



Quarter-Brick Series

Single output



DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

1

NEW Product

- Ultra high efficiency topology
- Unprecedented useable output power levels
- High power density (200W/in³) open-frame technology
- Wide ambient temperature range, -40°C to +85°C
- 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
- 100V, 100ms input transient rated



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 200W 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 to 36VDC and 36 to 75VDC and is available with output voltages of 1.2V, 1.5V, 1.8V, 2.5V, 3.3V and 5.0V. 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.

Patent No. 6,765,810
Other Patents Pending



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)		70mV, typ. deviation 20µs recovery

INPUT SPECIFICATIONS

Input voltage range	24V nominal 48V nominal	18 to 36VDC 36 to 75VDC
Input current	No load Remote OFF	85mA to 150mA 5mA
Active high remote ON/OFF Logic compatibility		Open collector ref to -input Open circuit or >2.4VDC <0.4VDC
Undervoltage lockout	Power up Power down	35.5V (typ.) 33.5V (typ.)
Start-up time (See Note 2)	Power up Remote ON/OFF	10ms (typ.) 10ms (typ.)

EMC CHARACTERISTICS

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

GENERAL SPECIFICATIONS

Basic insulation	Input/output	2250VDC
Switching frequency	Fixed	480kHz
Approvals and standards	(See Note 3)	EN60950-1 VDE UL/cUL 60950
Material flammability		UL94V-0
Weight		37g (1.30oz)
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
Over-voltage	Non-latching
Thermal	125°C hot spot temperature with automatic recovery

International Safety Standard Approvals



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



VDE Certificate No. 10401-3336-0197



Quarter-Brick Series

Single output



DC/DC CONVERTERS

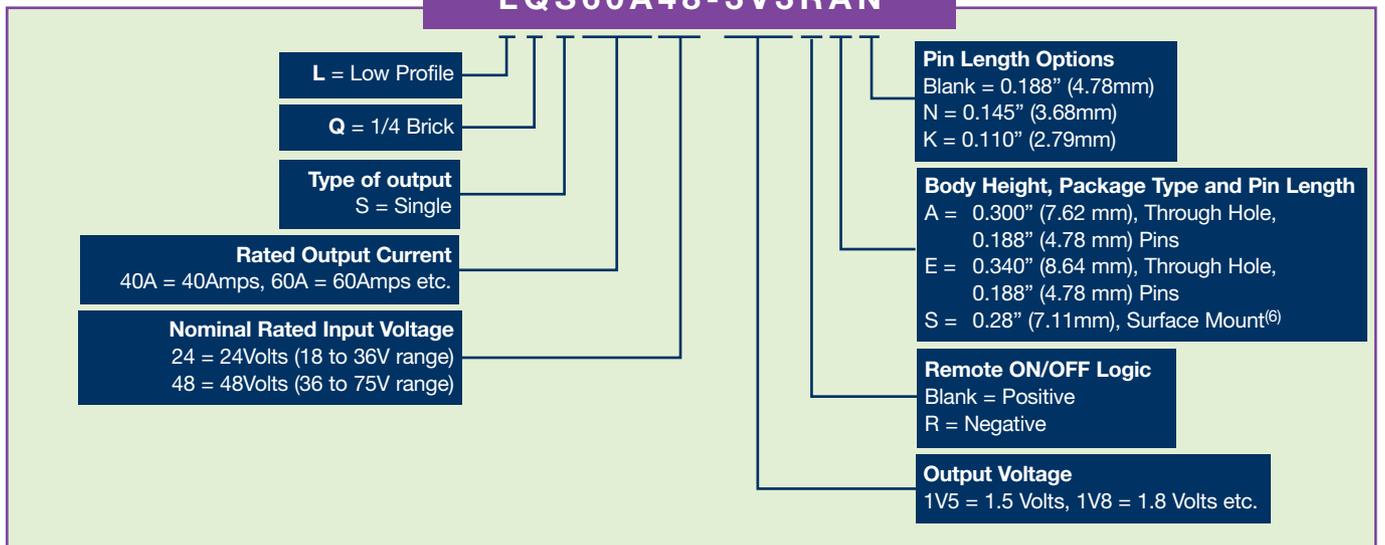
High Current, High Efficiency, Low Profile

2

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)
					SET POINT ACCURACY MAX	LINE	LOAD		
48Vin VALUE MODELS									
1.2V	1.92A	150mA	50A	88.5%	±1.5%	±0.1%	±0.2%	60mV	LQS50A48-1V2
1.5V	2.36A	150mA	50A	89.5%	±1.5%	±0.1%	±0.2%	60mV	LQS50A48-1V5
1.8V	2.82A	150mA	50A	90.4%	±1.5%	±0.1%	±0.2%	60mV	LQS50A48-1V8
48Vin PERFORMANCE MODELS									
1.2V	4.05A	250mA	100A	86.0%	±1.5%	±0.1%	±0.2%	60mV	LQS100A48-1V2
1.5V	3.80A	200mA	80A	88.8%	±1.5%	±0.1%	±0.2%	60mV	LQS80A48-1V5
1.8V	4.60A	200mA	80A	90.0%	±1.5%	±0.1%	±0.2%	60mV	LQS80A48-1V8
2.5V	4.10A	200mA	50A	90.0%	±1.5%	±0.1%	±0.2%	60mV	LQS50A48-2V5
3.3V	5.20A	200mA	50A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LQS50A48-3V3
48Vin ULTRA MODELS									
1.5V	4.80A	200mA	100A	88.5%	±1.5%	±0.1%	±0.2%	60mV	LQS100A48-1V5
1.8V	5.70A	200mA	100A	89.5%	±1.5%	±0.1%	±0.2%	60mV	LQS100A48-1V8
2.5V	6.20A	200mA	80A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LQS80A48-2V5
3.3V	6.20A	200mA	60A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LQS60A48-3V3
5.0V	6.20A	200mA	40A	92.0%	±1.5%	±0.1%	±0.2%	60mV	LQS40A48-5V0
24Vin MODELS									
1.8V	3.4A	200mA	30A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LQS30A24-1V8
3.3V	6.5A	300mA	30A	89.5%	±1.5%	±0.1%	±0.2%	60mV	LQS30A24-3V3

Part Number System with Options

LQS60A48-3V3RAN

Notes

- 1 $di/dt = 1A/\mu s$, $V_{in} = 48VDC$, $T_c = 25^\circ C$, load change = 50% to 75% I_o max. and 75% to 50% I_o 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 10A HRC 200V 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 24V models only.
- 7 Except LQS40A48-5V0 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. LQS100A48-1V8RA.



Quarter-Brick Series

Single output



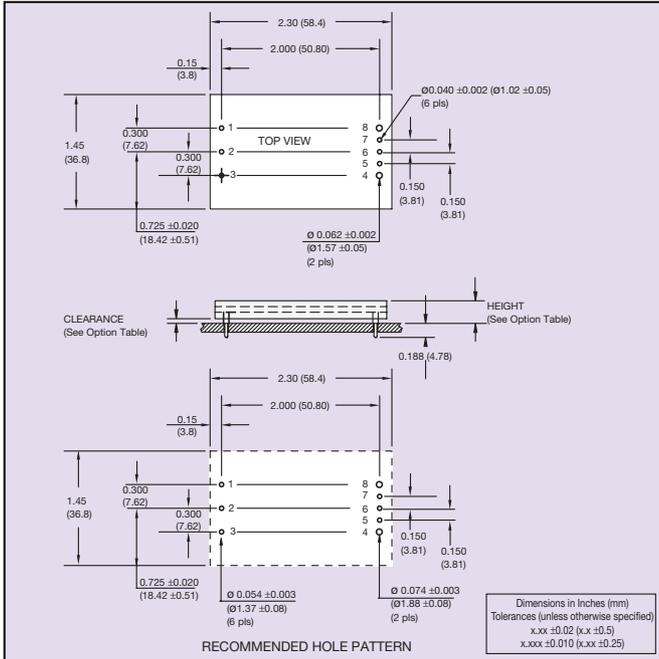
DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

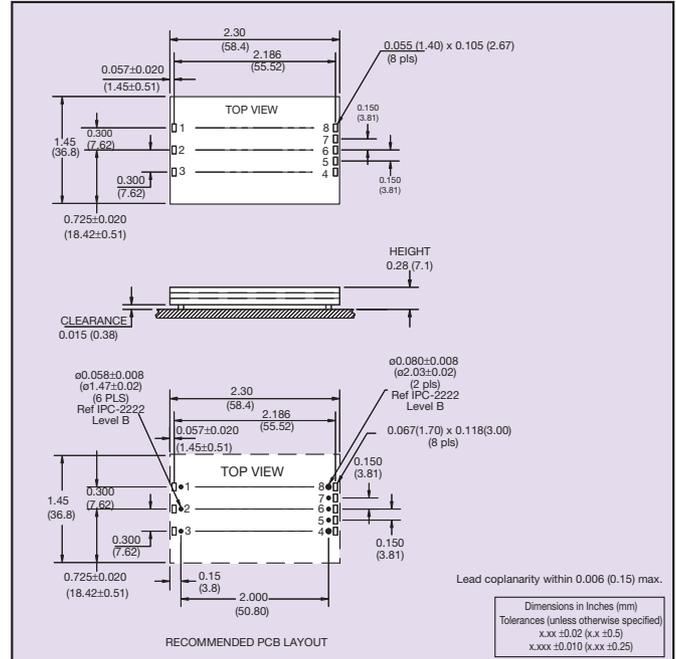
3

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

NEW Product



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



24V 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



Quarter-Brick Series

Single output



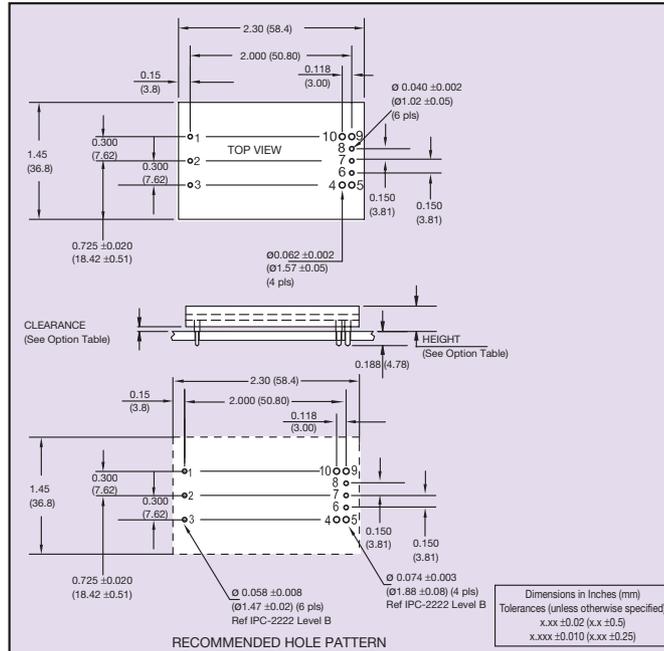
DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

4

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

NEW Product



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

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

Datasheet © Artesyn Technologies© 2004

The information and specifications contained in this datasheet are believed to be correct at time of publication. However, Artesyn Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. The information and specifications contained or described herein are subject to change in any manner at any time without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.

Please consult our website for the following items: ✓ Application Note ✓ Longform Datasheets

www.artesyn.com