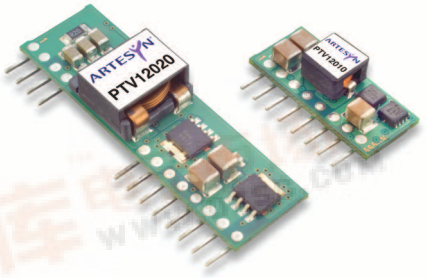
# PTV05010

## 5 Vin single output



NEW Product

- **8 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**
- **Efficiencies up to 95%**
- **Output ON/OFF inhibit**
- **Vertical through-hole mounting**
- **Point-of-Load-Alliance (POLA) compatible**
- **Undervoltage lockout**
- **Available RoHS compliant**




The PTV05010 is a non-isolated dc-dc converter from Artesyn under the Point of Load Alliance (POLA) standard. The vertical mounting option of the PTV05010 module provides performance in less than 20% of the space that is required by alternative solutions. The Auto-Track™ 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. The PTV05010 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 8 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 and 10 µF (Ceramic), $C_{out}$ = 0 µF***

## SPECIFICATIONS

### OUTPUT SPECIFICATIONS

| | | |
|---|---|---|
| Voltage adjustability | (See Note 4) | 0.8-3.6 Vdc |
| Setpoint accuracy | (See Note 8) | ±2.0% Vo |
| Line regulation | | ±5 mV typ. |
| Load regulation | | ±5 mV typ. |
| Total regulation | (See Note 8) | ±3.0% Vo |
| Minimum load | | 0 A |
| Ripple and noise | 20 MHz bandwidth | 15 mV pk-pk |
| Temperature co-efficient | -40 ºC to +85 ºC | ±0.5% Vo |
| Transient response (See Note 5) | | 70 µs recovery time<br>Overshoot/undershoot 100 mV |

### INPUT SPECIFICATIONS

| | | |
|---|---|---|
| Input voltage range | (See Note 3) | 4.5-5.5 Vdc |
| Input standby current | | 5 mA typ. |
| Remote ON/OFF | (See Note 1) | Positive logic |
| Undervoltage lockout | (Increasing) | 4.3 V typ. |
| Track input current | Pin 9 (See Notes 6, 7) | -0.13 mA |

### 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 | 55-650 kHz | 600 kHz typ. |
| Approvals and standards | | EN60950<br>UL/cUL60950 |
| Material flammability | | UL94V-0 |
| Dimensions | (L x W x H) | 22.86 x 8.38 x 10.16 mm<br>0.90 x 0.330 x 0.400 in |
| Weight | | 2.5 g (0.9 oz) |
| MTBF | Telcordia SR-332 | 5,000,000 hours |

### ENVIRONMENTAL SPECIFICATIONS

| | | |
|---|---|---|
| Thermal performance (See Note 2) | Operating ambient, temperature | -40 ºC to +85 ºC |
| | Non-operating | -40 ºC to +125 ºC |

### PROTECTION

| | | |
|---|---|---|
| Overcurrent | Auto reset | 12 A typ. |

**International Safety Standard Approvals**

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

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

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

# PTV05010

## 5 Vin single output



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.) (2) | EFFICIENCY (MAX.) | REGULATION | | MODEL NUMBER (9,10) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LINE | LOAD | |
| 28.8 W | 4.5-5.5 Vdc | 0.8-3.6 Vdc | 0 A | 8 A | 95% | ±5 mV | ±5 mV | PTV05010 |

### Part Number System with Options

**P T V 0 5 0 1 0 W A H**

**Product Family**
Point of Load Alliance Compatible

**Mounting Version**
V = Vertical

**Input Voltage**
05 = 5 V

**Output Current**
01 = 8 A

**Mechanical Package**
Always 0

**Mounting Option (9)**
D = Horizontal Through-Hole (Matte Sn)
H = Horizontal Through-Hole (Sn/Pb)

**Pin Style**
A = Through-Hole Std. Pin Length (0.150")

**Output Voltage Code**
W = Wide

### Output Voltage Adjustment of the PTV05010 Series

The ultra-wide output voltage trim range offers major advantages to users who select the PTV05010. 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 PTV05010 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

### Notes

1 Remote ON/OFF. Positive logic
ON: Pin 7 open; or V > (Vin - 0.5 V)
OFF: Pin 7 GND; or V < 0.6 V
2 See Figure 1 for safe operating curve.
3 A 100 µF electrolytic input capacitor is required for proper operation as well as a 10F high-frequency ceramic capacitor. The electrolytic - capacitor must be rated for a minimum of 300 mArms 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% $I_{omax}$, C3 = 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 195 for more details.
8 The set-point voltage tolerance is affected by the tolerance and stability of $R_{set}$. The stated limit is unconditionally met if $R_{set}$ has a tolerance of 1% with 100/ºC or better temperature stability.
9 To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTV05010WAD.
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

| EFFICIENCY TABLE ($I_O$ = $I_O$max) | |
|---|---|
| OUTPUT VOLTAGE | EFFICIENCY |
| Vo = 3.3 V | 95 |
| Vo = 2.5 V | 93 |
| Vo = 1.8 V | 90 |
| Vo = 1.5 V | 89 |
| Vo = 1.2 V | 87 |
| Vo = 1.0 V | 85 |

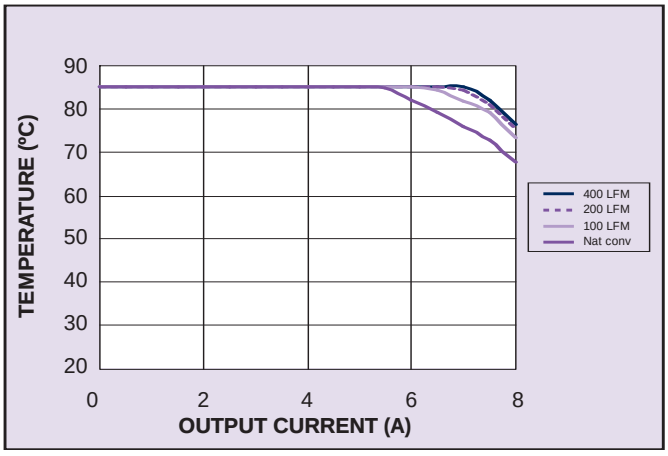



**Figure 1 - Safe Operating Area**
**Vin = 5 V, Output Voltage = 3.3 V (See Note A)**

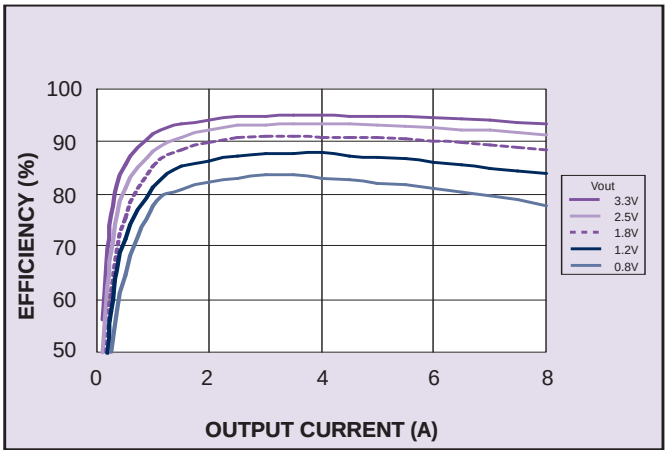



**Figure 2 - Efficiency vs Load Current**
**Vin = 5 V (See Note B)**

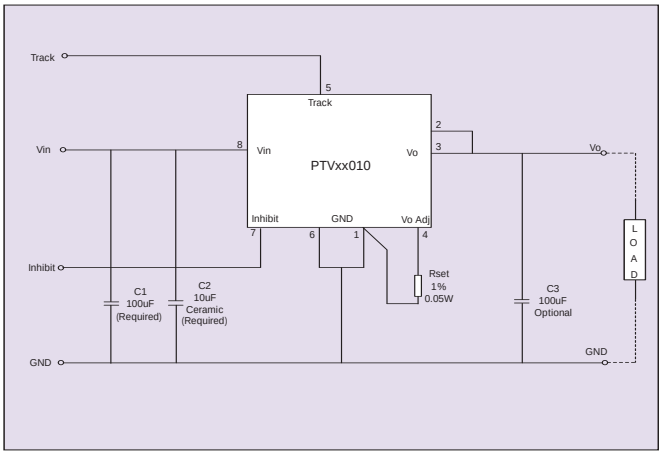



**Figure 3 - Standard Application**

## 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.

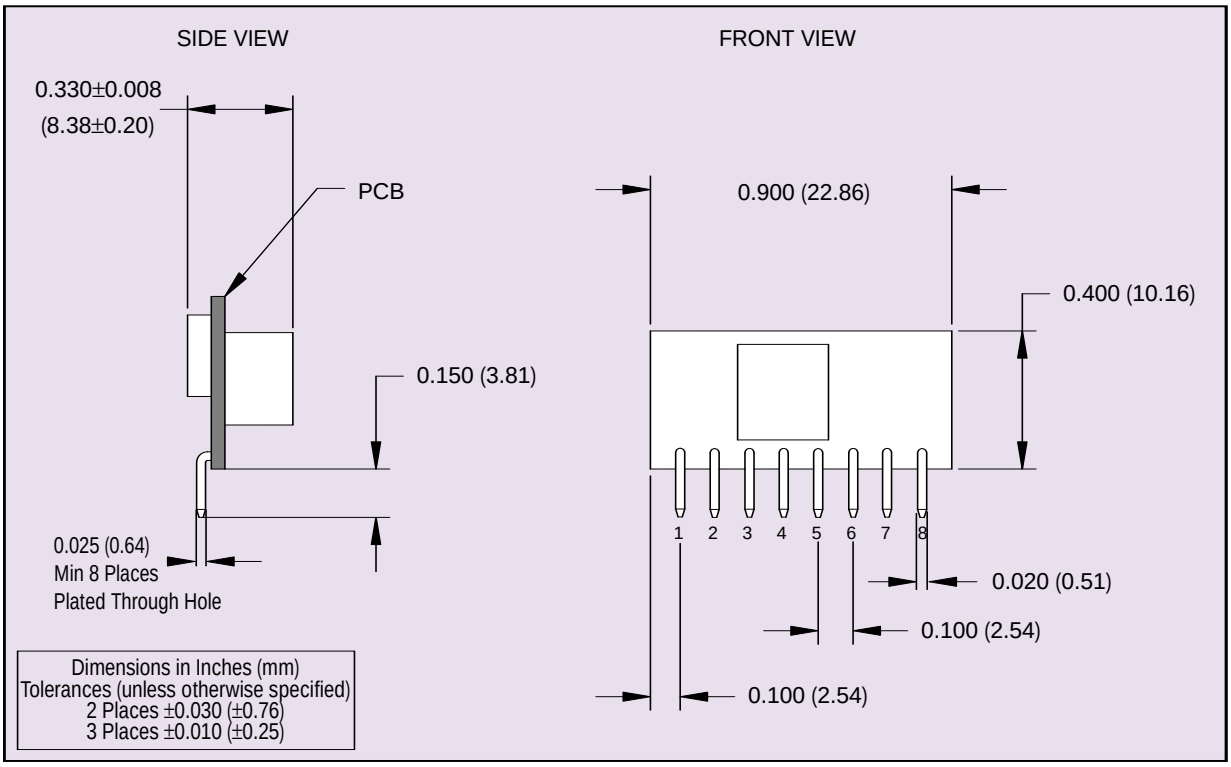



**Figure 4 - Mechanical Drawing**

| PIN CONNECTIONS | |
|---|---|
| **PIN NO.** | **FUNCTION** |
| 1 | Ground |
| 2 | Vout |
| 3 | Vout |
| 4 | Vo Adjust |
| 5 | Track |
| 6 | Ground |
| 7 | Inhibit |
| 8 | Vin |