typhoon Quarter-Brick Series

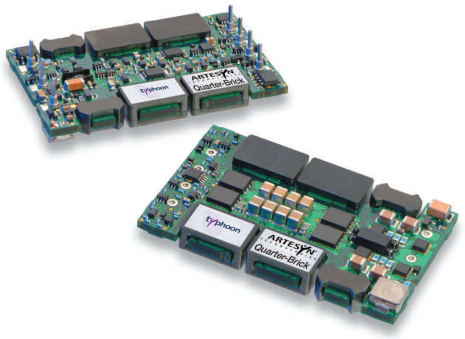
Dual output

ARTESYN TECHNOLOGIES

DC/DC CONVERTERS | High Current, High Efficiency, Low Profile | 1

NEW Product

- Two independent outputs
- High full load efficiency
- Wide ambient temperature range of -40 ºC to +85 ºC
- Up to 100% load imbalance
- Tracking, monotonic start-up
- Starts into pre-biased outputs
- Basic insulation system
- Over-voltage and over-temperature protection
- 100 V, 100 ms input voltage transient response
- Secondary side control, no optocouplers, fast transient load response
- Available RoHS compliant



These are new high efficiency, open-frame, isolated 40 A converters in an industry standard dual quarter-brick footprint. These converters deliver high output current at low voltages, and excellent useable power density for today's high end applications. This series features an input voltage range of 36 Vdc to 75 Vdc and output voltages of 1.2 V/3.3 V, 1.5 V/3.3 V, 1.8 V/3.3 V 2.5 V/3.3 V, and 5 V/3.3 V. The output voltage on each model is adjustable from 90% to 110% of the nominal value. Typical efficiencies are 90%. This series also has a remote ON/OFF capability. Over-current and over-voltage protection features are included as standard. Designed to meet inter national safety agency approvals, including EN60950-1 and UL/cUL60950, this series reduces compliance costs and time to market.

2 YEAR WARRANTY

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

SPECIFICA TIONS

OUTPUT SPECIFICA TIONS

Voltage adjustability	Both outputs	±10% min.
Minimum load	B oth outputs	0%
Ripple and noise	20 MHz bandwidth	50 mV pk-pk max. 15 mV rms max.
Shor t circuit pr otection		Both outputs
Turn-on characteristics	Both outputs	Monotonic

INPUT SPECIFICATIONS

Input voltage range	48 V nominal	36-75 Vdc
Input cur rent	No load Remote OFF	80 mA max. 6 mA max.
Active high remote ON/OFF Logic compatibility ON OFF		Open collector ref to -input Open circuit or >2.4 Vdc <0.4 Vdc
Undervoltage lockout	Power up Power down	35.5 V (typ.) 33.5 V (typ.)
Start-up time	Power up Remote ON/OFF	14 ms (typ.) 14 ms (typ.)

EMC CHARACTERISTICS

Immunity:		
ESD air enclosure	EN61000-4-2 8 kV/6 kV	(O/P within spec.)
Radiated field enclosur e	EN61000-4-3 10 V/m	(O/P within spec.)
Conducted	EN61000-4-6 10 V	(O/P within spec.)
Input transients	100 V, 100 ms	

GENERAL SPECIFICA TIONS

Efficiency		See table
Basic insulation	Input/output	2250 Vdc
Switching fr equency	Fixed	480 kHz
Approvals and standards	(See Notes 1 and 2)	EN60950-1 VDE UL/cUL 60950
Material flammability		UL94V-0
Weight		34 g (1.2 oz)
MTBF	Telcor dia Tech SR-332	2,883,816 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient., temperature	-40 °C to +85 °C
	Non-operating	-55 °C to +125 °C

PROTECTION

Short-circuit	Continuous
Over voltage	Non-latching
Thermal	125 ºC hot spot temperature with automatic recovery

International Safety Standard Approvals

UL/cUL CAN/CSA 22.2 No. 60950-00 : UL 60950
File No. E135734/60950

VDE Certificate No. 10401-3336-0197

OUTPUT VOLTAGE						OUTPUT CURRENT		OVP TRIP POINT		EFFICIENCY (TYP.)	MODEL NUMBER (4,5)
NOMINAL		INITIAL SET POINT (3)		REGULATION BAND							
1	2	1	2	1	2	1	2	1	2		
QUARTER-BRICK DUAL OUTPUT PERFORMANCE MODELS											
1.2 V	3.3 V	1.18-1.22 V	3.25-3.35 V	1.16-1.24 V	3.2-3.4 V	20 A	20 A	1.5 V	4 V	90.0%	LQD40A48-3V3-1V2J
1.5 V	3.3 V	1.48-1.55 V	3.25-3.35 V	1.44-1.55 V	3.2-3.4 V	20 A	20 A	1.8 V	4 V	90.5%	LQD40A48-3V3-1V5J
1.8 V	3.3 V	1.77-1.83 V	3.25-3.35 V	1.75-1.85 V	3.2-3.4 V	20 A	20 A	2 V	4 V	90.5%	LQD40A48-3V3-1V8J
2.5 V	3.3 V	2.46-2.54 V	3.25-3.35 V	2.42-2.58 V	3.2-3.4 V	20 A	20 A	3 V	4 V	90.5%	LQD40A48-3V3-2V5J
QUARTER-BRICK DUAL OUTPUT VALUE MODELS											
1.2 V	3.3 V	1.18-1.22 V	3.25-3.35 V	1.16-1.24 V	3.2-3.4 V	15 A	15 A	1.5 V	4 V	90.0%	LQD30A48-3V3-1V2J
1.5 V	3.3 V	1.48-1.52 V	3.25-3.35 V	1.44-1.55 V	3.2-3.4 V	15 A	15 A	1.8 V	4 V	90.5%	LQD30A48-3V3-1V5J
1.8 V	3.3 V	1.77-1.83 V	3.25-3.35 V	1.75-1.85 V	3.2-3.4 V	15 A	15 A	2 V	4 V	90.5%	LQD30A48-3V3-1V8J
2.5 V	3.3 V	2.46-2.54 V	3.25-3.35 V	2.42-2.58 V	3.2-3.4 V	15 A	15 A	3 V	4 V	91.0%	LQD30A48-3V3-2V5J
3.3 V	5 V	3.25-3.35 V	4.92-5.08 V	3.20-3.40 V	4.85-5.15 V	15 A	10 A	4 V	6 V	91.0%	LQD25A48-5V0-3V3J

Part Number System with Options

LQD40A48-3V3-1V8RANJ (5)

- **L** = Low Profile
- **Q** = 1/4 Brick
- **Number of Outputs**: D = Dual
- **Rated Output Current** (Sum of all outputs): 40 A = 40 Amps
- **Nominal Rated Input Voltage**: 48 = 48 Volts (36 V to 75 V Range)
- **Output Voltage of V2**: 3V3 = 3.3 Volts
- **RoHS Compliance (4)**: J = Pb-free (RoHS 6/6 compliant)
- **Pin Length Options**: Blank = 0.188" (4.78 mm); N = 0.145" (3.68 mm); K = 0.110" (2.79 mm)
- **Body Height and Package Type**: A = 0.300" (7.62 mm), Through-Hole; E = 0.340" (8.64 mm), Through-Hole; S = 0.285" (7.24 mm), Surface-Mount
- **Remote ON/OFF Logic**: No Suffix = Positive; Suffix 'R' = Negative
- **Output Voltage of V1**: 1V8 = 1.8 Volts, 1V2 = 1.2 Volts etc.

Notes

1. User must provide recommended fuses in order to comply with safety approvals. See Application Note 137.
2. Maximum continuous output power.
   90 Watts for LQD40A48-3V3-1V2J models
   96 Watts for LQD40A48-3V3-1V5J models
   102 Watts for LQD40A48-3V3-1V8J models
   116 Watts for LQD40A48-3V3-2V5J models
   67.5 Watts for LQD30A48-3V3-1V2J models
   72 Watts for LQD30A48-3V3-1V5J models
   76.5 Watts for LQD30A48-3V3-1V8J models
   87 Watts for LQD30A48-3V3-2V5J models
   99.5 Watts for LQD25A48-5V0-3V3J models
3. I_{o1} = Imax, I_{o2} = Imax.
4. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
5. The part number cannot exceed 18 characters. If the desired part number with options contains 19 characters then the last dash '-' in the part number is removed i.e. LQD25A48-5V0-3V3RAJ becomes LQD25A48-5V03V3RAJ. If the desired part number with options contains 20 characters then all dashes '-' are removed, i.e. LQD25A48-5V0-3V3RANJ becomes LQD25A485V03V3RANJ.

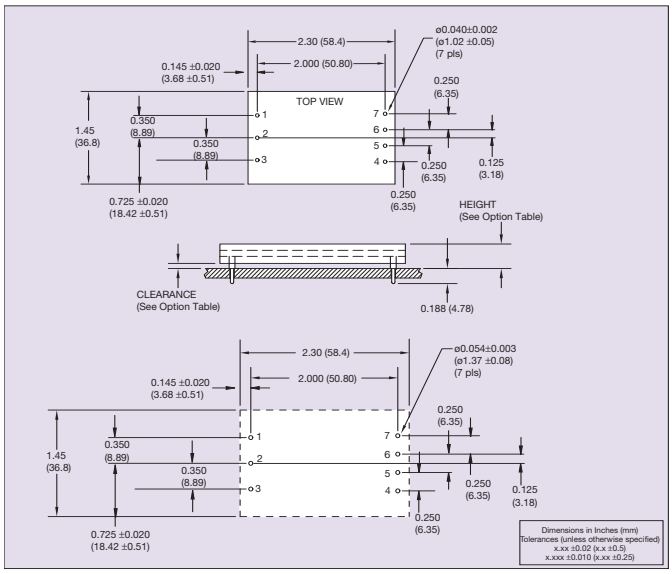


Figure 1 - Through-Hole Mechanical Drawing

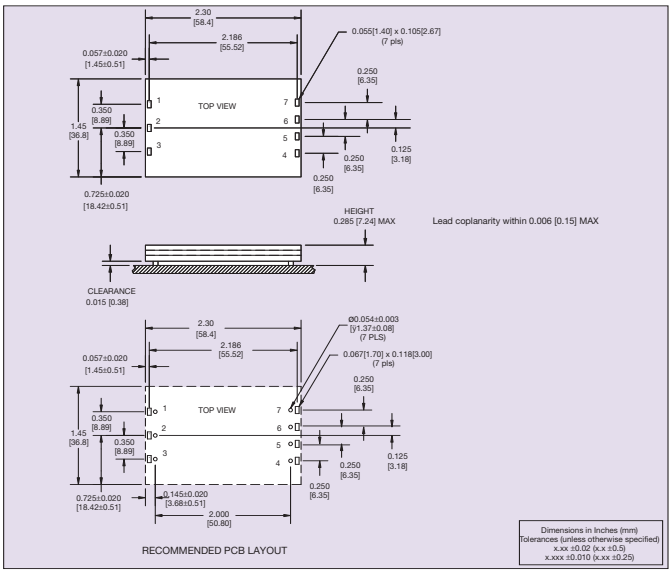


Figure 2 - Surface-Mount Mechanical Drawing

PIN CONNECTIONS	
PIN NUMBER	**FUNCTION**
1	+Vin
2	ON/OFF
3	-Vin
4	O/P 1
5	O/P RTN
6	Trim
7	O/P 2

DIMENSION OPTIONS		
OPTION	**STAND OFF HEIGHT**	**BODY HEIGHT**
A	0.030 (0.76) min.	0.300 (7.62) max.
E	0.070 (1.78) min.	0.340 (8.64) max.

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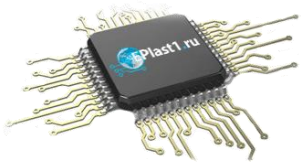

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