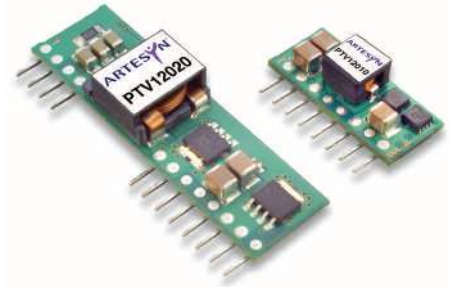




- 8 A output current
- 3.3 V input voltage
- Wide-output voltage adjust (0.8 Vdc to 2.5 Vdc)
- Auto-track™ sequencing*
- Pre-bias start-up
- Efficiencies up to 93%
- Output ON/OFF inhibit
- Vertical through-hole mounting
- Point-of-Load-Alliance (POLA) compatible
- Undervoltage lockout
- Available RoHS compliant



The PTV03010 is a non-isolated dc-dc converter from Artesyn under the Point of Load Alliance (POLA) standard. The vertical mounting option of the PTV03010 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 PTV03010 has an input voltage of 2.95 Vdc to 3.65 Vdc and offers a wide 0.8 Vdc to 2.5 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
 $C_{in} = 100 \mu F$ and $10 \mu F$ (Ceramic), $C_{out} = 0 \mu F$

SPECIFICATIONS

OUTPUT SPECIFICATIONS

| | | |
|------------------------------------|------------------|--|
| Voltage adjustability | (See Note 4) | 0.8-2.5 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 | 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) | 2.95-3.65 Vdc |
| Input standby current | | 10 mA typ. |
| Remote ON/OFF | (See Note 1) | Positive logic |
| Undervoltage lockout | (Increasing) | 2.45 V typ. |
| Track input current | Pin 5 (See Note 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) | 93% max. |
| Insulation voltage | | Non-isolated |
| Switching frequency | 550-650 kHz | 600 kHz typ. |
| Approvals and standards | | EN60950 UL/cUL60950 |
| Material flammability | | UL94V-0 |
| Dimensions | (L x W x H) | 22.86 x 8.38 x 10.16 mm 0.90 x 0.330 x 0.400 in |
| Weight | | 2.5 g (0.09 oz) |
| MTBF | Telcordia SR-332 | 5,000,000 hours |

ENVIRONMENTAL SPECIFICATIONS

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

PROTECTION

| | | |
|-------------|------------|-----------|
| Overcurrent | Auto reset | 16 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.
US/8292/UL

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

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) (2) | EFFICIENCY (MAX.) | REGULATION | | MODEL NUMBER (9,10) |
|---------------------|---------------|----------------|-----------------------|---------------------------|-------------------|------------|-------|---------------------|
| | | | | | | LINE | LOAD | |
| 20 W | 2.95-3.65 Vdc | 0.8-2.5 Vdc | 0 A | 8 A | 93% | ±5 mV | ±5 mV | PTV03010W |

Part Number System with Options

PTV03010WAH

Product Family
Point of Load Alliance Compatible
Mounting Version
V = Vertical

Input Voltage
03 = 3.3 V

Output Current
01 = 8 A

Mechanical Package
Always 0

Mounting Style (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 PTV03010 Series

The ultra-wide output voltage trim range offers major advantages to users who select the PTV03010. 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 2.5 Vdc. When the PTV03010 converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Notes

- Remote ON/OFF. Positive logic
ON: Pin 7 open; or $V > (V_{in} - 0.5 V)$
OFF: Pin 7 GND; or $V < 0.6 V$.
- See Figure 1 for safe operating curve.
- A 100 μF electrolytic input capacitor is required for proper operation as well as a 10 μF high-frequency ceramic capacitor. The electrolytic capacitor must be rated for a minimum of 300 mArms of ripple current.
- An external output capacitor is not required for basic operation. Adding 100 μF of distributed capacitance at the load will improve the transient response.
- 1A/ μs load step, 50 to 100% I_{Omax} , $C3 = 100 \mu F$.
- If utilized V_{out} will track applied voltage by $\pm 0.3 V$ (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 194 for more details.
- 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/°C or better temperature stability.
- To order Pb-free (RoHS compatible) through-hole parts replace the mounting option 'H' with 'D', e.g. PTV03010WAD.
- 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 ($I_O = I_{Omax}$)

| OUTPUT VOLTAGE | EFFICIENCY |
|----------------|------------|
| $V_o = 2.5 V$ | 93 |
| $V_o = 1.8 V$ | 90 |
| $V_o = 1.5 V$ | 89 |
| $V_o = 1.2 V$ | 87 |
| $V_o = 1.0 V$ | 85 |

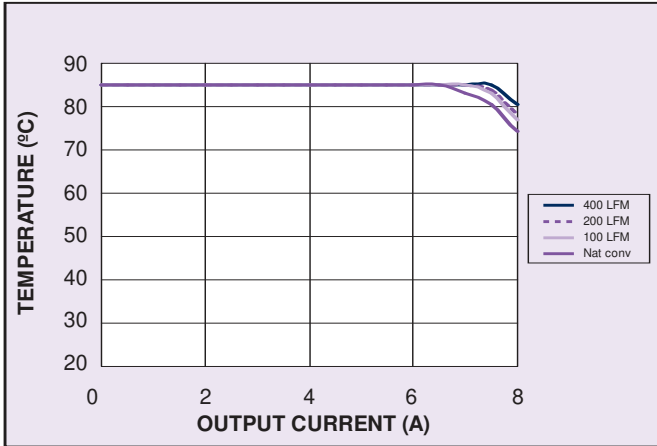


Figure 1 - Safe Operating Area
Vin = 3.3 V, Output Voltage = 2.5 V (See Note A)

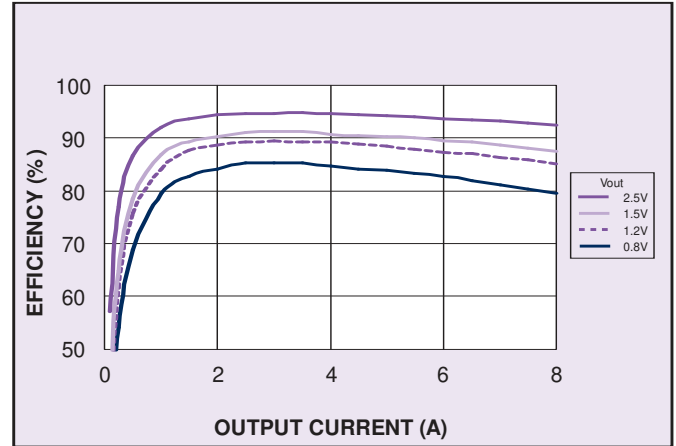


Figure 2 - Efficiency vs Load Current
Vin = 3.3 V (See Note B)

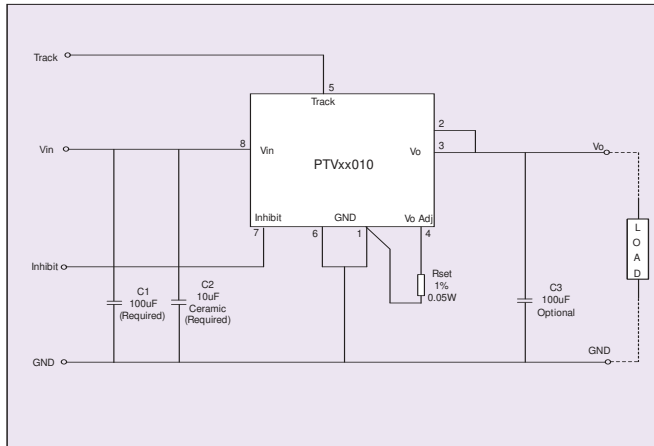


Figure 3 - Standard Application

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.

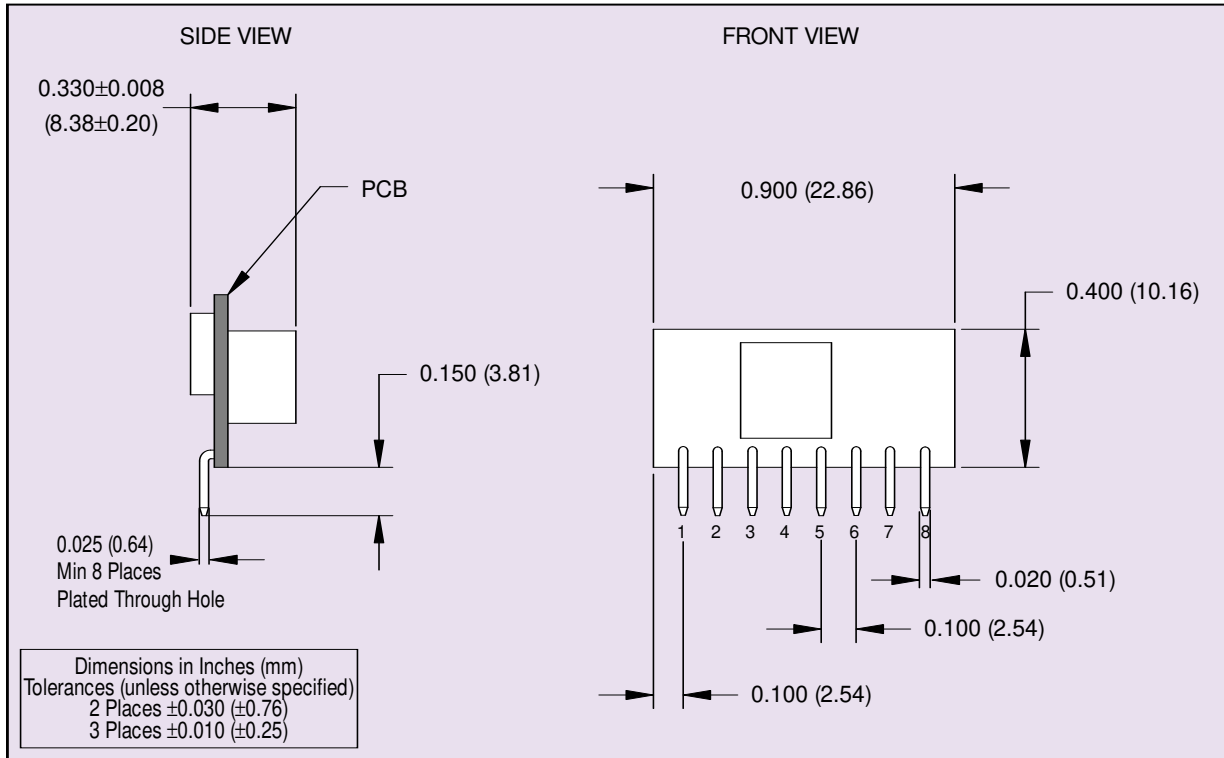


Figure 4 - Mechanical Drawing

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