

PTV12010

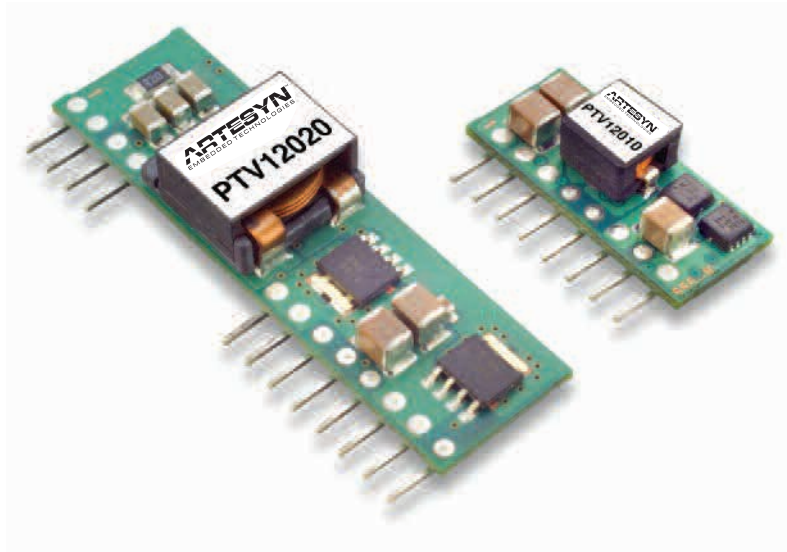
12 Vin single output

Data Sheet

Total power: 44 W
Input voltage: 12 V

KEY FEATURES:

- 8 A output current
- 12 V input voltage
- Wide-output voltage adjust
 - 1.2 Vdc to 5.5 Vdc for suffix 'W' and 0.8 Vdc to 1.8 Vdc for suffix 'L'
- 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



Electrical Specifications

Efficiency		See Tables on page 2
Insulation voltage		Non-isolated
Switching frequency		
Suffix 'W'	250-400 kHz	325 kHz typ.
Suffix 'L'	200-300 kHz	250 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		2.6 g (0.09 oz)
MTBF	Telcordia SR-332	5,000,000 hours

Input

Input voltage range	(See Note 3)	10.8 V-13.2 Vdc
Input standby current		10 mA typ.
Remote ON/OFF	(See Note 1)	Positive logic
Undervoltage lockout	(Increasing)	9.5 V typ.
Track input current	Pin 5 (See Notes 6 and 7)	-0.13 mA

Output

Voltage adjustability (See Note 4)	Suffix 'W' Suffix 'L'	1.2-5.5 Vdc 0.8-1.8 Vdc
Setpoint accuracy	(See Note 8)	±2.0% Vo
Line regulation		±10 mV typ.
Load regulation		±12 mV typ.
Total regulation	(See Note 8)	±3.0% Vo
Minimum load		0 A
Ripple and noise 20 MHz bandwidth	Suffix 'W' Suffix 'L'	20 mV pk-pk 15 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

EMC Characteristics

Electrostatic discharge	EN61000-4-2, IEC801-2
Conducted immunity	EN61000-4-6
Radiated immunity	EN61000-4-3

ENVIRONMENTAL SPECIFICATIONS

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

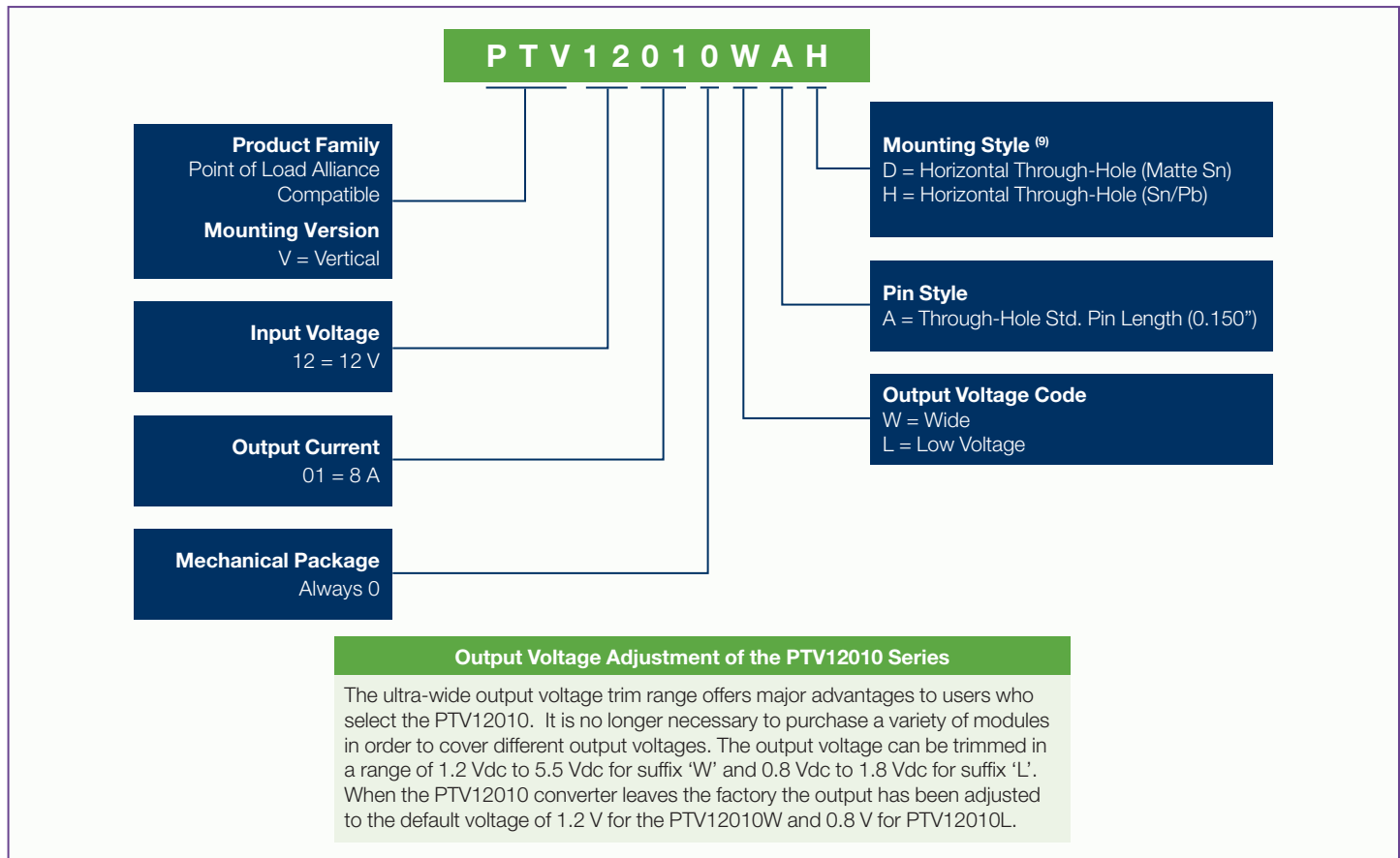
PROTECTION

Overcurrent	Auto reset	16 A typ.
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OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.) ⁽²⁾	EFFICIENCY (MAX.)	REGULATION		MODEL NUMBER
						LINE	LOAD	
15 W	10.8-13.2 Vdc	0.8-1.8 Vdc	0 A	8 A	87%	±10 mV	±12 mV	PTV12010L
44 W	10.8-13.2 Vdc	1.2-5.5 Vdc	0 A	8 A	92%	±10 mV	±12 mV	PTV12010W

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated $C_{in} = 100 \mu\text{F}$ and $10 \mu\text{F}$ (Ceramic), $C_{out} = 0 \mu\text{F}$

Part Number System with Options



EFFICIENCY TABLE - PTV12010L ($I_o = I_{oMAX}$)	
OUTPUT VOLTAGE	EFFICIENCY
$V_o = 1.8\text{ V}$	87%
$V_o = 1.5\text{ V}$	86%
$V_o = 1.2\text{ V}$	84%
$V_o = 1.0\text{ V}$	81%
$V_o = 0.8\text{ V}$	78%

EFFICIENCY TABLE - PTV12010W ($I_o = I_{oMAX}$)	
OUTPUT VOLTAGE	EFFICIENCY
$V_o = 5.0\text{ V}$	92%
$V_o = 3.3\text{ V}$	90%
$V_o = 2.5\text{ V}$	88%
$V_o = 1.8\text{ V}$	85%
$V_o = 1.5\text{ V}$	83%
$V_o = 1.2\text{ V}$	80%

Notes

- Remote ON/OFF. Positive logic
ON: Pin 7 open; or $V > 2\text{ V}$
OFF: Pin 7 GND; or $V < 0.6\text{ V}$
- See Figures 1, 2, 3 and 6 for safe operating curves.
- 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 the minimum rms 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.
- 1 A/ μs load step, 50 to 100% I_{oMAX} , $C_3 = 100\ \mu\text{F}$.
- 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 196 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. PTV12010WAD.
 - 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.

PTV12010W CHARACTERISTIC DATA

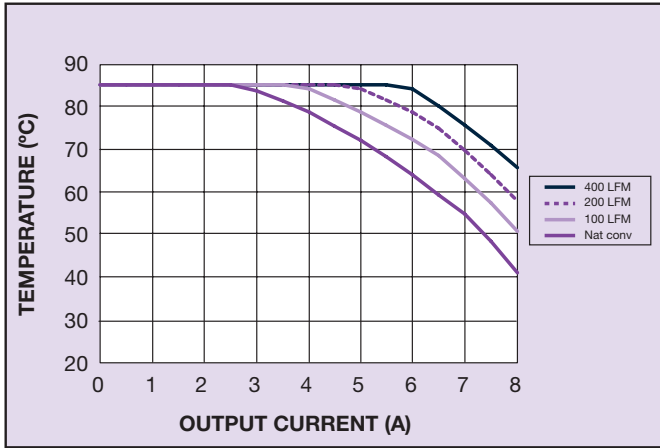


Figure 1 - Safe Operating Area
 Vin = 12 V, Output Voltage = 5 V (See Note A)

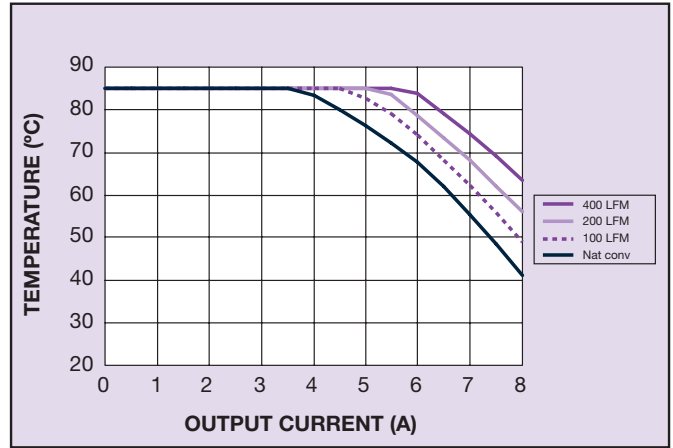


Figure 2 - Safe Operating Area
 Vin = 12 V, Output Voltage = 3.3 V (See Note A)

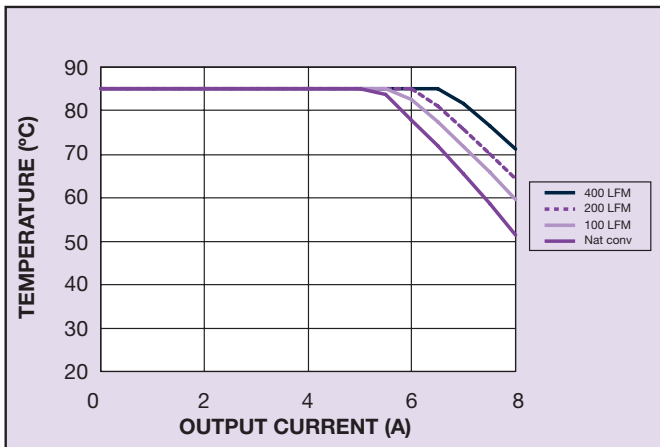


Figure 3 - Safe Operating Area
 Vin = 12 V, Output Voltage = 1.8 V (See Note A)

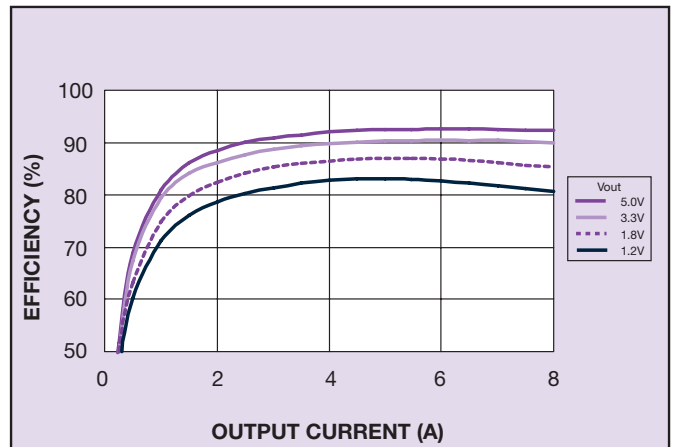


Figure 4 - Efficiency vs Load Current
 Vin = 12 V (See Note B)

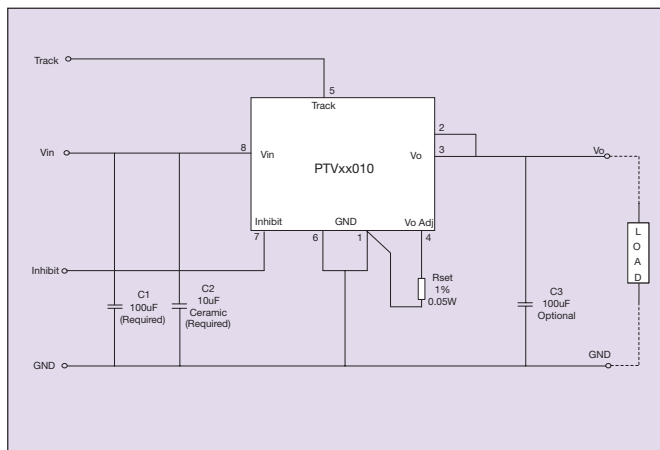


Figure 5 - Standard Application

Notes

- SOA curves represent the conditions at which internal components are within the Artesyn derating guidelines.
- Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

PTV12010L CHARACTERISTIC DATA

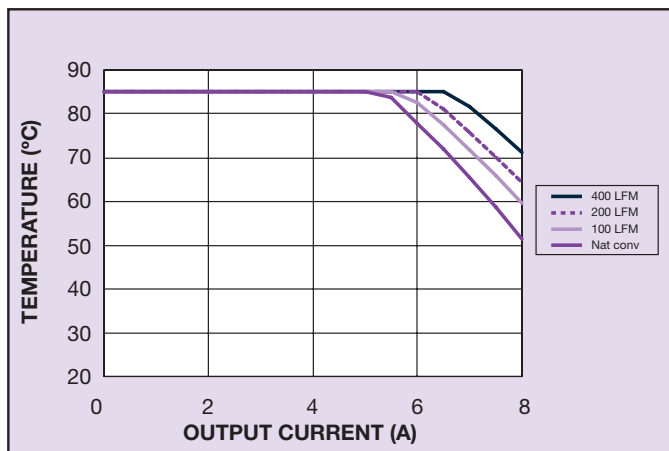


Figure 6 - Safe Operating Area
 Vin = 12 V, Output Voltage 1.8 V (See Note A)

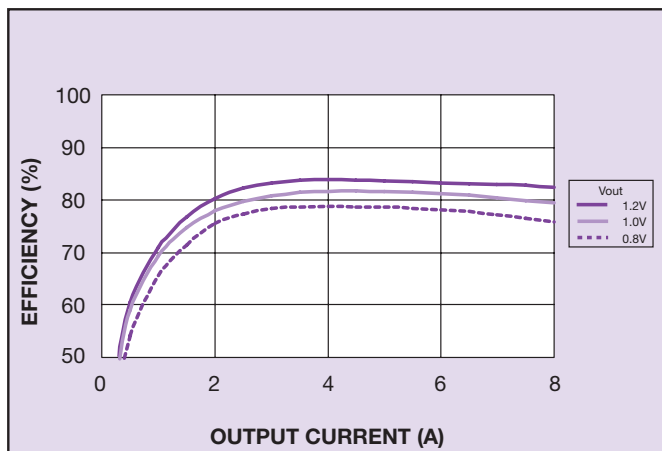


Figure 7 - Efficiency vs Load Current
 Vin = 12 V (See Note B)

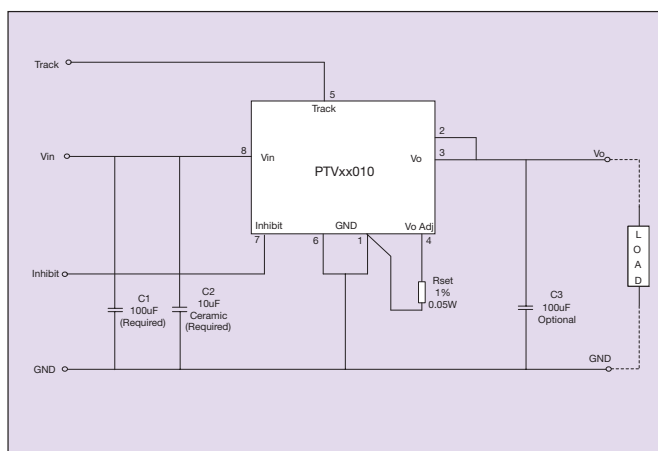
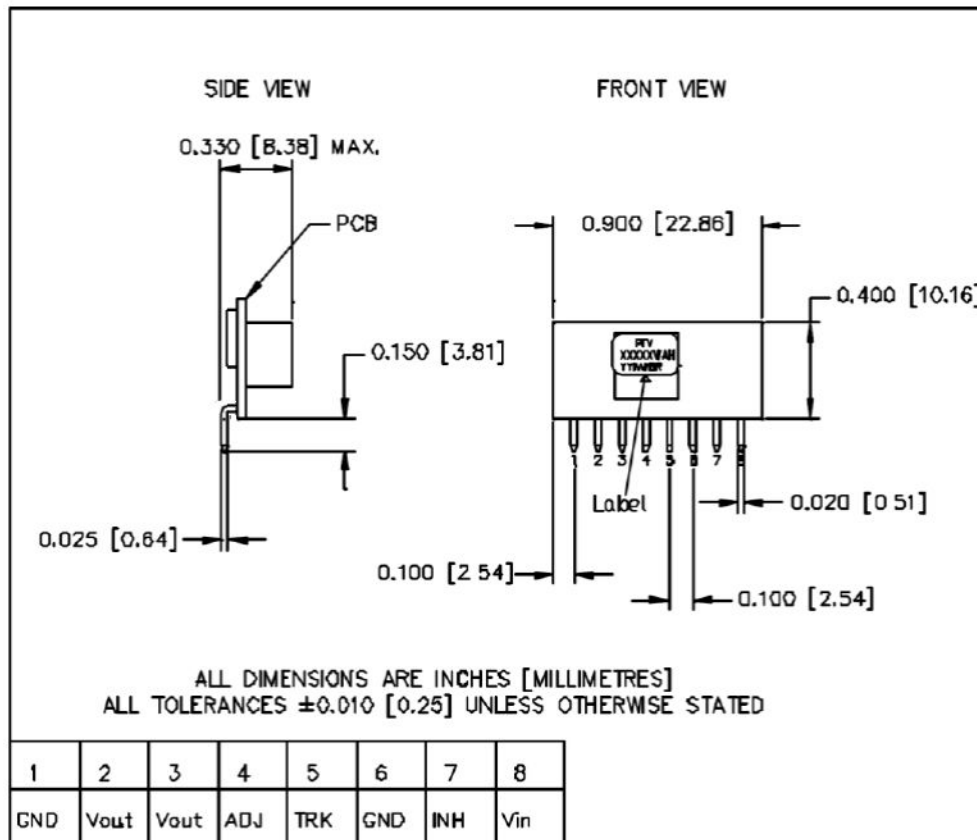


Figure 8 - Standard Application

Notes

- SOA curves represent the conditions at which internal components are within the Artesyn derating guidelines.
- 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	Vout
3	Vout
4	Vo Adjust
5	Track
6	Ground
7	Inhibit
8	Vin

Figure 9 - Mechanical Drawing and Pinout Table

WORLDWIDE OFFICES

Americas

2900 South Diablo Way
Suite B100
Tempe, AZ 85282, USA
+1 888 412 7832

Europe (UK)

Ground Floor Offices, Barbary House
4 Harbour Buildings, Waterfront West
Brierley Hill, West Midlands
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[N0.8](#) [3V24-P1](#) [3V24-N1](#) [BMR4672010/001](#) [BMR4652010/001](#) [6AA24-P30-I5-M](#) [6AA24-N30-I5-M](#) [BM2P101X-Z](#) [35A24-P30](#) [2.5M24-P1](#)
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[N15-E](#) [10A12-P4-M](#) [10C24-N250-I5](#) [10C24-P125](#) [10C24-P250-I5](#) [6A24-P20-I10-F-M-25PPM](#) [1A24-P30-F-M-C](#) [TSR 1-24150SM](#)
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