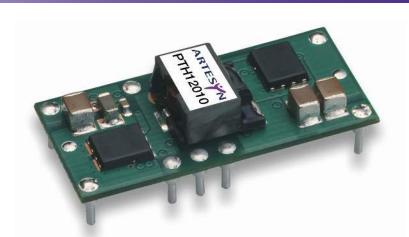
PTH12010 12 Vin Single Output

Total Power: 66W # of Outputs: Single



Rev. 2.16.09_115 PTH12010 Series



Special Features

- 12 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%
- 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)	10.8 - 13.2 Vdc
Input current:	No load	10 mA typ.
Remote ON/OFF:	(See Note 1)	Positive logic
Start-up time:		1 V/ms
Undervoltage lockout:		9.0 - 9.5 V typ.
Track input voltage:	Pin 8 (See Note 6)	± 0.3 Vin
Output		
Voltage adjustability: (See Note 4)	Suffix '-W' Suffix '-L'	1.2 - 5.5 Vdc 0.8 - 1.8 Vdc
Setpoint accuracy:		± 2.0% Vo
Line regulation:		± 10 mV typ.
Load regulation:		± 12 mV typ.
Total regulation:		± 3.0% Vo
Minimum load:		0 A
Ripple and noise:	20 MHz bandwidth	25 mV pk-pk
Temperature co-efficient:	-40 °C to +85 °C	± 0.5% Vo
Transient response:		70 μs recovery time
(See Note 5)		Overshoot/undershoot 100 mV
Margin adjustment:		± 5.0% Vo

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

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





Rev. 2.16.09_115 PTH12010 Series 2 of 6

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

General Specifications		
Efficiency:		See tables on page 3
Insulation voltage:		Non-Isolated
Switching frequency:	Suffix '-W' Suffix '-L'	300 kHz to 400 kHz 200 kHz to 300 kHz
Approvals and standards:		EN60950, UL/cUL60950
Material flammability:		UL94V-0
Dimensions:	(L x W x H)	34.80 x 15.75 x 9.00 mm 1.370 x 0.620 x 0.354 in
Weight:		5g (0.18 oz)
MTBF	Telcordia SR-332	7,092,000 hours

Environmental Specifications

·	- F	-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	20 A typ.

Rev. 2.16.09_115 PTH12010 Series 3 of 6

Ordering Information								
Output Power	Input	Output	Output (Currents	Efficiency	Regula	tion	Model Numbers (8, 9)
(max)	Voltage	Voltage	Min	Max	(max)	Line	Load	
66 W	10.8 - 13.2 Vdc	0.8 - 1.8 Vdc	0 A	12 A	89%	±10 mV	±12 mV	PTH12010L
66 W	10.8 - 13.2 Vdc	1.2 - 5.5 Vdc	0 A	12 A	94%	±10 mV	±12 mV	PTH12010W



PTH12010WAST **Product Family Packaging Options** Point of Load Alliance No Suffix = Trays T = Tape and Reel (7) Compatible Input Voltage Mounting Option (8) 12 = 12 V D = Horizontal Through-Hole (RoHS 6/6) H = Horizontal Through-Hole (RoHS 5/6) S = Surface-Mount Solder Ball (RoHS 5/6) **Output Current** Z = Surface-Mount Solder Ball (RoHS 6/6) 01 = 12 A**Mechanical Package Pin Option** A = Through-Hole Std. Pin Length (0.140") Always 0 A = Surface-Mount Tin/Lead Solder Ball **Output Voltage Code** W = Wide, L = Low Voltage

Output Voltage Adjustment of the PTH12010 Series

The ultra-wide output voltage trim range offers major advantages to users who select the PTH12010. 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 V to 5.5 V for suffix 'W' and 0.8 Vdc to 1.8 Vdc for suffix 'L'. When the PTH12010 converter leaves the factory the output has been adjusted to the default voltage of 1.2 V for the PTH12010W and 0.8 V for PTH12010L.

Efficiency Table - PTH12010W (I _O = 8 A)				
Output Voltage	Efficiency			
Vo = 5.0 V	94%			
Vo = 3.3 V	93%			
Vo = 2.5 V	91%			
Vo = 2.0 V	90%			
Vo = 1.8 V	89%			
Vo = 1.5 V	88%			
Vo = 1.2 V	86%			

Efficiency Table - PTH12010L (I _O = 8 A)			
Output Voltage	Efficiency		
Vo = 1.8 V	89%		
Vo = 1.5 V	88%		
Vo = 1.2 V	86%		
Vo = 1.0 V	84%		
Vo = 0.8 V	82%		

Notes

- Remote ON/OFF. Positive Logic
 - Pin 3 open; or V > Vin 0.5 V
 - Pin 3 GND; or V < 0.8 V (min 0.2 V).
- See Figures 1, 2 and 3 for safe operating curves for the PTH12010W and Figures 6 and 7 for PTH12010L.
- A $560 \mu F$ 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 μF of distributed capacitance at the load will improve the transient response.
- 5 1 A/ μ s load step, 50 to 100% l_{omax}. C_{out} = 330 μ F. 6 If utilized Vout will track applied voltage by ±0.3 V (up to Vo 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. PTH12010WAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTH12010WAD.
- 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.

Rev. 2.16.09_115 PTH12010 Series 4 of 6

PTH12010W Characteristic Data

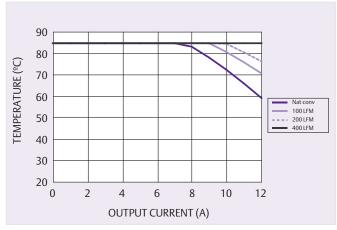


Figure 1 - Safe Operating Area
Vin = 12 V, Output Voltage = 5 V (See Note A)

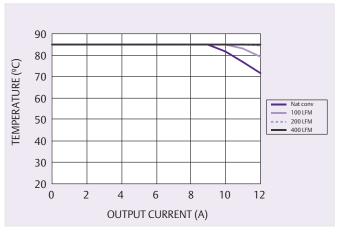


Figure 3 - Safe Operating Area Vin = 12 V, Output Voltage ≤ 1.8 V (See Note A)

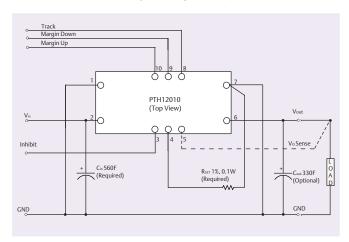


Figure 5 - Standard Application

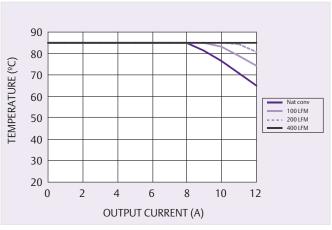


Figure 2 - Safe Operating Area
Vin = 12 V, Output Voltage = 3.3 V (See Note A)

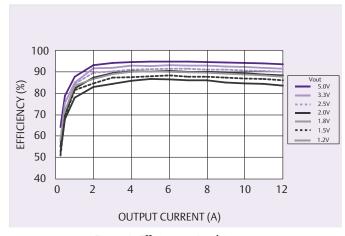


Figure 4 - Efficiency vs Load Current Vin = 12 V (See Note B)

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 $^{\circ}$ C. This data is considered typical data for the converter.

Rev. 2.16.09_115 PTH12010 Series 5 of 6

PTH12010L Characteristic Data

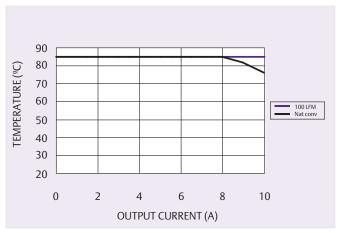


Figure 6 - Safe Operating Area Vin = 12 V, Output Voltage ≤ 1.8 V (See Note A)

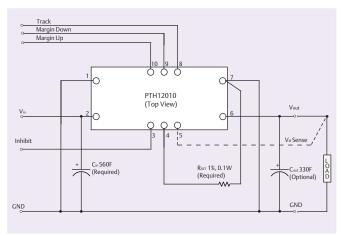


Figure 8 - Standard Application

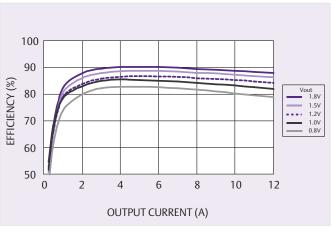


Figure 7 - Efficiency vs Load Current Vin = 12 V (See Note B)

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

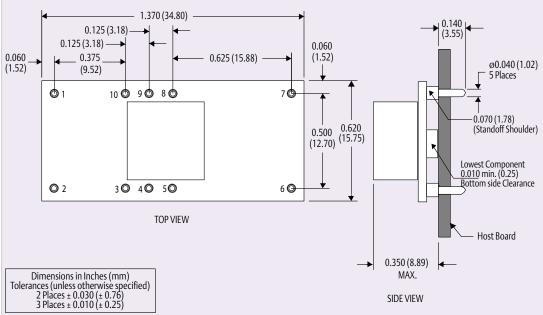


Figure 9 - Plated Through-Hole

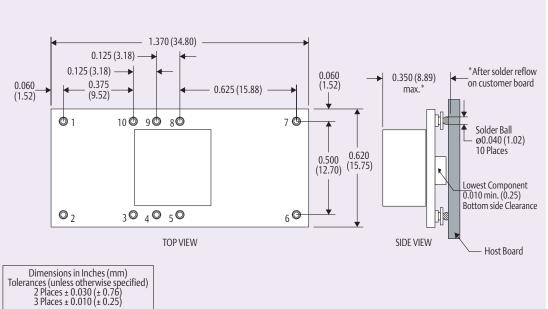


Figure 10 - Surface-Mount

Pin Connections		Pin Connections cont.		
Pin No.	Function	Pin No.	Function	
Pin 1	Ground	Pin 6	Vout	
Pin 2	Vin	Pin 7	Ground	
Pin 3	Inhibit*	Pin 8	Track	
Pin 4	Vo adjust	Pin 9	Margin down*	
Pin 5	Vo sense	Pin 10	Margin up*	

* Denotes negative logic: Open = Normal operation Ground = Function active Rev. 2.16.09_115 PTH12010 Series 6 of 6

Americas

5810 Van Allen Way Carlsbad, CA 92008

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.PowerConversion.com 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. ©2008 Emerson Electric Co.