General Specifications

Efficiency		See Efficiency Table
Insulation voltage		Non-isolated
Switching frequency		1.05 MHz
Approvals and standards		EN60950, UL/cUL60950
Material flammability		UL94V-0
Dimensions	L x W x H	51.94 x 26.54 x 9.07 mm 2.045 x 1.045 x 0.357 in
Weight		17 g (0.60 oz)
MTBF	Telcordia SR-332	2,500,000 hours

EMC Characteristics

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

Environmental Specifications

Thermal performance (See Note 2)	Operating ambient temperature Non-operating temperature	-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	95 A typical
Thermal		Auto recovery

Ordering Information

Model Number [9]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
PTH12030W	275 W	8 - 14 Vdc	0.8 - 5.5 Vdc	0 A	50 A	96%	±5 mV	±5 mV

Part Number System with Options

Product Family	Input Voltage	Output Current	Mechanical Package	Output Voltage Code	Pin Option[8]	Mounting Options
PTH	**12**	**04**	**0**	**W**	**A**	**S**
Point-of-Load Alliance compatible	12 = 12 V	04 = 50 A	Always 0	W = Wide		D = Horizontal through-hole (RoHS 6/6) Z = Surface-mount solder ball (RoHS 6/6)

Output Voltage Adjustment

The ultra-wide output voltage trim range offers major advantages to users who select the PTH12040W. 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 0.8 Vdc to 1.8 Vdc. When the PTH12040W converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Efficiency Table: PTH12040W (Io = 35 A)

Output Voltage	*Efficiency*
Vo = 5.0 V	96%
Vo = 3.3 V	95%
Vo = 2.5 V	93%
Vo = 2.0V	92%
Vo = 1.8 V	91%
Vo = 1.5 V	90%
Vo = 1.2 V	88%
Vo = 1.0 V	86%
Vo = 0.8 V	82%

Notes:

1. The set-point voltage tolerance is affected by the tolerance and stability of RSET. The stated limit is unconditionally met if RSET has a tolerance of 1% with 100 ppm/°C or better temperature stability.
2. This control pin has an internal pull-up to 5 V nominal. If it is left open-circuit the module will operate when input power is applied. A small low leakage (<100 nA) MOSFET is recommended for control. For further information, consult the related application note. For further information, consult Application Note 193.
3. A 1000 µF input capacitor is required for proper operation. The capacitor must be rated for a minimum of 300 mA rms of ripple current.
4. This is with a 1 A/µs loadstep, 50 to 100% Iomax, Io = 680 µF.
5. See Figures 1 and 2 for safe operating curves.
6. When the set-point voltage is adjusted higher than 3.6 V, a 10 V minimum input voltage is recommended.
7. A small low-leakage (<100 nA) MOSFET is recommended to control this pin. The open circuit voltage is less than 1 Vdc.
8. These are the default voltages. They may be adjusted using the 'UVLO Prog' control input. Consult Application Note No. 193 for further information.
9. NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at http://www.artesyn.com/power to find a suitable alternative.

Characteristic Data

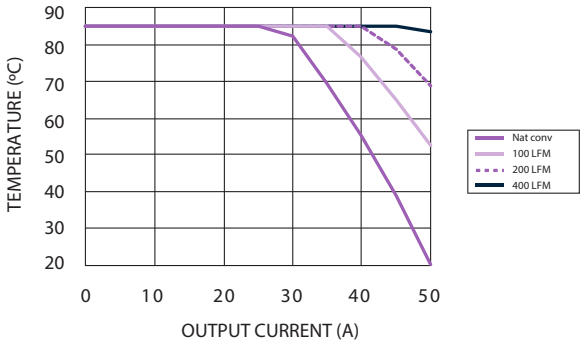


Figure 1 - Safe Operating Area
Vin = 12 V, Output Voltage = 3.3 V (See Note A)

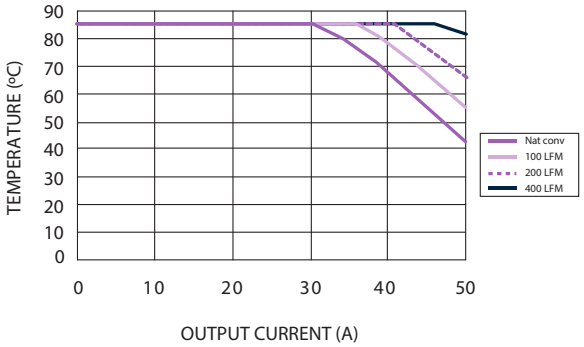


Figure 2 - Safe Operating Area
Vin = 12 V, Output Voltage = 1.2 V (See Note A)

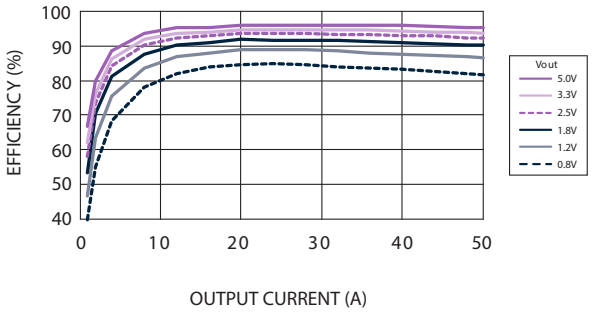


Figure 3 - Efficiency vs Load Current
Vin = 12 V (See Note B)

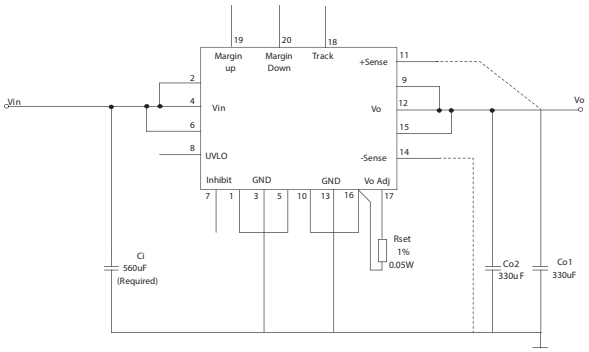


Figure 4 - Standard Application

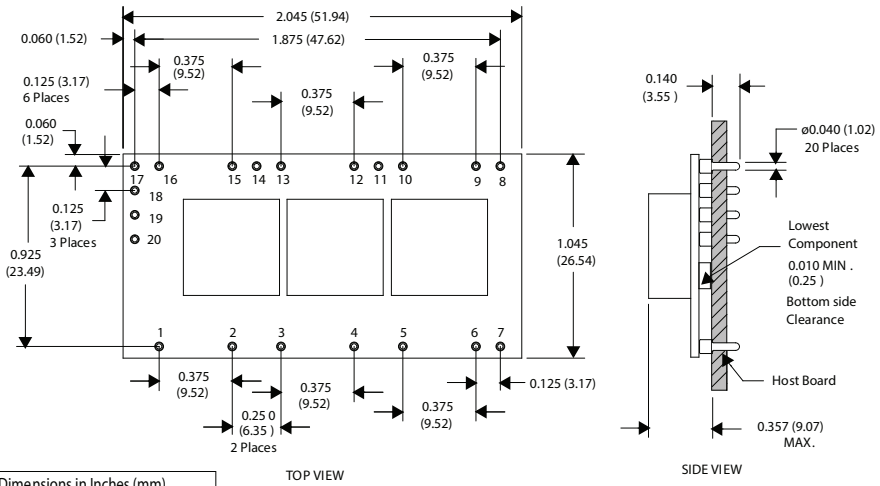
Notes:

A. SOA curves represent the conditions at which internal components are within the Artesyn 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

Plated through-hole

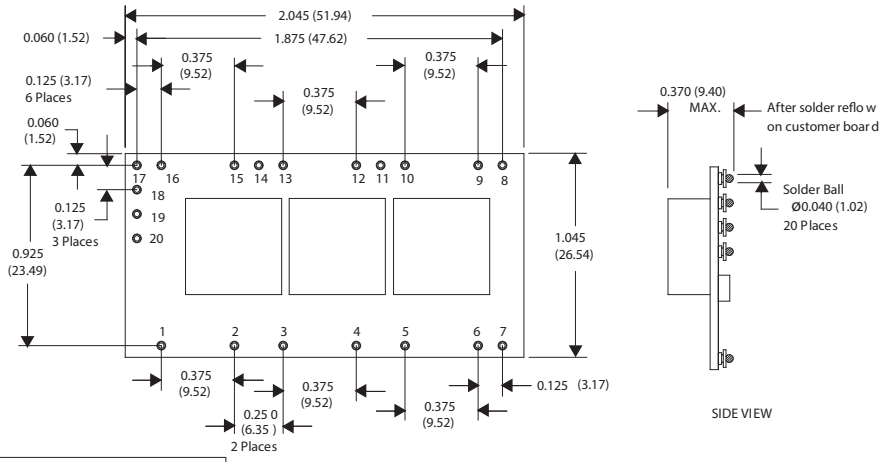


Dimensions in Inches (mm)
Tolerances (unless otherwise specified)
2 Places 0.030 (0.76)
3 Places 0.010 (0.25)

Pin Assignments	
Pin	*Function*
1	Ground
2	Vin
3	Ground
4	Vin
5	Ground
6	Vin
7	Inhibit*
8	UVLO Programming
9	Vout
10	Ground
11	Vs+
12	Vout
13	Ground
14	Vs-
15	Vout
16	Ground
17	Adjust
18	Track
19	Margin up*
20	Margin down*

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

Surface-mount



Dimensions in Inches (mm)
Tolerances (unless otherwise specified)
2 Places 0.030 (0.76)
3 Places 0.010 (0.25)

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