typhoon Quarter-Brick Series

Single output

ARTESYN TECHNOLOGIES

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

NEW Product

- Ultra high efficiency topology
- Unprecedented useable output power levels
- High power density (200 W/in ^{3}) open-frame technology
- Wide ambient temperature range, -40 ºC to +85 ºC
- 80% to 110% output trim
- Monotonic start-up in normal and prebiased loads
- Basic insulation system
- Overvoltage and overtemperature protection
- Secondary side control, no optocouplers, fast transient response
- 100 V, 100 ms input transient rated
- Available RoHS compliant



This is a new high efficiency, open-frame, low profile, single board, isolated dc-dc converter series in an industry standard quarter-brick package that provides up to 200 W of output power. The series delivers very high output current at low voltages, and excellent useable power for today's high performance applications. The series features two input voltage ranges of 18 Vdc to 36 Vdc and 36 Vdc to 75 Vdc and is available with output voltages of 1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.3 V and 5 V. The output voltage is adjustable from 80% to 110% of the nominal value. The series also has a remote ON/OFF capability. Overcurrent, overvoltage and overtemperature protection features are included as standard. Full international safety approval including EN60950-1 VDE and UL/cUL60950, reduces compliance costs and time to market.

2 YEAR WARRANTY

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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability		80% to 110%
Minimum load		0%
Overshoot	At turn-on and turn-off	None
Undershoot		None
Transient response (See Note 1)		70 mV, typ. deviation 20 µs recovery

INPUT SPECIFICATIONS

Input voltage range	24 V nominal 48 V nominal	18-36 Vdc 36-75 Vdc
Input current	No load Remote OFF	85 mA to 150 mA 5 mA
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 (See Note 2)	Power up Remote ON/OFF	10 ms (typ.) 10 ms (typ.)

EMC CHARACTERISTICS

Immunity:		
ESD air enclosure	EN61000-4-2 8 kV/6 kV	(O/P within spec.)
Radiated field enclosure	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 SPECIFICATIONS

Basic insulation	Input/output	2250 Vdc
Switching frequency	Fixed	480 kHz
Approvals and standards	(See Note 3)	EN60950-1 VDE UL/cUL 60950
Material flammability		UL94V-0
Weight		37 g (1.30 oz)
MTBF	Telcordia Tech SR-332	3,866,933 hours

ENVIRONMENTAL SPECIFICATIONS

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

PROTECTION

Short-circuit	Continuous
Overvoltage	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

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

NEW Product

OUTPUT VOLTAGE	INPUT CURRENT (MAX.) (4)	INPUT RIPPLE CURRENT (5)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGULATION			RIPPLE & NOISE (pk - pk)	MODEL NUMBER (6,9,10)
					SET POINT ACCURACY (Max.)	LINE	LOAD		
48 Vin VALUE MODELS									
1.2 V	1.92 A	150 mA	50 A	88.5%	±1.5%	±0.1%	±0.2%	60 mV	LQS50A48-1V2J
1.5 V	2.36 A	150 mA	50 A	89.5%	±1.5%	±0.1%	±0.2%	60 mV	LQS50A48-1V5J
1.8 V	2.82 A	150 mA	50 A	90.4%	±1.5%	±0.1%	±0.2%	60 mV	LQS50A48-1V8J
48 Vin PERFORMANCE MODELS									
1.2 V	4.05 A	250 mA	100 A	86.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS100A48-1V2J
1.5 V	3.8 A	200 mA	80 A	88.8%	±1.5%	±0.1%	±0.2%	60 mV	LQS80A48-1V5J
1.8 V	4.6 A	200 mA	80 A	90.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS80A48-1V8J
2.5 V	4.1 A	200 mA	50 A	90.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS50A48-2V5J
3.3 V	5.2 A	200 mA	50 A	91.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS50A48-3V3J
48 Vin ULTRA MODELS									
1.5 V	4.8 A	200 mA	100 A	88.5%	±1.5%	±0.1%	±0.2%	60 mV	LQS100A48-1V5J
1.8 V	5.7 A	200 mA	100 A	89.5%	±1.5%	±0.1%	±0.2%	60 mV	LQS100A48-1V8J
2.5 V	6.2 A	200 mA	80 A	91.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS80A48-2V5J
3.3 V	6.2 A	200 mA	60 A	91.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS60A48-3V3J
5 V	6.2 A	200 mA	40 A	92.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS40A48-5V0J (7)
24 Vin MODELS									
1.8 V	3.4 A	200 mA	30 A	91.0%	±1.5%	±0.1%	±0.2%	60 mV	LQS30A24-1V8J
3.3 V	6.5 A	300 mA	30 A	89.5%	±1.5%	±0.1%	±0.2%	60 mV	LQS30A24-3V3J

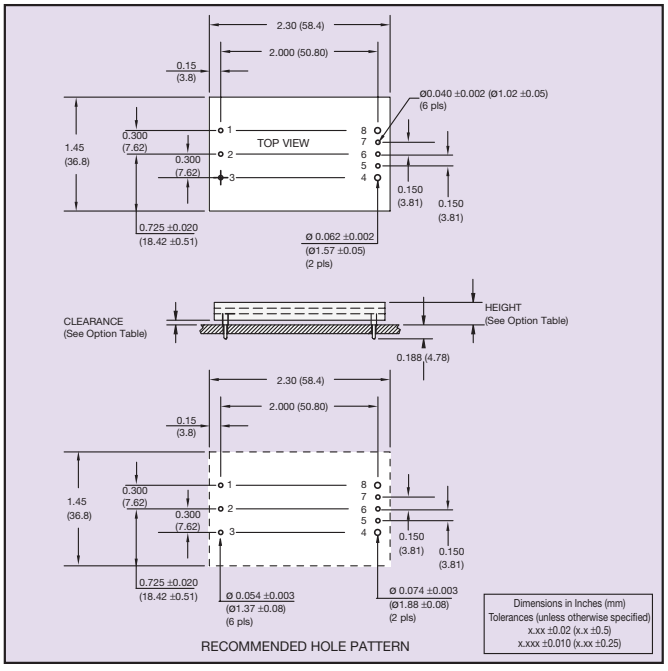
Part Number System with Options

LQS60A48-3V3RANJ

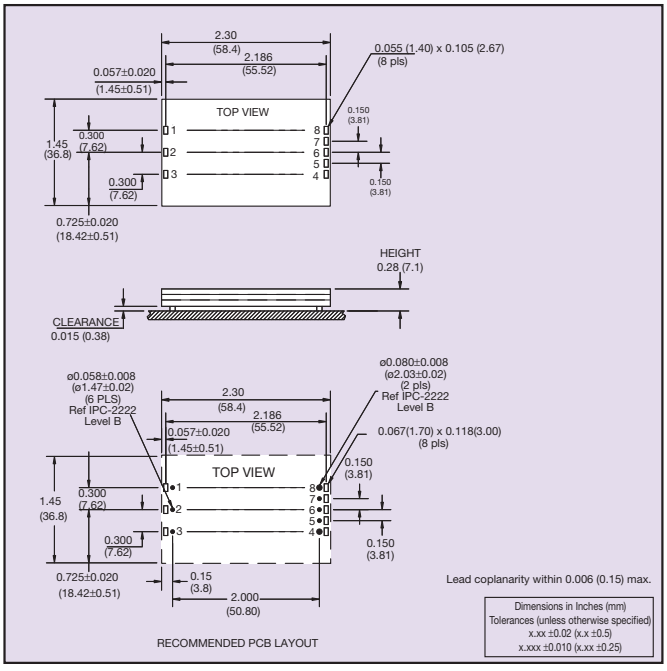
- **L** = Low Profile
- **Q** = 1/4 Brick
- **Type of output**: S = Single
- **Rated Output Current**: 40 A = 40 Amps, 60 A = 60 Amps etc.
- **Nominal Rated Input Voltage**: 24 = 24 Volts (18 Vdc to 36 Vdc range), 48 = 48 Volts (36 Vdc to 75 Vdc range)
- **Output Voltage**: 1V5 = 1.5 Volts, 1V8 = 1.8 Volts etc.
- **RoHS Compliance (9)**: 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, Package Type and Pin Length**: A = 0.300" (7.62 mm), Through Hole, 0.188" (4.78 mm) Pins; E = 0.340" (8.64 mm), Through Hole, 0.188" (4.78 mm) Pins; S = 0.28" (7.11 mm), Surface Mount(6)
- **Remote ON/OFF Logic**: Blank = Positive, R = Negative

Notes

1. di/dt = 1 A/µs, Vin = 48 Vdc, Tc = 25 °C, load change = 50% to 75% Io max. and 75% to 50% Io max. Deviation varies by model. For further details see longform datasheet.
2. Start-up into resistive load.
3. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
4. Recommended input fusing is up to 10 A HRC 200 V rated fuse.
5. Peak to peak measured without external π filter. Significant reduction possible with external filter. See Application Note 141 for further details.
6. 'S' option applies to the 24 V models only.
7. Except LQS40A48-5V0J which has the double output pins.
8. Active low Remote ON/OFF is available. Standard product is Active High. When ordering active low parts, designate with the Suffix 'R' e.g. **LQS100A48-1V8RAJ**.
9. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
10. 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.



24 V/48 V Mechanical Drawing for Output Current of 50 A or Less (See Note 7)



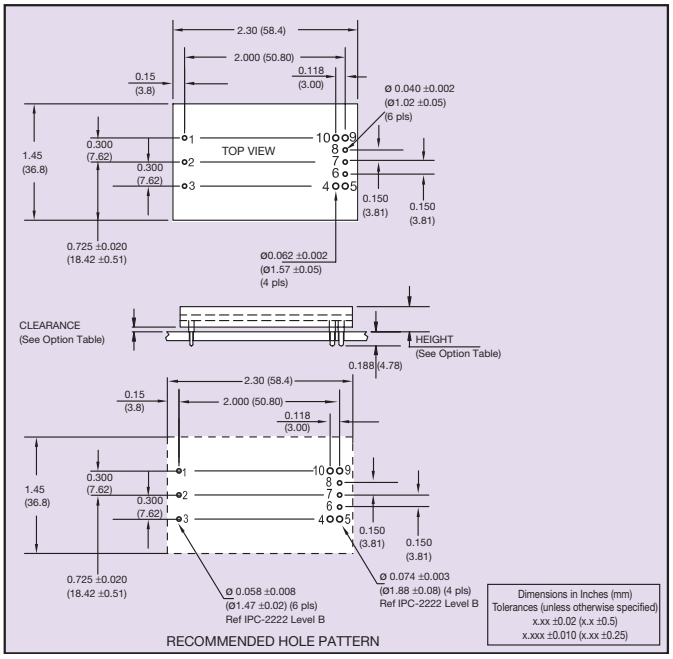
24 V Surface-mount Mechanical Drawing and Pinout Table

PIN CONNECTIONS			
PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION
1	+Vin	5	-Sense
2	ON/OFF	6	Trim
3	-Vin	7	+Sense
4	-Vout	8	+Vout

Pin Connection Table

DIMENSION OPTIONS		
OPTION	CLEARANCE	HEIGHT
	±0.016 (0.41)	+0.022 (0.56) -0.030 (0.76)
A	0.030 (0.76)	0.300 (7.62)
E	0.070 (1.78)	0.340 (8.64)

Dimension Options Table



48 V Mechanical Drawing for Output Current Greater than 50 A "The Double P" Pinout (7)

PIN CONNECTIONS			
PIN NUMBER	FUNCTION	PIN NUMBER	FUNCTION
1	+Vin	6	-Sense
2	ON/OFF	7	Trim
3	-Vin	8	+Sense
4	-Vout	9	+Vout
5	-Vout	10	+Vout

Pin Connection Table

DIMENSION OPTIONS		
OPTION	CLEARANCE	HEIGHT
	±0.016 (0.41)	+0.022 (0.56) -0.030 (0.76)
A	0.030 (0.76)	0.300 (7.62)
E	0.070 (1.78)	0.340 (8.64)

Dimension Options Table

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