PTH05050
5 Vin
Single Output

Total Power: 21.6W
Input Voltage: 4.5 - 5.5VDC
# of Outputs: Single

RoHS 2002/95/EC

POLA™

Special Features

- 6 A output current
- 5 V input voltage
- Wide-output voltage adjust (0.8 Vdc to 3.6 Vdc)
- Auto-track™ sequencing*
- Pre-bias start-up capability
- 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,
File No. E186249

TÜV Product Service (EN60950)
Certificate No.
B 06 07 38572 068

Electrical Specifications

Output		
Voltage adjustability	(See note 4)	0.8 - 3.6 Vdc
Setpoint accuracy		± 2.0% Vo
Line regulation		±10% mV typ.
Load regulation		±12 mV typ.
total regulation		± 3% Vo
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	20 mV pk-pk
Temperature co-efficient	-40°C to +85 °C	± 5% Vo
Transient response (see note 5)		70 µs recovery time Overshoot/undershoot 100 MV
Input		
Input voltage range	See note 3	4.5 - 5.5 Vdc
Input current	No load	10 mA typ.
Remote ON/OFF	See note 1	Positive logic
Startup time		1 V/ms
Undervoltage lockout		3.7 - 4.3 Vdc typ.
Track input voltage	Pin 2 (See note 6, 7)	± 0.3% Vin
EMC Charateristics		
Electrostatic discharge	EN61000-4-2, IEC801-2	
Conducted immunity	EN61000-4-6	
Radiated immunity	EN61000-4-3	

EMERSON™
Network Power

General Specifications		
Efficiency	See Efficiency Table	95% max.
Insulation voltage		Non-isolated
Switching frequency	550 kHz to 650 Khz	
Approvals and standards	EN60950 UL/cUL60950	
Material flammability	UL94V-0	
Dimensions	(L x W x H)	22.10 x 12.57 x 8.50 mm 0.870 x 0.495 x 0.335 in.
Weight		2.9 g (0.10 oz)
MTBF demonstrated	Telcordia SR-332F	7,092,000 hours

Environmental Specifications

Thermal performance (see note 2)	Operating ambient, temperature	-40 °C to +85 °C
	Non-operating	-40 °C to +125 °C
MSL ('Z' suffix only)	JEDEC J-STD-020C	Level 3
Protection		
Short-circuit	Auto reset	12 A typ.

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

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated
Cin = 100 µF, Cout = 0 µF

Ordering Information

Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typ.)	Regulation[2]		Model Number
						Line	Load	
21.6 W	4.5 - 5.5 Vdc	0.8 - 3.6 V	0 A	6 A	95%	± 10 mV	± 12 mV	PTH05050

Part Number System with Options

Product Family	Input Voltage	Output Current	Mechanical Package	Output Voltage Code	Pin Option [8]	Mounting Option [9]	Packaging Options
PTH	**05**	**05**	**0**	**W**	**A**	**S**	**T**
POLA compatible	05 = 5 V	05 = 6 A	Always 0	W = Wide	A = Through-Hole Std. Pin Length (0.140") A = Surface-mount Tin/Lead Solder Ball	D = Horizontal Through-hole (RoHS 6/6) H = Horizontal Through-hole (roHS 5/6) S = Surface-mount (RoHS 5/6) Z = Surface-mount (RoHS 6/6)	No suffix = Trays T = Tape and Reel

Notes

1 Remote ON/OFF. Positive Logic
ON: Pin 3 open; or V > Vin - 0.5 V
OFF: Pin 3 GND; or V < 0.8 V (min - 0.2 V).
2 See Figure 1 for safe operating curve.
3 A 100 µF electrolytic input capacitor is required for proper operation. The capacitor must be rated for a minimum of 300 mA rms of ripple current.
4 An external output capacitor is not required for basic operation. Adding 100 µF of distributed capacitance at the load will improve the transient response.
5 1 A/µs load step, 50 to 100% I_{omax}, C_{out} = 100 µF.
6 If utilized Vout will track applied voltage by ±0.3 V (up to Vo set point).
7 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 158 for more details.
8 Tape and reel packaging only available on the surface-mount versions.
9 To order Pb-free (RoHS compatible) surface-mount parts replace the mounting option 'S' with 'Z', e.g. PTH05050WAZ. To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTH05050WAD.
10 NOTICE: Some models do not support all options. Please contact your local sales representative or use the on-line model number search tool at http://www.powerconversions.com to find a suitable alternative.

Output Voltage Adjustment of the PTH05050 Series

The ultra-wide output voltage trim range offers major advantages to users who select the PTH05050. 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 PTH05050 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Efficiency Table (I_O = 4 A)	
Output Voltage	Efficiency
Vo = 1.0 V	85%
Vo = 1.2 V	87%
Vo = 1.5 V	89%
Vo = 1.8 V	90%
Vo = 2.0 V	91%
Vo = 2.5 V	93%
Vo = 3.3 V	95%

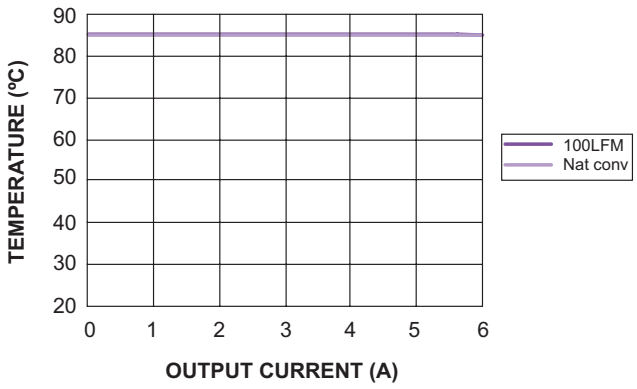


Figure 1 - Safe Operating Area
Vin = 5 V, Output Voltage = 3.3 V (See Note A)

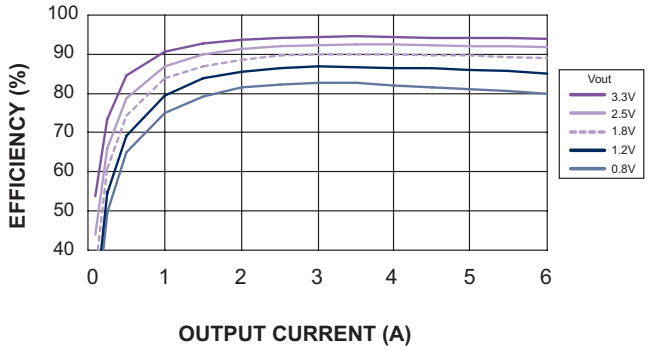


Figure 2 - Efficiency vs Load Current
Vin = 5 V (See Note B)

Specifications

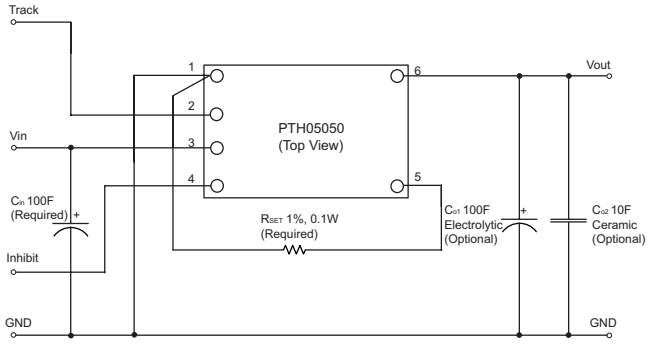
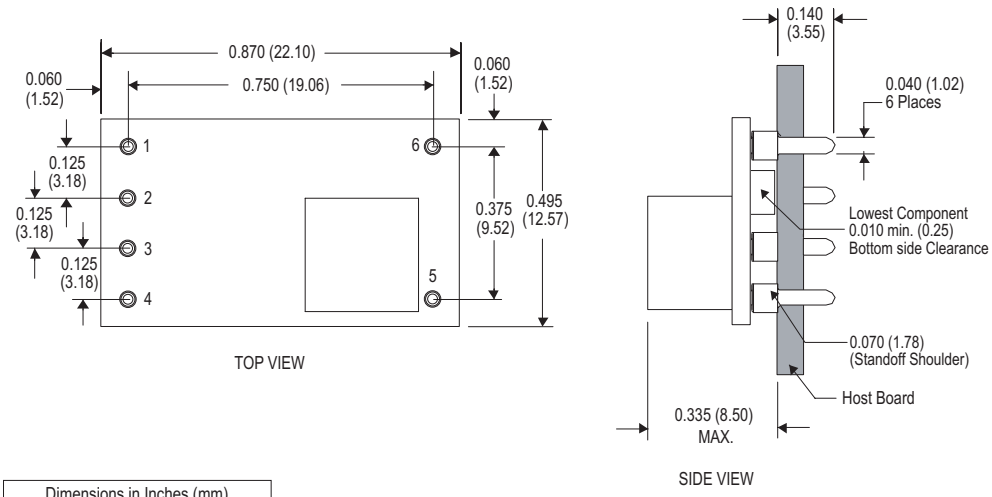


Figure 3 - Standard Application

Notes

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

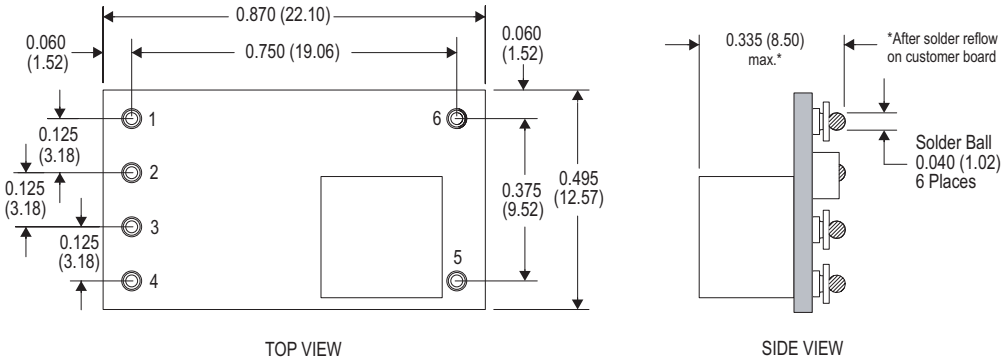
B Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.



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

Figure 4 - Plated Through-Hole Mechanical Drawing

Specifications



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

Figure 5 - Surface-Mount Mechanical Drawing

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

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

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