typhoon Eighth-Brick Series

Single output

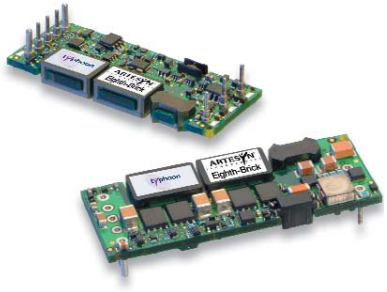
ARTESYN TECHNOLOGIES

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

- **Ultra-high efficiency topology**
- **Industry standard eighth brick footprint (identical to quarter-brick pinout)**
- **Low profile through-hole version**
- **Low profile with 38% space savings over other quarter-brick brick converters**
- **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**
- **100 V, 100 ms input voltage transient rated**
- **Available RoHS compliant**

NEW Product

RoHS 2002/95/EC



Patent No. 6,765,810
Other Patents Pending

2 YEAR WARRANTY

This is a new high efficiency, open-frame, low profile, single board, isolated dc-dc converter series in an industry standard eight-brick footprint that provides up to 100 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 an input voltage range 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 5.0 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.

SPECIFICATIONS

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

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)		60 mV to 150 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	50 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 24 Vin 48 Vin 	 Power up Power down Power up Power down	 17.5 V (typ.) 16.5 V (typ.) 35.5 V (typ.) 33.5 V (typ.)
48 Vin Start-up time (See Note 2)	Power up Remote ON/OFF	15 ms (typ.) 15 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		21 g (0.73 oz)
MTBF	Telcordia Tech SR-332	4,034,120 hours

ENVIRONMENTAL SPECIFICATIONS

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

PROTECTION

Shortcircuit	Continuous
Overvoltage	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. E135734/60950
VDE Certificate No. 40005017. File No. 10401-3336-0197
CB Report and Certificate to IEC60950, Certificate No. DE1-31103

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 (7,8)
					SET POINT ACCURACY (MAX.)	LINE	LOAD		
48 Vin VALUE MODELS									
1.2 V	0.98 A	100 mA	25 A	88%	±1.5%	±0.1%	±0.2%	60 mV	LES25A48-1V2J
1.5 V	1.21 A	100 mA	25 A	89.5%	±1.5%	±0.1%	±0.2%	60 mV	LES25A48-1V5J
1.8 V	1.43 A	100 mA	25 A	90.5%	±1.5%	±0.1%	±0.2%	60 mV	LES25A48-1V8J
2.5 V	1.62 A	150 mA	20 A	90%	±1.5%	±0.1%	±0.2%	60 mV	LES20A48-2V5J
3.3 V	2.11 A	150 mA	20 A	91%	±1.5%	±0.1%	±0.2%	60 mV	LES20A48-3V3J
5.0 V	1.59 A	100 mA	10 A	92%	±1.5%	±0.1%	±0.2%	60 mV	LES10A48-5V0J
48 Vin PERFORMANCE MODELS									
1.2 V	1.98 A	150 mA	50 A	86%	±1.5%	±0.1%	±0.2%	60 mV	LES50A48-1V2J
1.5 V	1.91 A	150 mA	40 A	88.5%	±1.5%	±0.1%	±0.2%	60 mV	LES40A48-1V5J
1.8 V	2.30 A	150 mA	40 A	90%	±1.5%	±0.1%	±0.2%	60 mV	LES40A48-1V8J
2.5 V	1.99 A	200 mA	25 A	89.5%	±1.5%	±0.1%	±0.2%	60 mV	LES25A48-2V5J
3.3 V	2.65 A	200 mA	25 A	90.5%	±1.5%	±0.1%	±0.2%	60 mV	LES25A48-3V3J
5.0 V	2.30 A	150 mA	15 A	91.5%	±1.5%	±0.1%	±0.2%	60 mV	LES15A48-5V0J
48 Vin ULTRA MODELS									
2.5 V	3.20 A	150 mA	40 A	91%	±1.5%	±0.1%	±0.2%	60 mV	LES40A48-2V5J
3.3 V	3.20 A	150 mA	30 A	90.5%	±1.5%	±0.1%	±0.2%	60 mV	LES30A48-3V3J
5.0 V	3.20 A	150 mA	20 A	92%	±1.5%	±0.1%	±0.2%	60 mV	LES20A48-5V0J
24 Vin MODELS									
1.8 V	2.40 A	50 mA	20 A	91%	±1.5%	±0.1%	±0.2%	35 mV	LES20A24-1V8J
3.3 V	4.25 A	170 mA	20 A	90%	±1.5%	±0.1%	±0.2%	60 mV	LES20A24-3V3J

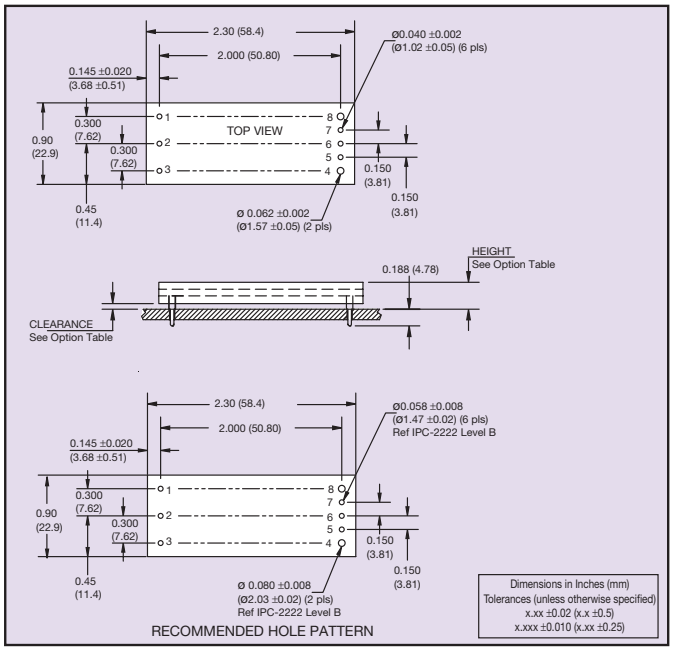
Part Number System with Options

LES50A48-1V2RANJ

- **L** = Low Profile
- **E** = 1/8 Brick
- **Number of outputs**: S = Single
- **Rated Output Current**: 10 A = 10 Amps, 15 A = 15 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**: 1V2 = 1.2 Volts, 1V5 = 1.5 Volts etc.
- **RoHS Compliance (7)**: 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 = Surface Mount
- **Remote ON/OFF Logic**: Blank = Positive; R = Negative

Notes

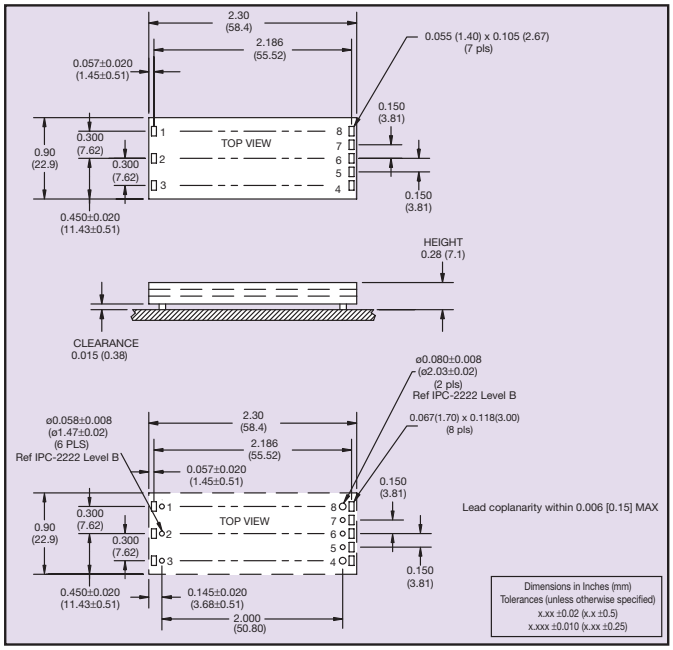
1. di/dt = 1 A/µs, Vin = 24 or 48 Vdc, Tc = 25 °C, load change = 50% to 75% Io max. and 75% to 50% Io max. Deviation varies by model. For further details see long form data sheets.
2. Start-up into resistive load.
3. This product is only for inclusion by professional installers within other equipment 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 with no external Pi filter. Significant reduction possible with external filter. See Application Note 138 for further details.
6. Active low Remote ON/OFF is available. Standard product is Active High. When ordering active low parts, designate with the Suffix 'R' e.g. **LES50A48-1V2RAJ.**
7. TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
8. 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.



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)

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

Through-hole Mechanical Drawing, Dimension Options 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

Surface-mount Mechanical Drawing and Pinout Table

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