

## ELECTRICAL SPECIFICATIONS

Input		
Input voltage range	(See Note 3)	4.5 - 5.5 Vdc
Input current	No load	10 mA typical
Remote ON/OFF	(See Note 1)	Positive logic
Start-up time		1 V/ms
Undervoltage lockout		3 - 4.35 Vdc typical
Track input voltage	Pin 11 (See Notes 6 & 7)	$\pm 0.3 V_{in}$
Output		
Voltage adjustability	(See Note 4)	0.8 - 3.6 Vdc
Setpoint accuracy		$\pm 2.0\% V_o$
Line regulation		$\pm 10$ mV typical
Load regulation		$\pm 12$ mV typical
Total regulation		$\pm 3.0\% V_o$
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	40 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	$\pm 0.5\% V_o$
Transient response	(See Note 5)	70 $\mu$ s recovery time Overshoot/undershoot 100 mV
Margin adjustment		$\pm 5.0\% V_o$

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated.  
 $C_{in} = 1500 \mu F$ ,  $C_{out} = 0 \mu F$ .

## GENERAL SPECIFICATIONS

Efficiency	(See Efficiency Table)	94% max.
Insulation voltage		Non-isolated
Switching frequency		275 - 325 kHz
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		10 g (.35 oz)
MTBF	Telcordia SR-332	2,821,000 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	47 A typical
Thermal		Auto recovery

## ORDERING INFORMATION

Model Number <sup>(9)</sup>	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
PTH05030	108 W	4.5 - 5.5 Vdc	0.8 - 3.6 V	0 A	30 A	94%	±10 mV	±12 mV

## PART NUMBER SYSTEM WITH OPTIONS

Product Family	Input Voltage	Output Current	Mechanical Package	Output Voltage Code	Pin Option	Mounting Options	Pin Option
<b>PTH</b>	<b>05</b>	<b>03</b>	<b>0</b>	<b>W</b>	<b>A</b>	<b>S</b>	<b>T</b>
Point-of-Load Alliance compatible	05 = 5 V	03 = 30 A	Always 0	W = Wide		D = Horizontal through-hole (Matte Sn)  Z = Surface-mount (96.5/3.0/0.5 Sn/Ag/Cu pin solder material)	No Suffix = Trays T = Tape and Reel <sup>(8)</sup>

## OUTPUT VOLTAGE ADJUSTMENT

The ultra-wide output voltage trim range offers major advantages to users who select the PTH05030. 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 3.6 Vdc. When the PTH05030 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Efficiency Table ( $I_o = 10\text{ A}$ )	
Output Voltage	Efficiency
$V_o = 1.0\text{ V}$	86%
$V_o = 1.2\text{ V}$	87%
$V_o = 1.5\text{ V}$	89%
$V_o = 1.8\text{ V}$	90%
$V_o = 2.0\text{ V}$	91%
$V_o = 2.5\text{ V}$	93%
$V_o = 3.3\text{ V}$	94%

### Notes:

- Remote ON/OFF, Positive Logic  
ON: Pin 3 open; or  $V > V_{in} - 0.5\text{ V}$   
OFF: Pin 3 GND; or  $V < 0.8\text{ V}$  (min -  $0.2\text{ V}$ ).
- See Figures 1 for safe operating curves.
- A  $1500\text{ }\mu\text{F}$  electrolytic input capacitor is required for proper operation. The capacitor must be rated for a minimum of  $900\text{ mA}$  rms of ripple current.
- An external output capacitor is not required for basic operation. Adding  $330\text{ }\mu\text{F}$  of distributed capacitance at the load will improve the transient response.
- $1\text{ A}/\mu\text{s}$  load step, 50 to 100%  $I_{omax}$ ,  $C_{out} = 330\text{ }\mu\text{F}$ .
- If utilized  $V_{out}$  will track applied voltage by  $\pm 0.3\text{ V}$  (up to  $V_o$  set point).
- The pre-bias start-up feature is not compatible with Auto-Track™. This is because when the module is under Auto-Track™ control, it is fully active and will sink current if the output voltage is below that of a back-feeding source. Therefore to ensure a pre-bias hold-off, one of the following two techniques must be followed when input power is first applied to the module. The Auto-Track™ function must either be disabled, or the module's output held off using the Inhibit pin. Refer to Application Note 157 for more details.
- Tape and reel packaging only available on the surface-mount versions.
- 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> to find a suitable alternative.

## OUTPUT VOLTAGE ADJUSTMENT (CONTINUED)

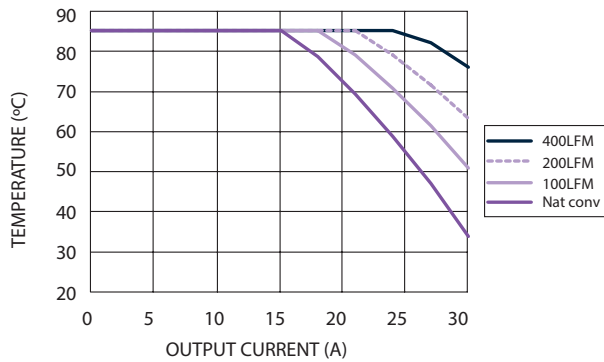


Figure 1 - Safe Operating Area  
 $V_{in} = 5\text{ V}$ , Output Voltage = 3.3 V (See Note A)

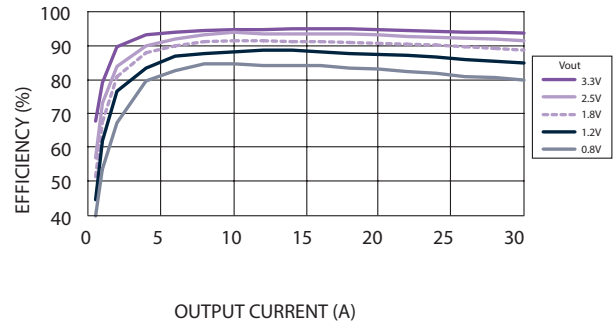


Figure 2 - Efficiency vs Load Current  
 $V_{in} = 5\text{ V}$  (See Note B)

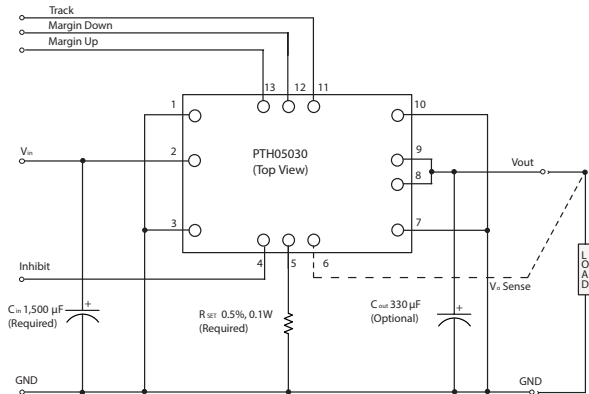


Figure 3 - Standard Application

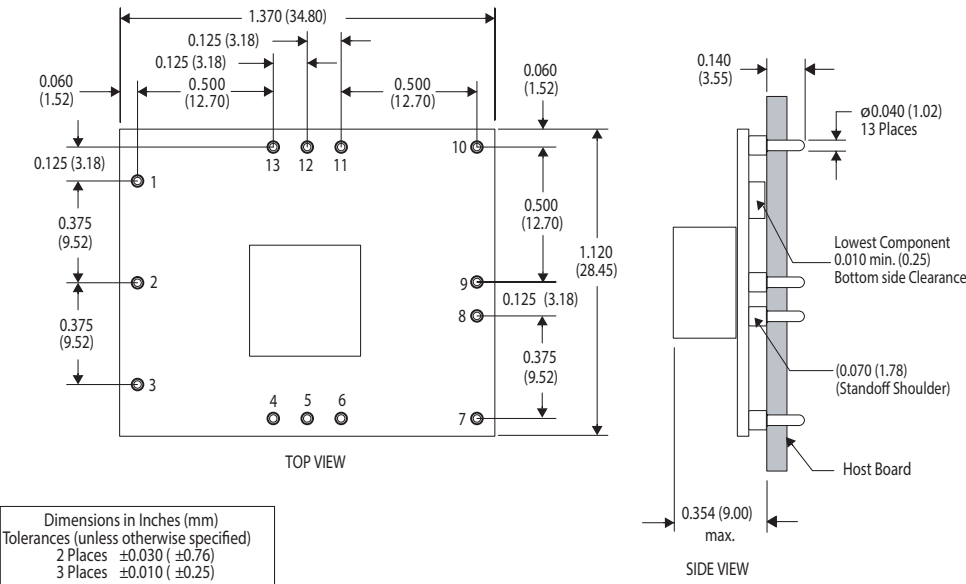
### Notes:

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

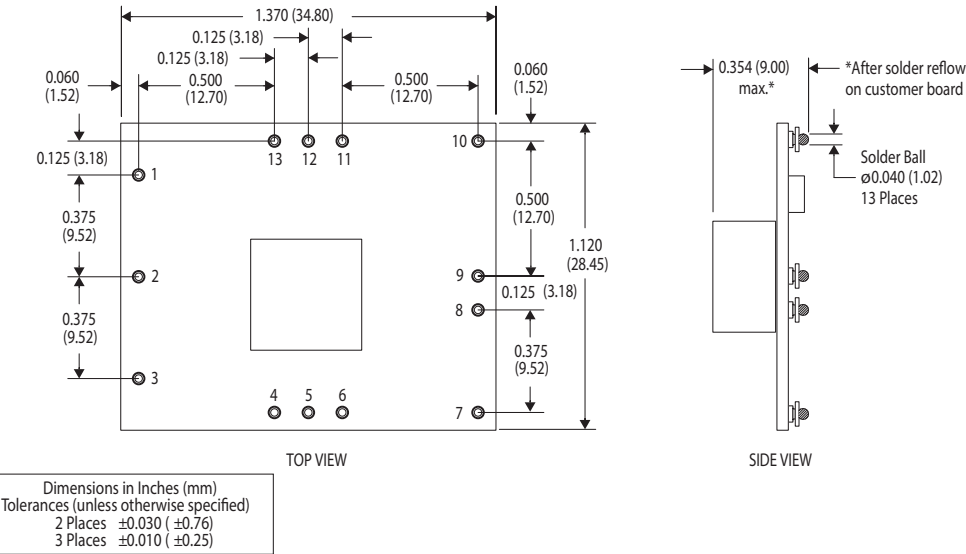
B. Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

MECHANICAL DRAWINGS

Plated through-hole



Surface-mount



Pin Assignments	
Pin	Function
1	Ground
2	Vin
3	Ground
4	Inhibit*
5	Vo adjust
6	Vo sense
7	Ground
8	Vout
9	Vout
10	Ground
11	Track
12	Margin down*
13	Margin up*
*Denotes negative logic: Open = Normal operation Ground = Function active	



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## PRECISION | POWER | PERFORMANCE

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