

- 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

NEW Product



The PTH05050 is a next generation series of non-isolated dc-dc converters offering some of the most advanced POL features available in the industry. The primary new feature provides for sequencing between multiple modules, a function, which is becoming a necessity for powering advanced silicon including DSP's, FPGA's and ASIC's requiring controlled power-up and power-down. Other industry leading features include pre-bias start-up capability and efficiencies up to 95%. The PTH05050 has an input voltage of 4.5 Vdc to 5.5 Vdc and offers a wide 0.8 Vdc to 3.6 Vdc output voltage range with up to 6 A output current, which allows for maximum design flexibility and a pathway for future upgrades.



2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated
C_{in} = 100 µF, C_{out} = 0 µF

SPECIFICATIONS

OUTPUT SPECIFICATIONS		
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		±3.0% Vo
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	20 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	±0.5% Vo
Transient response (See Note 5)	70 µs recovery time Overshoot/undershoot 100 mV	
INPUT SPECIFICATIONS		
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
Start-up 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 CHARACTERISTICS		
Electrostatic discharge		EN61000-4-2, IEC801-2
Conducted immunity		EN61000-4-6
Radiated immunity		EN61000-4-3
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	Telcordia SR-332	7,092,000 hours

ENVIRONMENTAL SPECIFICATIONS		
Thermal performance (See Note 2)	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	12 A typ.

International Safety Standard Approvals



UL/cUL CAN/CSA-C22.2 No. 60950-1-03/UL 60950-1,
File No. E174104



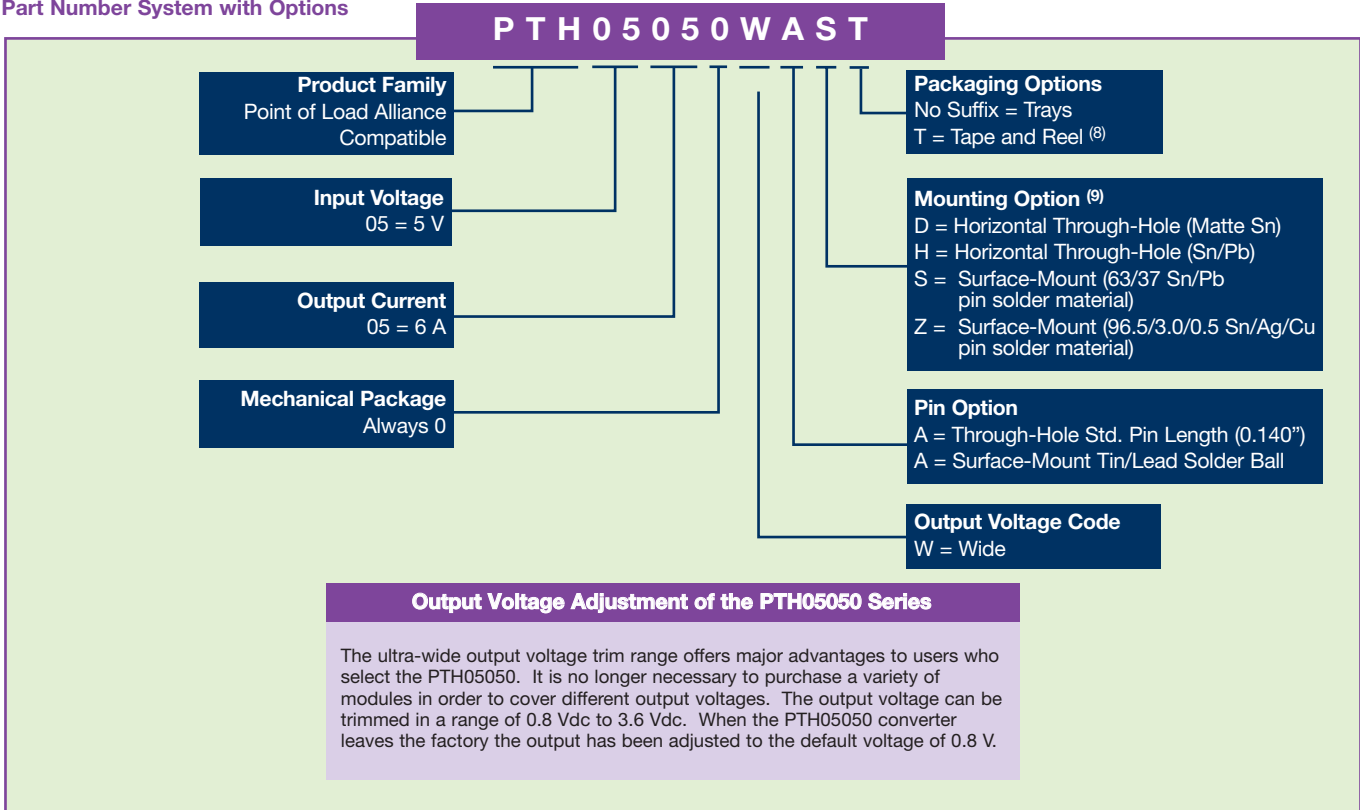
TÜV Product Service (EN60950) Certificate No. B 04 06 38572 044
CB Report and Certificate to IEC60950, Certificate No.
US/8292/UL

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

DC-DC CONVERTERS	POLA Non-isolated	2
For the most current data and application support visit www.artesyn.com/powergroup/products.htm		NEW Product

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (MAX.)	REGULATION		MODEL NUMBER ^(9,10)
						LINE	LOAD	
21.6 W	4.5-5.5 Vdc	0.8-3.6 Vdc	0 A	6 A	95%	±10 mV	±12 mV	PTH05050

Part Number System with Options



Notes

- 1 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).
- 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} . $C_{out} = 100 \mu F$.
- 6 If utilized V_{out} will track applied voltage by $\pm 0.3 V$ (up to V_o 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 Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.

EFFICIENCY TABLE ($I_o = 4 A$)	
OUTPUT VOLTAGE	EFFICIENCY
$V_o = 1.0 V$	85%
$V_o = 1.2 V$	87%
$V_o = 1.5 V$	89%
$V_o = 1.8 V$	90%
$V_o = 2.0 V$	91%
$V_o = 2.5 V$	93%
$V_o = 3.3 V$	95%

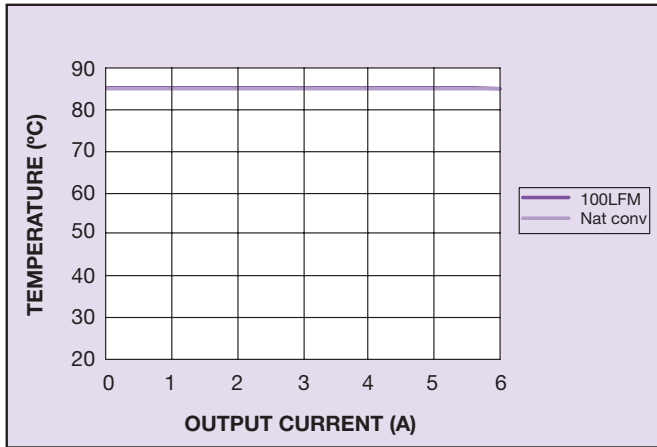


Figure 1 - Safe Operating Area
Vin = 5 V, Output Voltage = 3.3 V (See Note A)

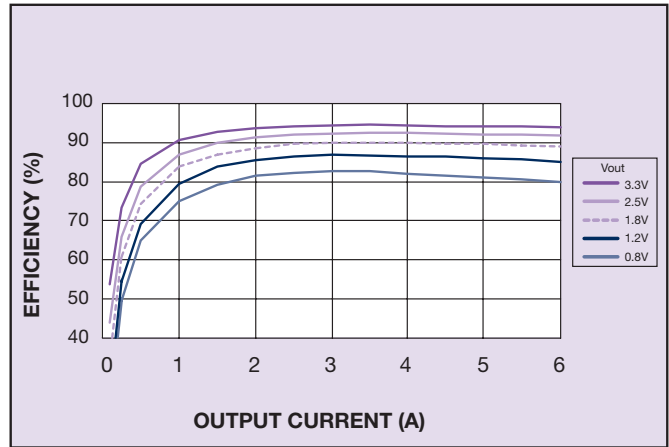


Figure 2 - Efficiency vs Load Current
Vin = 5 V (See Note B)

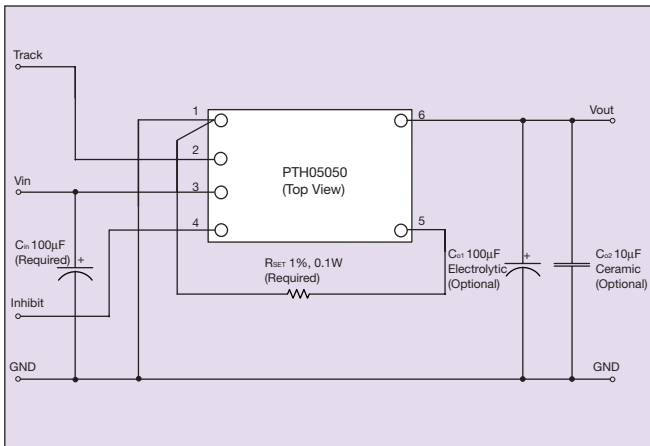


Figure 3 - Standard Application

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.

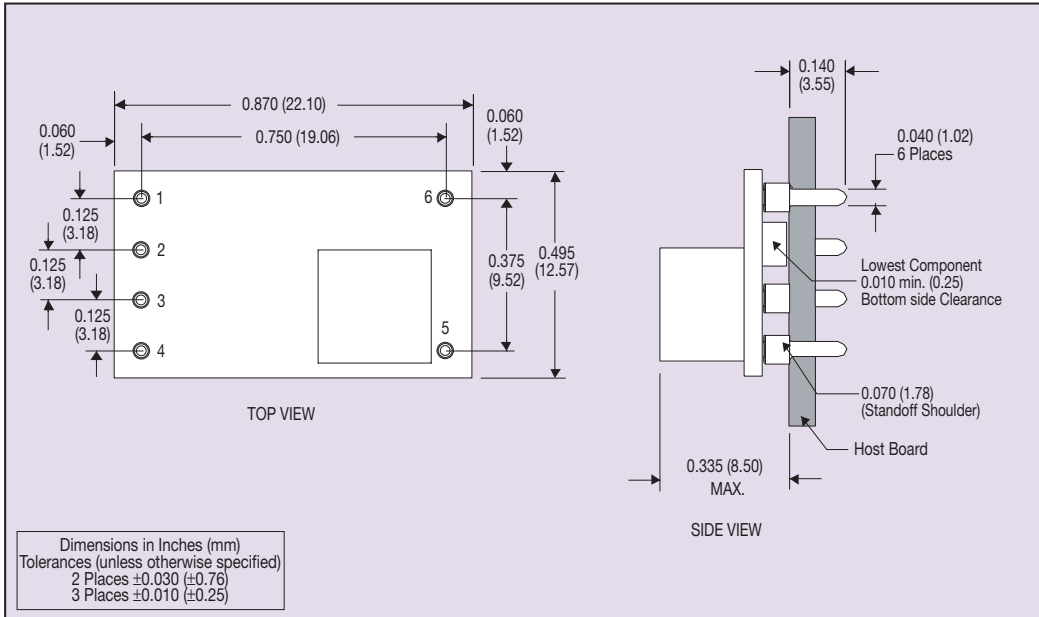


Figure 4 - Plated Through-Hole Mechanical Drawing

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

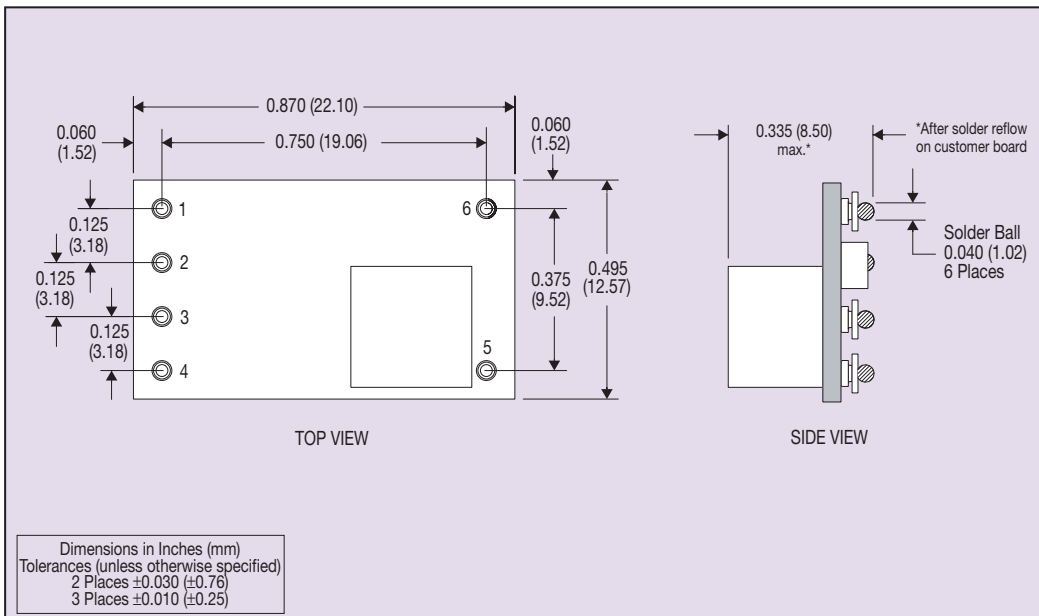


Figure 5 - Surface-Mount Mechanical Drawing

Datasheet © Artesyn Technologies® 2005

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, Artesyn Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. The information and specifications contained or described herein are subject to change in any manner at any time without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.

Please consult our website for the following items: ✓ Application Note

www.artesyn.com