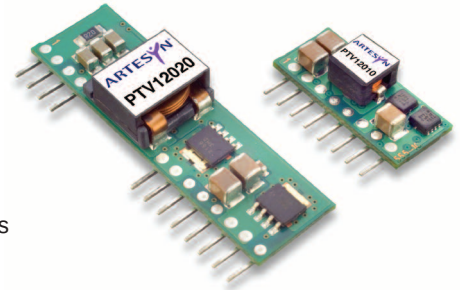




- 18 A output current
- 3.3 Vin input voltage
- Wide-output voltage adjust (0.8 Vdc to 2.5 Vdc)
- Auto-track™ sequencing*
- Pre-bias start-up
- Efficiencies up to 96%
- Output ON/OFF inhibit
- Output voltage sense
- Vertical through-hole mounting
- Point-of-Load-Alliance (POLA) compatible
- Undervoltage lockout
- Available RoHS compliant



The PTV03020 is a non-isolated dc-dc converter from Artesyn under the Point of Load Alliance (POLA) standard. The vertical mounting option of the PTV03020 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 PTV03020 has an input voltage of 2.95 Vdc to 3.6 Vdc and offers a wide 0.8 Vdc to 2.5 Vdc output voltage range with up to 18 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
 $C_{in} = 680 \mu F$ and $22 \mu F$ (Ceramic), $C_{out} = 0 \mu F$

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability	(See Note 4)	0.8-2.5 Vdc
Setpoint accuracy	(See Note 8)	$\pm 2.0\% V_o$
Line regulation		± 5 mV typ.
Load regulation		± 5 mV typ.
Total regulation	(See Note 8)	$\pm 3.0\% V_o$
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	20 mV pk-pk
Temperature co-efficient	-40 °C to +85 °C	$\pm 0.5\% V_o$
Transient response (See Note 5)	70 μs recovery time Overshoot/undershoot 120 mV	

INPUT SPECIFICATIONS

Input voltage range	(See Note 3)	2.95-3.6 Vdc
Input standby current		10 mA typ.
Remote ON/OFF	(See Note 1)	Positive logic
Undervoltage lockout	(Increasing)	2.7 V typ.
Track input current	Pin 9 (See Notes 6, 7)	-0.13 mA

GENERAL SPECIFICATIONS

Efficiency	(See Efficiency Table)	96% max.
Insulation voltage		Non-isolated
Switching frequency	250-340 kHz	300 kHz typ.
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	(L x W x H)	44.45 x 9.39 x 12.70 mm 1.75 x 0.37 x 0.50 in
Weight		5.5 g (0.19 oz)
MTBF	Telcordia SR-332	5,000,000 hours

ENVIRONMENTAL SPECIFICATIONS

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

Overcurrent	Auto reset	35 A typ.
Overtemperature		Auto recovery

International Safety Standard Approvals



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

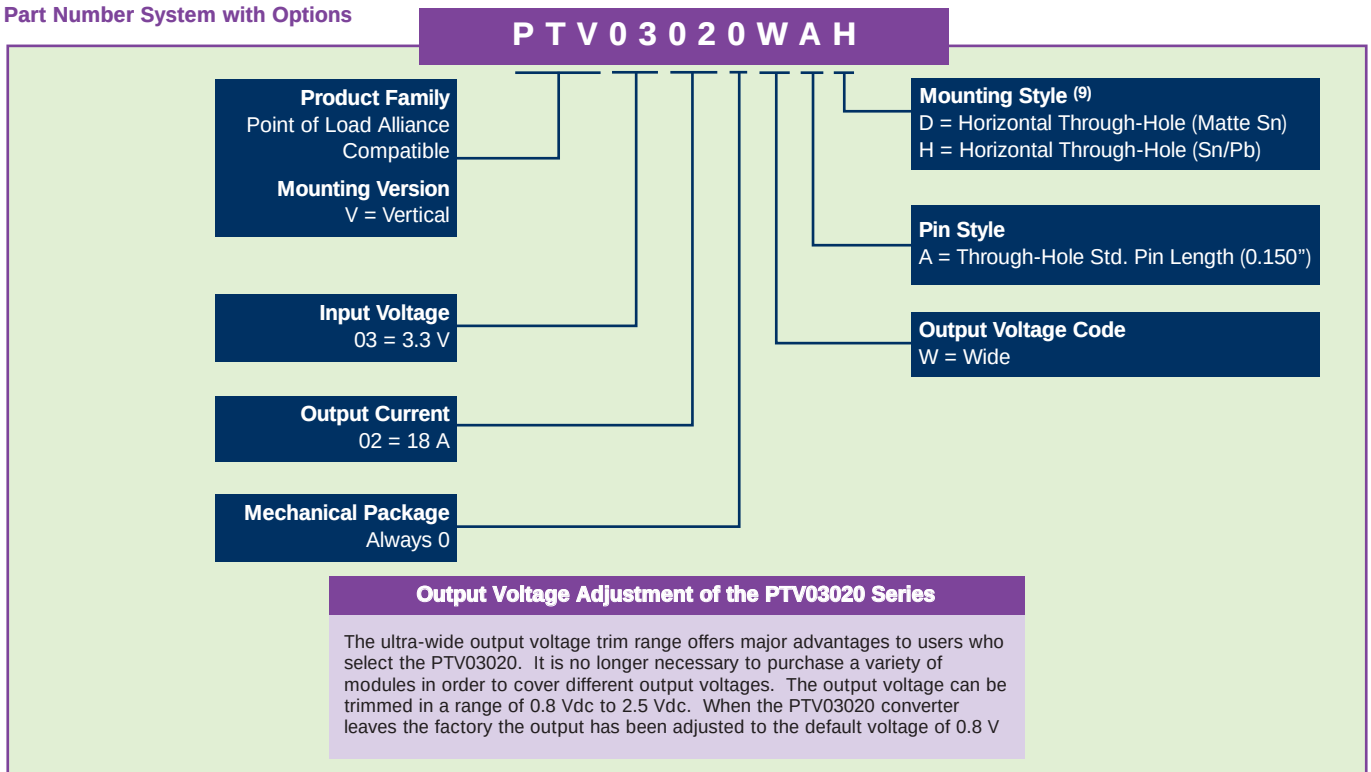


TÜV Product Service (EN60950) Certificate No. B 04 06 38572 044
CB Report and Certificate to IEC60950, Certificate No.
US/8292/UL

*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	
45 W	2.95-3.6 Vdc	0.8-2.5 Vdc	0 A	18 A	96%	±5 mV	±5 mV	PTV03020W

Part Number System with Options



Notes

- Remote ON/OFF. Positive logic
ON: Pin 3 open; or $V > V_{in} - 0.5\text{ V}$
OFF: Pin 3 GND; or $V < 0.6\text{ V}$
- See Figure 1 for safe operating curve.
- A 680 μF electrolytic input capacitor is required for proper operation as well as a 2 μF high-frequency ceramic capacitor. The electrolytic capacitor must be rated for a minimum of 750 mA rms of ripple current.
- An external output capacitor is not required for basic operation. Adding 33 μF of distributed capacitance at the load will improve the transient response.
- 1A/ μs load step, 50 to 100% I_{Omax} , $C3 = 330\text{ }\mu\text{F}$.
- 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 197 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. PTV03020WAD.
- 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 ($I_o = 12\text{ A}$)

OUTPUT VOLTAGE	EFFICIENCY
$V_o = 2.5\text{ V}$	95
$V_o = 1.8\text{ V}$	92
$V_o = 1.5\text{ V}$	90
$V_o = 1.2\text{ V}$	88
$V_o = 1.0\text{ V}$	86
$V_o = 0.8\text{ V}$	83

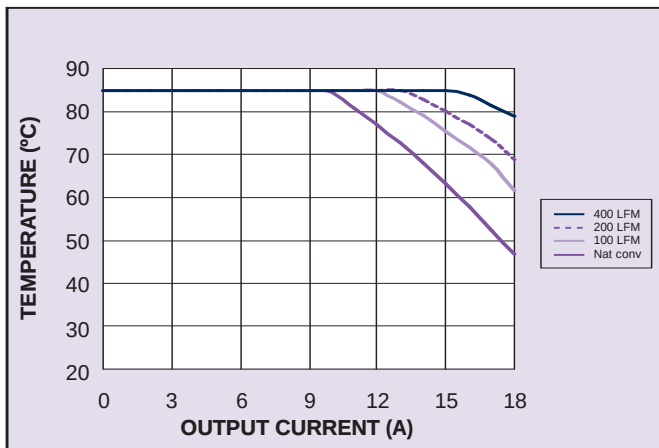


Figure 1 - Safe Operating Area
Vin = 3.3 V, Output Voltage = 2.5 V (See Note A)

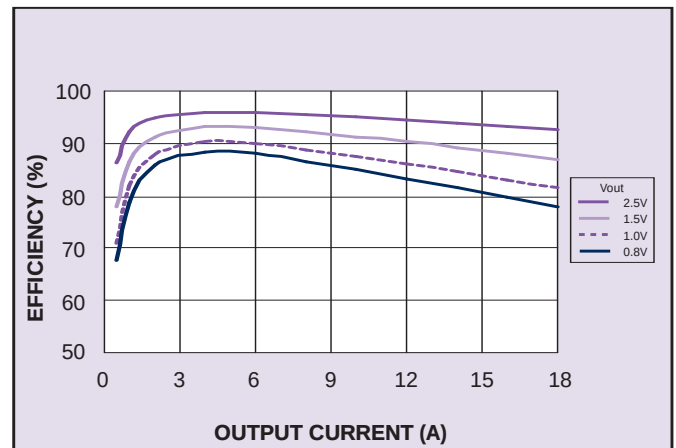


Figure 2 - Efficiency vs Load Current
Vin = 3.3 V (See Note B)

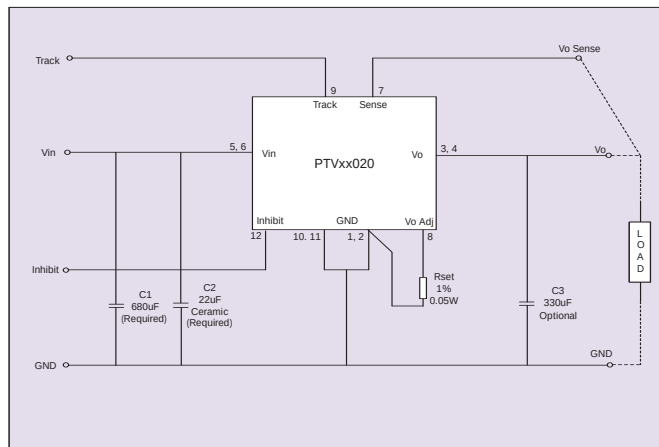
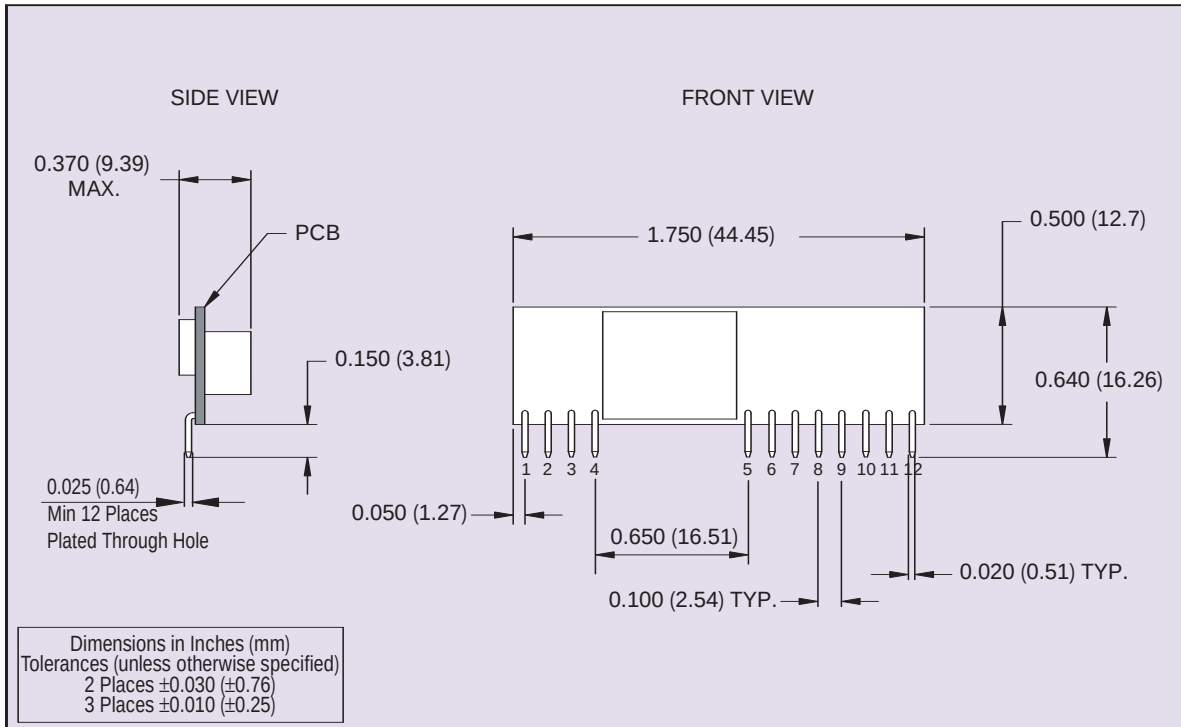


Figure 3 - Standard Application

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.



PIN CONNECTIONS	
PIN NO.	FUNCTION
1	Ground
2	Ground
3	Vout
4	Vout
5	Vin
6	Vin
7	Vo Sense
8	Vo Adjust
9	Track
10	Ground
11	Ground
12	Inhibit

Figure 4 - Mechanical Drawing and Pinout Table