typhoon Quarter-Brick Series

Narrow Input IBC

ARTESYN TECHNOLOGIES

DC/DC CONVERTERS | 240 to 300W Intermediate Bus Converters | 1

NEW Product

- **48V input with isolated 12V output**
- **Efficiencies up to 96%**
- **Open loop regulation**
- **Fully rated 240W @ 70ºC, 200 LFM**
- **Over-current protection**
- **Operates with no load**
- **Auto restart after fault condition**
- **Remote ON/OFF**
- **Parallelable**
- **Over-temperature protection**

This series is a new, high efficiency, Quarter-Brick, isolated, Intermediate Bus Converter series that provides up to 300 Watts of output power. The series is designed to convert 48 Volts ±10% to a loosely regulated 12 Volts at full rated load up to 25A and efficiencies up to 96%. The 12 Volt power is a great power source for a variety of non-isolated, point-of-load converters or embedded solutions. This converter is available in four package types, standard quarter-brick through-hole, through-hole vertical, standard quarter-brick surface-mount, and quarter-brick surface-mount solder ball. In addition, this series features remote ON/OFF, no-load operation, input under-voltage protection as well as output over-voltage and over-current protection.

c UL us TÜV

2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25°C ambient unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Output voltage		12V
Current share accuracy	Full load	10%
Line regulation	Low line to high line	±10% max.
Load regulation	Full load to min. load	6% max.
Minimum load		0A
Overshoot		3.0% max.
Undershoot		200mV max.
Ripple and noise (See Note 1)	5 to 20MHz	150mV pk-pk
Transient response (See Note 2)	Deviation	<100mV <100µs recovery to within total error band
Over-voltage setpoint		13.8V

INPUT SPECIFICATIONS

Input voltage range	Nominal 48VDC	±10%VDC
Input current	No load Remote OFF	100mA typ. 2mA typ.
Input reflected ripple	(See Note 3)	34mA rms 100mA pk-pk
Remote ON/OFF	ON OFF	>1.7VDC <0.8VDC
Under-voltage lockout	Power up Power down	41.0V 38.6V
Start-up time (See Note 4)	Power up Power down	<50ms <20ms

EMC CHARACTERISTICS

Conducted emissions	EN55022 (See Note 5) EN55022 (See Note 5)	Level A Level B
Immunity:		
ESD air	EN61000-4-2 4kV	
ESD contact	EN61000-4-2 4kV	
Radiated field enclosure	EN61000-4-3 3V/m	
Conducted (DC power)	EN61000-4-6 3V	
Conducted (signal)	EN61000-4-6 3V	

GENERAL SPECIFICATIONS

Efficiency	Half load	Up to 96% typ.
Insulation	Input/output	2000VDC
Switching frequency	Fixed	300kHz typ.
Approvals and standards (See Note 6)		EN60950 (TÜV Product Service) UL/cUL60950
Material flammability		UL94V-0
Weight		56.66g (2oz)
MTBF Representative model:	MIL-HDBK-217F 25A @ 48Vin, 40°C ambient 100% load ground benign	1,000,000 hours
	Telcordia SR-332	2,828,160 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance (300LFM airflow)	Operating ambient, temperature	0°C to +80°C
	Non-operating	-55°C to +125°C

International Safety Standard Approvals

c UL us — UL/cUL CAN/CSA 22.2 No. 60950
UL 60950 File No. E139421

TÜV — TÜV Product Service (EN60950) Certificate No. B03 04 19870213

For the most current data and application support visit www.artesyn.com/powergroup/products.htm

NEW Product

RATED OUTPUT POWER	INPUT VOLTAGE	OUTPUT VOLTAGE	INPUT CURRENT (MAX)	OUTPUT CURRENT (MAX.)	OVER CURRENT SETPOINT	EFFICIENCY HALF/FULL LOAD	MODEL NUMBER
240W	43.2V to 52.8V	12V	6A	20A	25A	96%/95% (typ.)	TQN20A48S12
300W	43.2V to 52.8V	12V	7A	25A	29A	96%/95% (typ.)	TQN25A48S12

Part Number System with Options

TQN25A48S12-RSB

- **Product Family**: T = Intermediate Bus Converter
- **Package**: Q - Standard Quarter-Brick
- **Type of Input Voltage Range**: N = Narrow (±10%)
- **Output Current**: 20A = 20 Amps; 25A = 25 Amps
- **Mounting Options**: No Suffix = Through Hole Horizontal; V = Through Hole Vertical (8); S = Surface Mount Standard (8); SB = Surface Mount Solder Ball (8)
- **Remote ON/OFF Logic**: No Suffix = Positive; Suffix 'R' = Negative
- **Nominal Output Voltage**: 12 = 12 Volts
- **Number of Outputs**: S = Single Output
- Nominal Input Voltage: 48 = 48 Volts

Notes

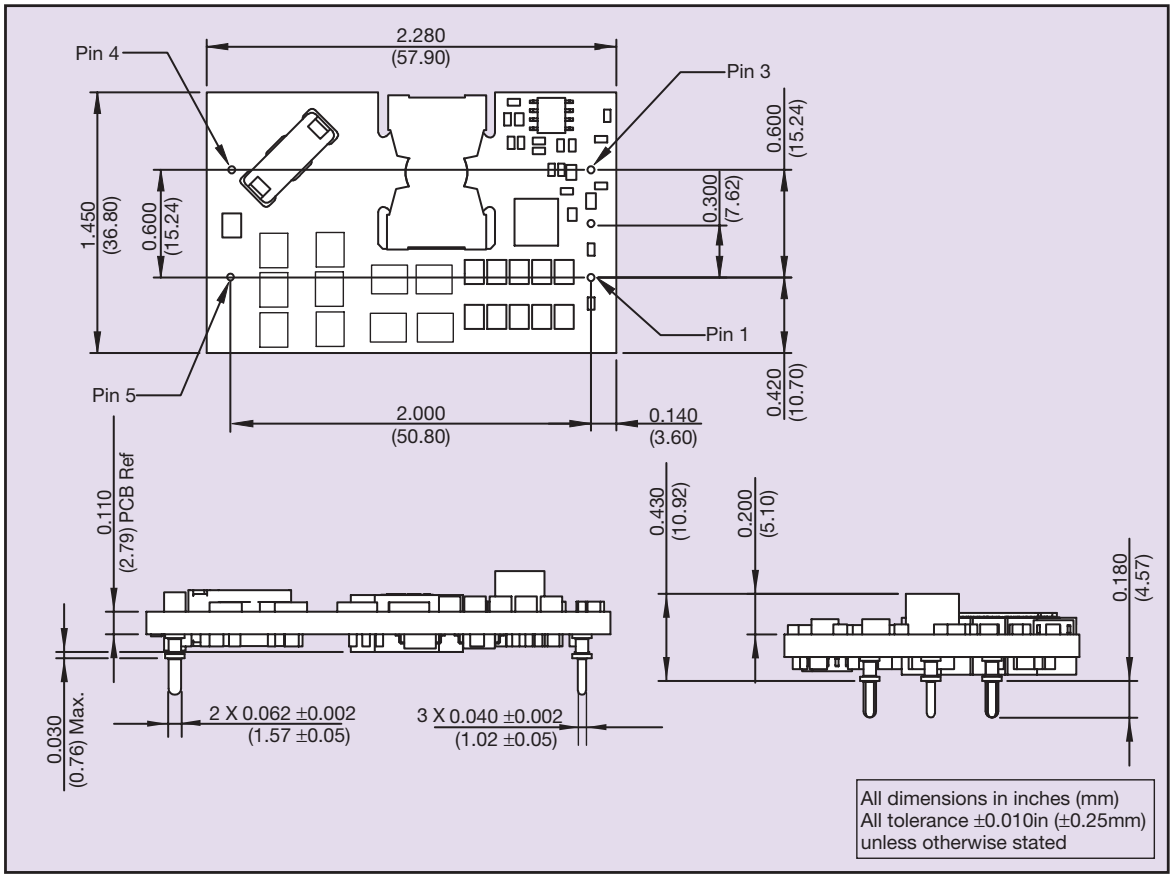
1. Measured as per recommended set-up. See Application Note 140 for details.
2. di/dt = 10A/µs, Vin = 48VDC, Tc = 25°C, load change = 50% Io max. to 75% Io max. and 75% Io max. to 50% Io max.
3. Measured with external filter. See Application Note 140 for details.
4. Start-up into resistive load.
5. The Quarter-Brick Narrow Input series of converters meet levels A and B conducted emissions with external components. See Application Note 140 for details.
6. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
7. Use of additional high quality ceramic output capacitors is recommended in the end system.
8. Consult factory for availability.

PROTECTION

Short-circuit protection	Continuous foldback
Over-temperature	Auto restart

RECOMMENDED SYSTEM CAPACITANCE

Input capacitance		390µF/20mΩ ESR max.
Output capacitance	(See Note 7)	270µF/10mΩ ESR max.



PIN CONNECTIONS	
PIN NUMBER	**FUNCTION**
1	+Vin
2	Remote ON/OFF
3	-Vin
4	-Vout
5	+Vout

Figure 1: Horizontal Mechanical Drawing and Pinout Table