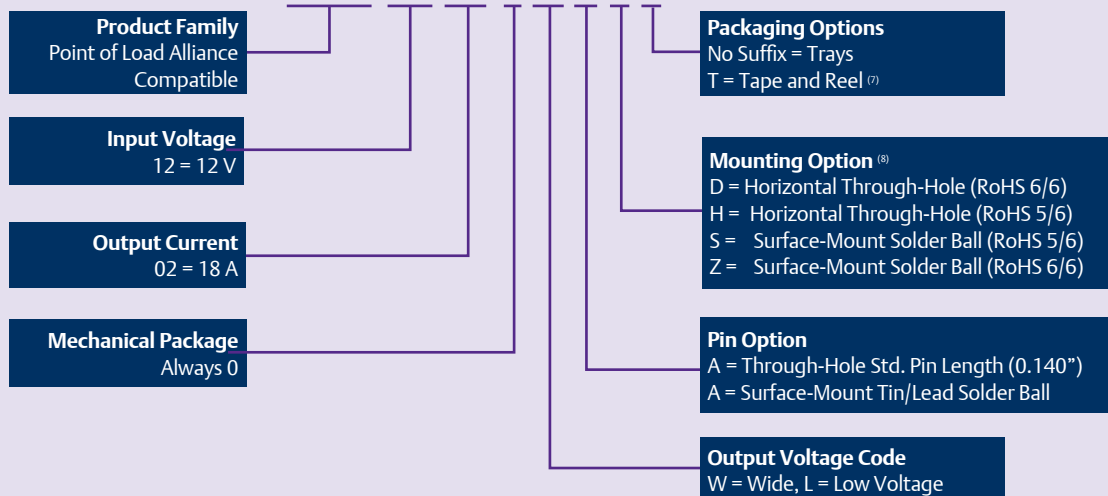
Protection		
Short circuit:	Auto reset	30 A typ.
Thermal:		Auto recovery

Ordering Information

Output Power (max)	Input Voltage	Output Voltage	Output Currents		Efficiency (max)	Regulation		Model Numbers ^(8, 9)
			Min	Max		Line	Load	
99 W	10.8 - 13.2 Vdc	0.8 - 1.8 Vdc	0 A	18 A	89%	± 5 mV	± 5 mV	PTH12020L
99 W	10.8 - 13.2 Vdc	1.2 - 5.5 Vdc	0 A	18 A	95%	± 5 mV	± 5 mV	PTH12020W

Part Number System with Options

PTH12020WAST



Output Voltage Adjustment of the PTH12020 Series

The ultra-wide output voltage trim range offers major advantages to users who select the PTH12020. It is no longer necessary to purchase a variety of modules in order to cover different output voltages. The output voltage can be trimmed in a range of 1.2 Vdc to 5.5 Vdc. When the PTH12020 converter leaves the factory the output has been adjusted to the default voltage of 1.2 V.

Efficiency Table - PTH12020W ($I_O = 18$ A)

Output Voltage	Efficiency
$V_O = 5.0$ V	95%
$V_O = 3.3$ V	93%
$V_O = 2.5$ V	92%
$V_O = 1.8$ V	90%
$V_O = 1.5$ V	88%
$V_O = 1.2$ V	86%

Efficiency Table - PTH12020L ($I_O = 18$ 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. Positive Logic
ON: Pin 3 open; or $V > V_{in} - 0.5$ V
OFF: Pin 3 GND; or $V < 0.8$ V (min - 0.2 V).
- See Figures 1, 2 and 3 for safe operating curves.
- A 560 μ F 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 μ F of distributed capacitance at the load will improve the transient response.
- 1 A/ μ s load step, 50 to 100% I_{Omax} , $C_{out} = 330$ μ F.
- 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.
- To order Pb-free (RoHS compatible) surface-mount parts replace the mounting option 'S' with 'Z', e.g. PTH12020WAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTH12020WAD.
- 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.Emerson.com/EmbeddedPower> to find a suitable alternative.

PTH12020W Characteristic Data

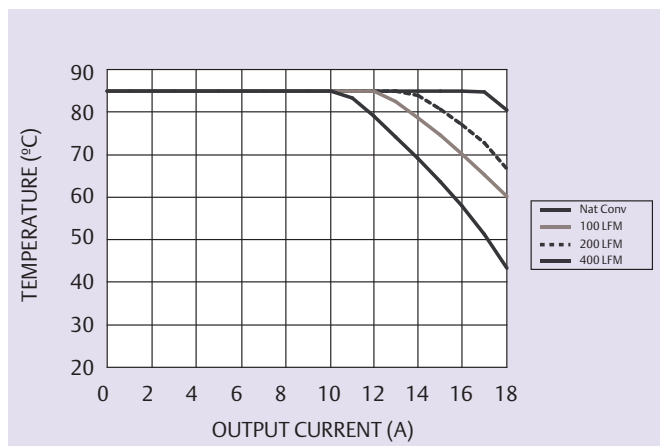


Figure 1 - Safe Operating Area
 $V_{in} = 12\text{ V}$, Output Voltage = 5 V (See Note A)

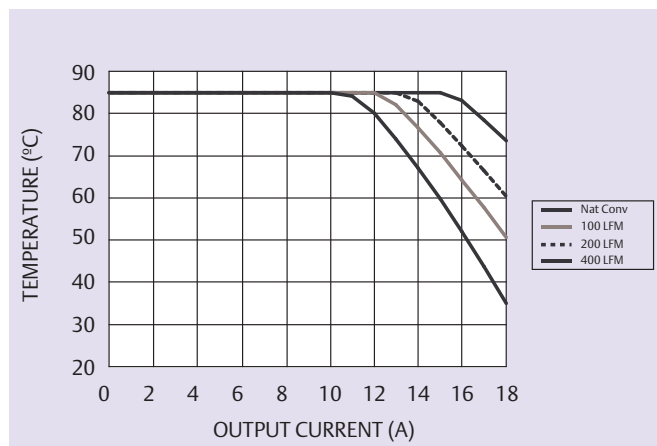


Figure 2 - Safe Operating Area
 $V_{in} = 12\text{ V}$, Output Voltage = 3.3 V (See Note A)

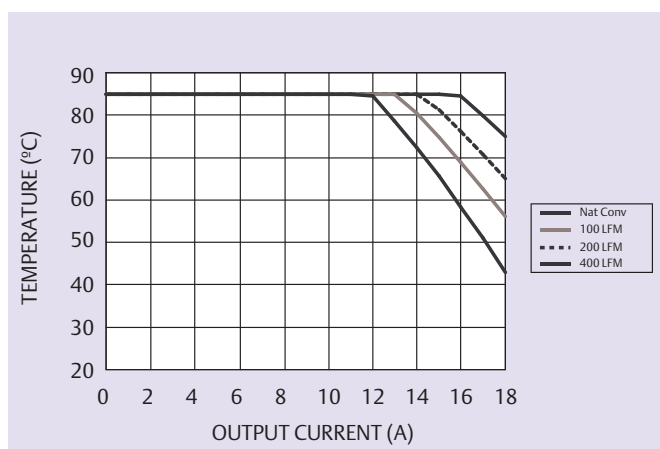


Figure 3 - Safe Operating Area
 $V_{in} = 12\text{ V}$, Output Voltage $\leq 1.8\text{ V}$ (See Note A)

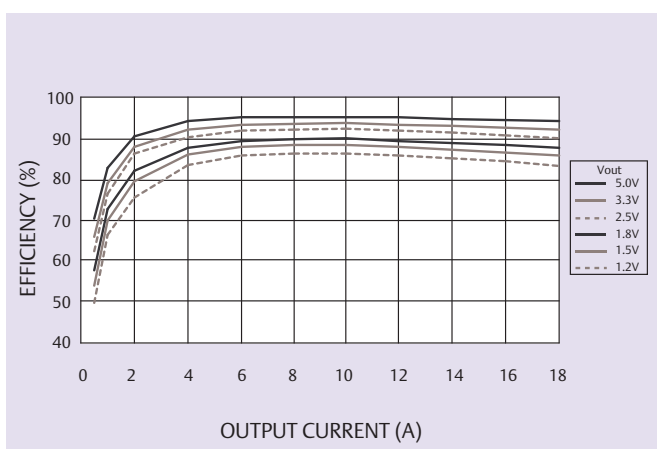


Figure 4 - Efficiency vs Load Current
 $V_{in} = 12\text{ V}$ (See Note B)

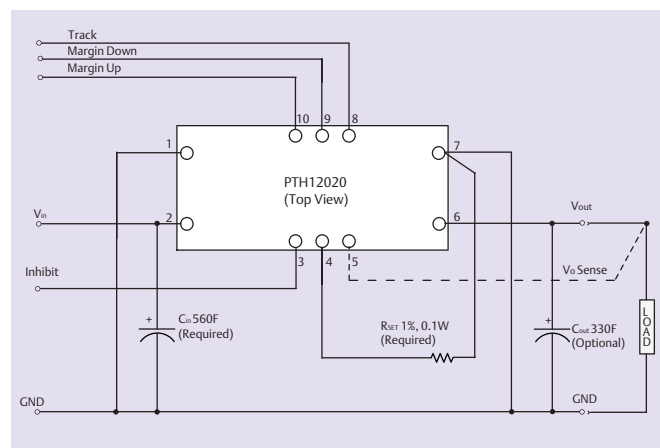


Figure 5 - Standard Application

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.

PTH12020L Characteristic Data

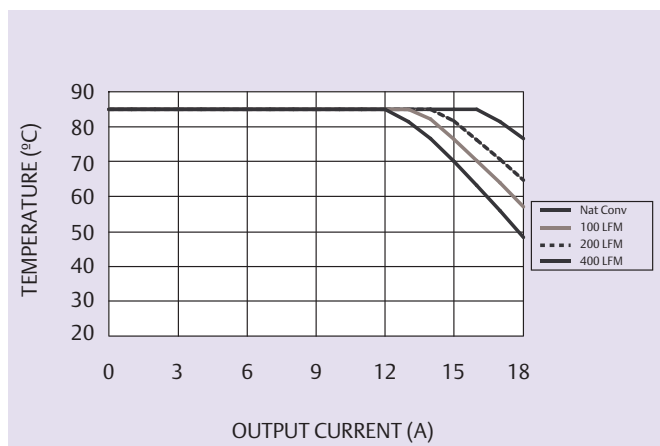


Figure 6 - Safe Operating Area for PTH12020L
 $V_{in} = 12\text{ V}$, Output Voltage = 1.8 V (See Note A)

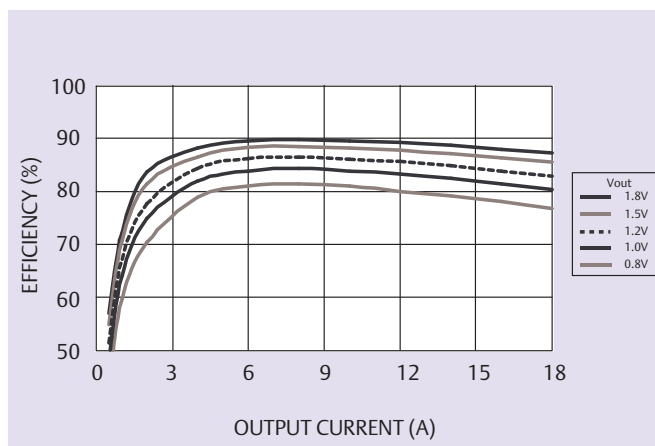


Figure 7 - Efficiency vs Load Current for PTH12020L
 $V_{in} = 12\text{ V}$ (See Note B)

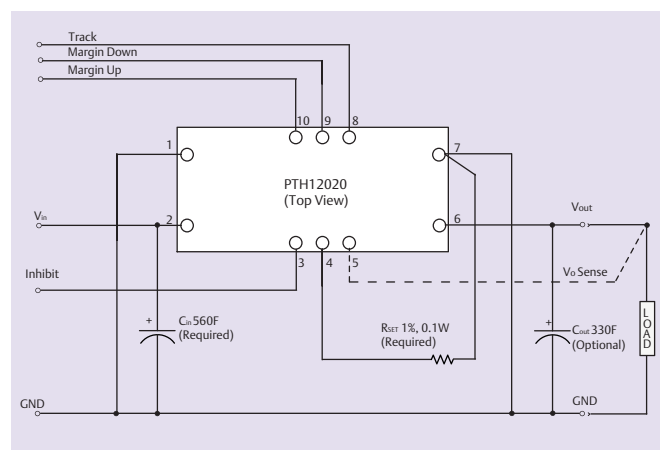


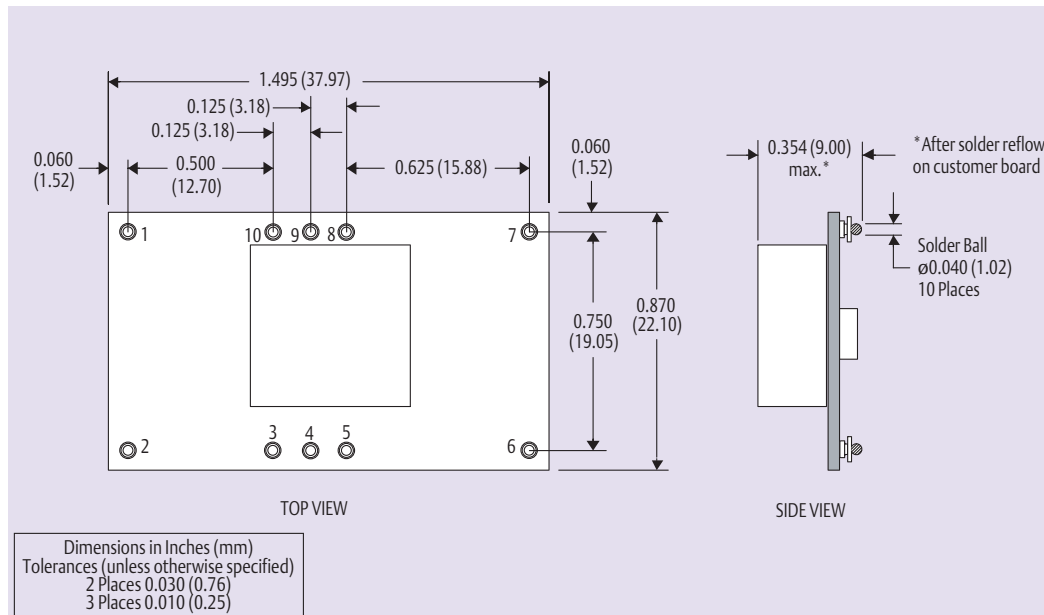
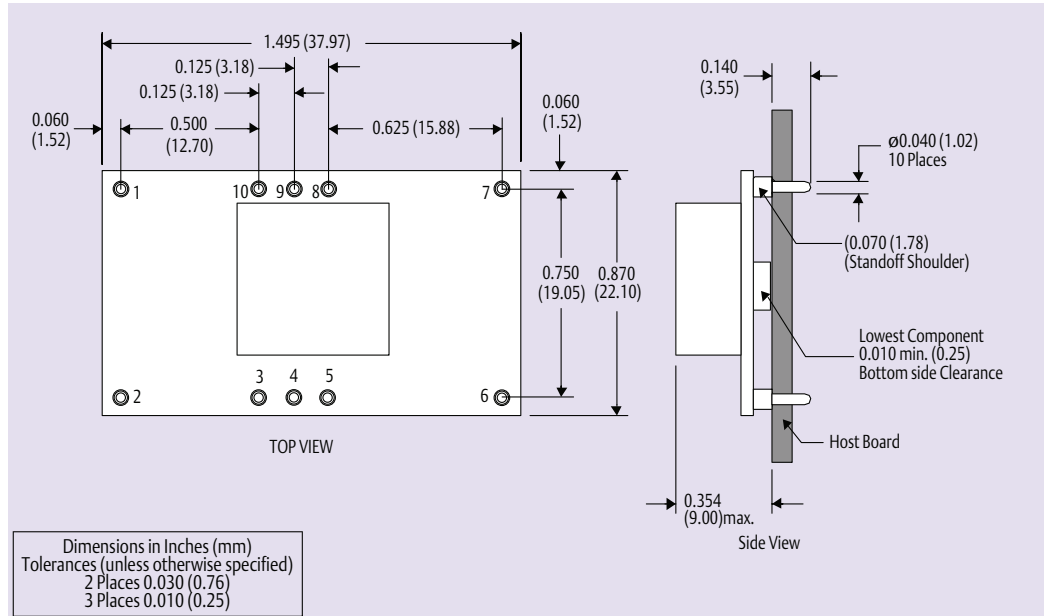
Figure 8 - Standard Application

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

Rev. 08.11.11_166
PTH12020 Series
6 of 6



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

Figure 10 - Surface-Mount

Pin Connections cont.	
Pin No.	Function
Pin 6	Vout
Pin 7	Ground
Pin 8	Track
Pin 9	Margin down*
Pin 10	Margin up*

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

Americas

5810 Van Allen Way
Carlsbad, CA 92008
USA
Telephone: +1 760 930 4600
Facsimile: +1 760 930 0698

Europe (UK)

Waterfront Business Park
Merry Hill, Dudley
West Midlands, DY5 1LX
United Kingdom
Telephone: +44 (0) 1384 842 211
Facsimile: +44 (0) 1384 843 355

Asia (HK)

14/F, Lu Plaza
2 Wing Yip Street
Kwun Tong, Kowloon
Hong Kong
Telephone: +852 2176 3333
Facsimile: +852 2176 3888

For global contact, visit:

www.Emerson.com/EmbeddedPower

techsupport.embeddedpower@emerson.com

While every precaution has been taken to ensure accuracy and completeness in this literature, Emerson Network Power assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

Emerson Network Power.
The global leader in enabling
business-critical continuity.

- AC Power
- Connectivity
- DC Power
- Embedded Computing
- Embedded Power**
- Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection

EmersonNetworkPower.com

Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co.
©2011 Emerson Electric Co.

AMEYA360

Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit www.ameya360.com

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com