Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

PTH04040

Data Sheet

3.3 / 5.0 Vin Single Output

Total Power:	150 Watts
Input Voltage:	2.95 - 5.5 Vdc
# of Outputs:	Single

SPECIAL FEATURES

- 60 A output current[7]
- 3.3/5 V input voltage (2.95 - 5.5 Vdc)
- Wide-output voltage adjust (0.8 V - 2.5 V)
- Auto-track™ sequencing*
- Margin up/down controls
- Efficiencies up to 93%
- Output ON/OFF inhibit
- Differential remote sense
- Programmable input Under-Voltage Lockout (UVLO)
- Point-of-Load-Alliance (POLA) compatible
- RoHS compliant
- Two year warranty

SAFETY

- UL/cUL CAN/CSA-C22.2 No. 60950
- File No. E174104
- TÜV Product Service (EN60950) Certificate No. B04 06 38572 044
- CB report and certificate to IEC60950, Certificate No. US/8292/UL

RoHS 6/6 COMPLIANT

Electrical Specifications

Input		
Input voltage range	(See Note 3, 5)	2.95 - 5.5 V
Input standby current		60 mA typical
Remote ON/OFF	(See Note 5)	Negative logic
Undervoltage lockout (Pin 8 open)	(See Note 6) On threshold Hysteresis	6.6 - 7.5 Vdc typical 2.60 V 0.6 V
Track input voltage	Pin 18 (See Note 2)	-0.11 mA
Output		
Voltage adjustability	$2.95 \leq Vi \leq 4.5$ V $4.50 \leq Vi \leq 5.5$ V	0.8 - 1.65 Vdc 0.8 - 2.5 Vdc
Setpoint accuracy	(See Note 1)	±2.0% Vo
Line regulation		±5 mV typical
Load regulation		±5 mV typical
Total regulation	(See Note 1)	±3.0% Vo
Minimum load		0 A
Ripple and noise	20 MHz bandwidth	15 mV typical
Transient response	(See Note 4)	100 µs recovery time Overshoot/undershoot 200 mV
Margin adjustment	(See Note 8)	±5.0% Vo

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated.
Cin = 1000 µF, Cout = 660 µF.

*Auto-track is a trademark of Texas Instruments.

ARTESYN
EMBEDDED TECHNOLOGIES

General Specifications

Efficiency	(See Efficiency Table)	93% max.
Insulation voltage		Non-isolated
Switching frequency		825 MHz
Approvals and standards		EN60950, UL/cUL60950
Material flammability		UL94V-0
Dimensions	L x W x H	51.94 x 26.54 x 9.07 mm 2.045 x 1.045 x 0.357 in
Weight		22.5 g (79 oz)
MTBF	Telcordia SR-332	2,100,000 hours

EMC Characteristics

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

Environmental Specifications

Thermal performance	Operating ambient temperature Non-operating temperature	-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	90 A typical
Thermal		Auto recovery

Ordering Information

Model Number [9]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
PTH04040W	150 W	2.95 - 5.5 V	0.8 - 2.5 V	0 A	60 A	93%	±5 mV	±5 mV

Part Number System with Options

Product Family	Input Voltage	Output Current	Mechanical Package	Output Voltage Code	Pin Option	Mounting Options
PTH	**04**	**04**	**0**	**W**	**A**	**S**
Point-of-Load Alliance compatible	04 = 2.95 - 5.5 Vdc	04 = 60 A	Always 0	W = Wide		D = Horizontal through-hole (Matte Sn) Z = Surface-mount (96.5/3.0/0.5 Sn/Ag/Cu pin solder material

Output Voltage Adjustment

The ultra-wide output voltage trim range offers major advantages to users who select the PTH04040W. 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 PTH04040W converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Efficiency Table (Io = 45 A; Vin = 5 V)

Output Voltage	Efficiency
Vo = 1.2 V	86%
Vo = 1.5 V	88%
Vo = 1.8 V	90%
Vo = 2.5 V	93%

Notes:

1. The set-point voltage tolerance is affected by the tolerance and stability of RSET. The stated limit is unconditionally met if RSET has a tolerance of 1% with 100 ppm/ºC or better temperature stability.

2. This control pin has an internal pull-up to Vin nominal. If it is left open-circuit the module will operate when input power is applied. A small low-leakage (<100 nA) MOSFET is recommend for control. For further information, consult Application Note 192.

3. A 1000 μF input capacitor is required for proper operation. The capacitor must be rated for a minimum of 400 mA rms of ripple current.

4. This is with a 1 A/μs loadstep, 50 to 100% Iomax. Co = 660 μF.

5. The minimum input voltage is 2.95 V or 1.34 x Vo, whichever is greater.

6. These are default voltages. They may be adjusted using the 'UVLO Prog.' control input. Consult Application Note 192 for further details.

7. See Figures 1 and 2 for safe operating curves. All power pins must be used.

8. A small low-leakage (<100 nA) MOSFET is recommended to control this pin. The open-circuit voltage is less than 1 Vdc.

9. 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/power to find a suitable alternative.
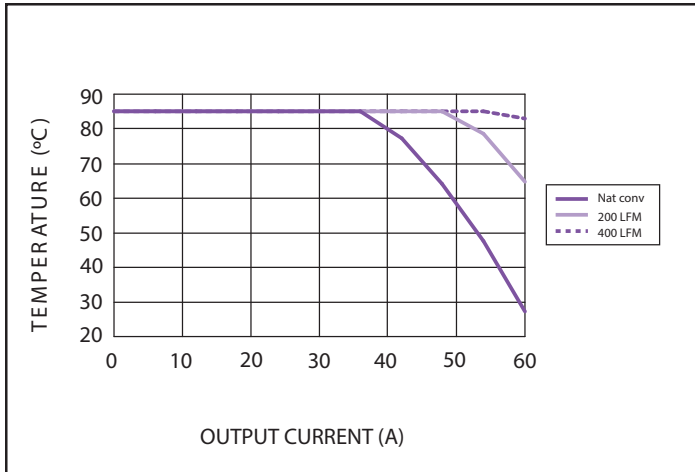
Figure 1 - Safe Operating Area
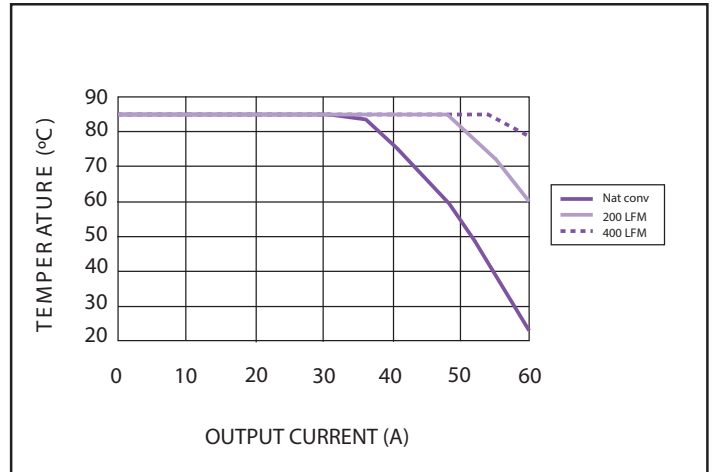Vin = 3.3 V (See Note A)

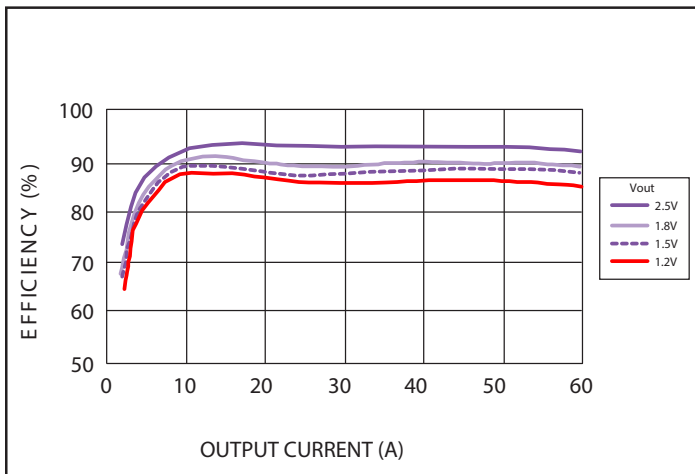Figure 2 -   Safe Operating Area
Vin = 5 V (See Note A)

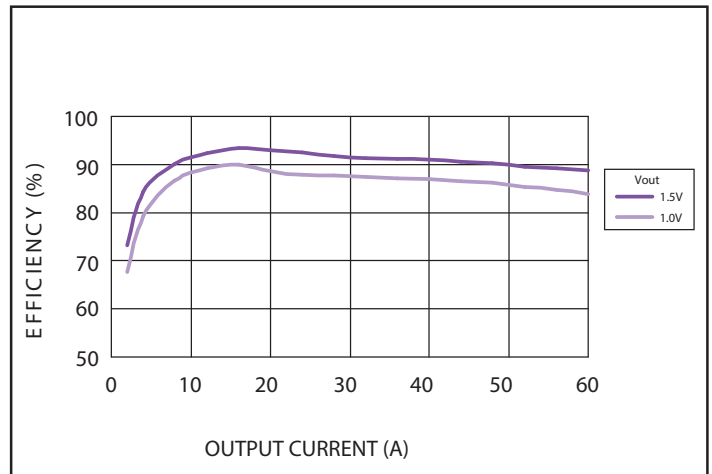Figure 3 - Efficiency vs Load Current
Vin = 5 V (See Note B)

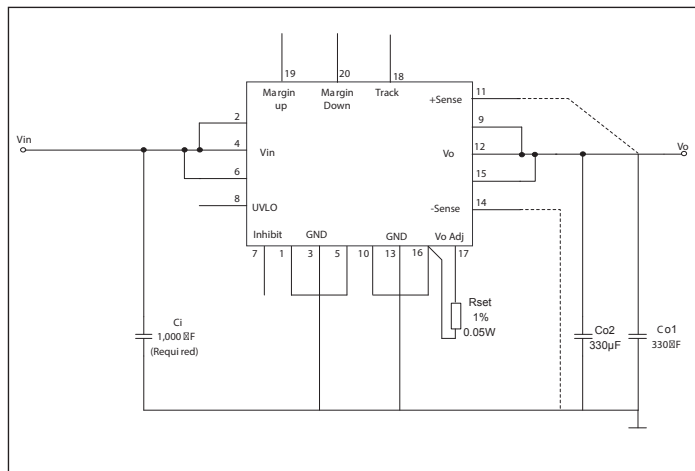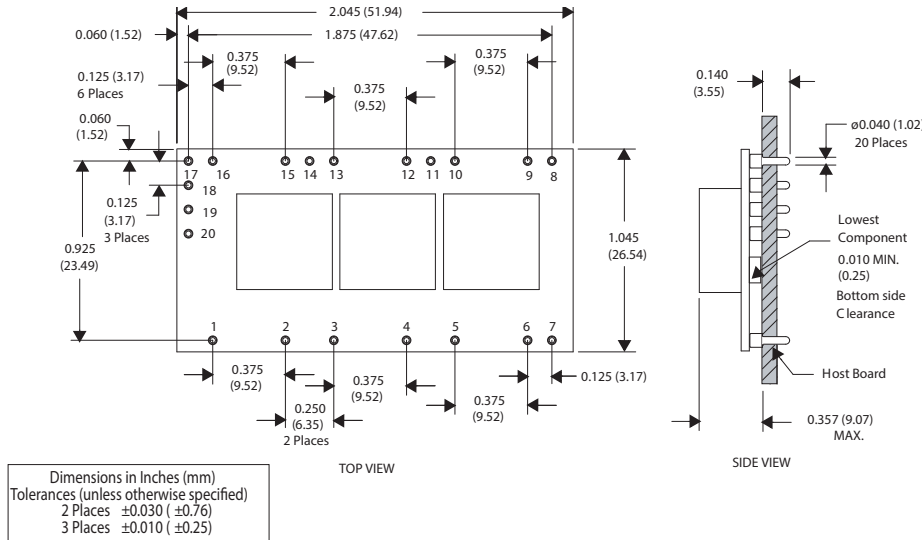Figure 4 - Efficiency vs Load Current
Vin = 3.3 V (See Note B)

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 5 - Standard Application
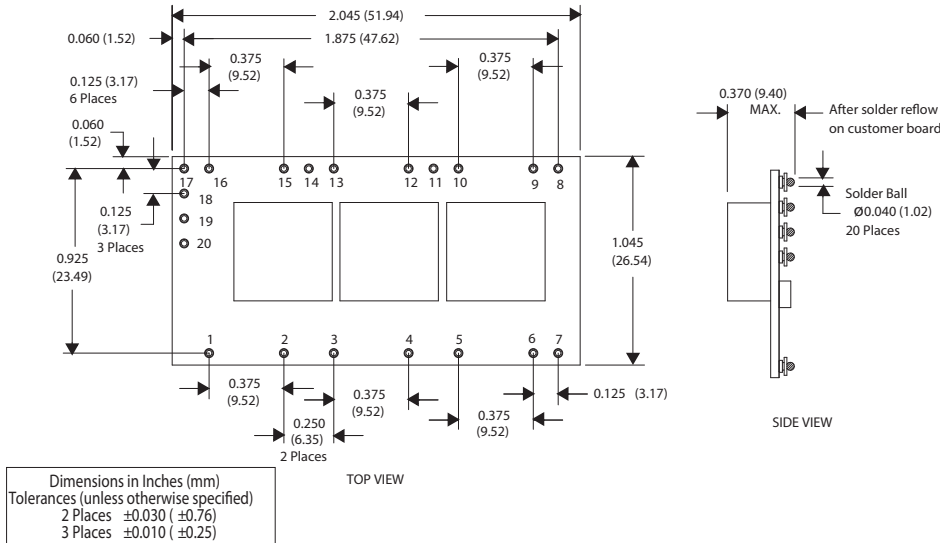
Mechanical Drawings

Plated through-hole

TOP VIEW

SIDE VIEW

Dimensions in Inches (mm)
Tolerances (unless otherwise specified)
2 Places   ±0.030 (±0.76)
3 Places   ±0.010 (±0.25)

Surface-mount

TOP VIEW

SIDE VIEW

Dimensions in Inches (mm)
Tolerances (unless otherwise specified)
2 Places   ±0.030 (±0.76)
3 Places   ±0.010 (±0.25)

Pin Assignments	
Pin	Function
1	Ground
2	Vin
3	Ground
4	Vin
5	Ground
6	Vin
7	Inhibit*
8	UVLO Programming
9	Vout
10	Ground
11	Vs+
12	Vout
13	Ground
14	Vs-
15	Vout
16	Ground
17	Adjust
18	Track
19	Margin up*
20	Margin down*

*Denotes negative logic:
Open = Normal operation
Ground = Function active

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www.artesyn.com

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For support: productsupport.ep@artesyn.com