



**THE DATASHEET OF
LES20A48-3V3REJ**



- **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**
- **100V, 100ms input voltage transient rated**



This is a new high efficiency, open-frame, low profile, single board, isolated DC/DC converter series in an industry standard eighth-brick footprint that provides up to 100W 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 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. Over-current, over-voltage and over-temperature protection features are included as standard. Full international safety approval including EN60950 VDE and UL/cUL60950, reduces compliance costs and time to market.

cUL US TÜV
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)	60mV to 120mV typ. deviation 20µs recovery	

INPUT SPECIFICATIONS

Input voltage range	48V nominal	36 to 75VDC
Input current	No load Remote OFF	50mA 5mA
Active high remote ON/OFF Logic compatibility ON OFF		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	15ms (typ.) 15ms (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 VDE UL/cUL 60950
Material flammability		UL94V-0
Weight		21g (0.73oz)
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

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. 40005017
CB Report and Certificate to IEC60950, Certificate No. DE1-19783



Eighth-Brick Series

Single output



DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

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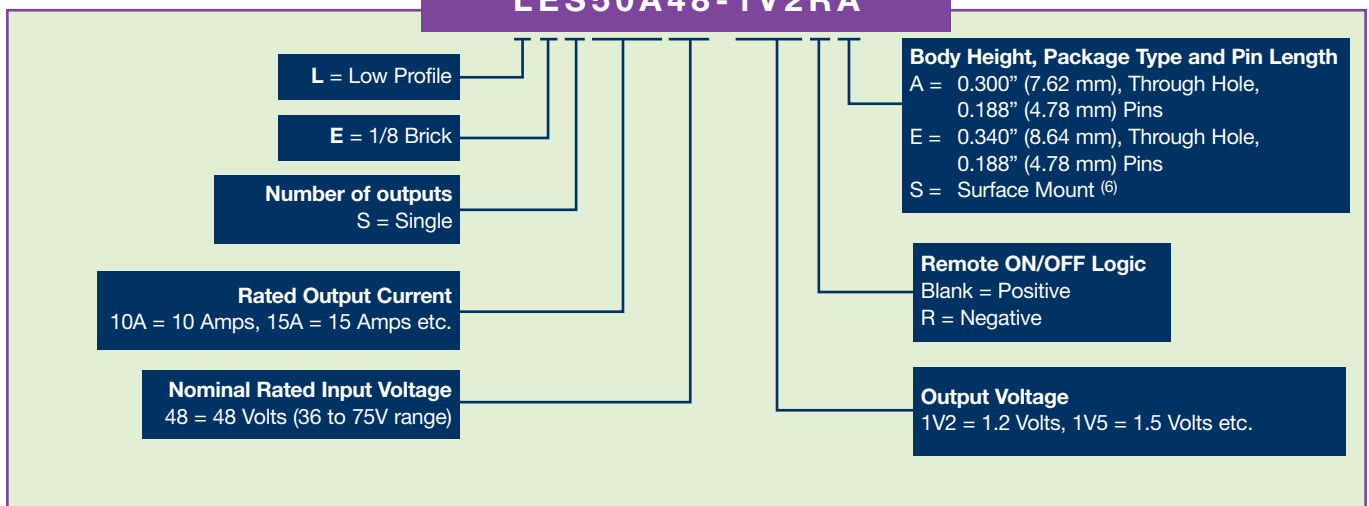
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NEW Product

OUTPUT VOLTAGE	INPUT CURRENT (MAX.) (4)	INPUT RIPPLE CURRENT (5)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGULATION			RIPPLE & NOISE (pk - pk)	MODEL NUMBER
					SET POINT ACCURACY MAX	LINE	LOAD		
EIGHTH-BRICK SINGLE OUTPUT VALUE MODELS									
1.2V	0.98A	100mA	25A	88.0%	±1.5%	±0.1%	±0.2%	60mV	LES25A48-1V2
1.5V	1.21A	100mA	25A	89.5%	±1.5%	±0.1%	±0.2%	60mV	LES25A48-1V5
1.8V	1.43A	100mA	25A	90.5%	±1.5%	±0.1%	±0.2%	60mV	LES25A48-1V8
2.5V	1.62A	150mA	20A	90.0%	±1.5%	±0.1%	±0.2%	60mV	LES20A48-2V5
3.3V	2.11A	150mA	20A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LES20A48-3V3
5.0V	1.59A	100mA	10A	92.0%	±1.5%	±0.1%	±0.2%	60mV	LES10A48-5V0
EIGHTH-BRICK SINGLE OUTPUT PERFORMANCE MODELS									
1.2V	1.98A	150mA	50A	86.0%	±1.5%	±0.1%	±0.2%	60mV	LES50A48-1V2
1.5V	1.91A	150mA	40A	88.5%	±1.5%	±0.1%	±0.2%	60mV	LES40A48-1V5
1.8V	2.30A	150mA	40A	90.0%	±1.5%	±0.1%	±0.2%	60mV	LES40A48-1V8
2.5V	1.99A	200mA	25A	89.5%	±1.5%	±0.1%	±0.2%	60mV	LES25A48-2V5
3.3V	2.65A	200mA	25A	90.5%	±1.5%	±0.1%	±0.2%	60mV	LES25A48-3V3
5.0V	2.30A	150mA	15A	90.5%	±1.5%	±0.1%	±0.2%	60mV	LES15A48-5V0
EIGHTH-BRICK SINGLE OUTPUT ULTRA MODELS									
2.5V	3.20A	150mA	40A	91.0%	±1.5%	±0.1%	±0.2%	60mV	LES40A48-2V5
3.3V	3.20A	150mA	30A	90.5%	±1.5%	±0.1%	±0.2%	60mV	LES30A48-3V3
5.0V	3.20A	150mA	20A	92.0%	±1.5%	±0.1%	±0.2%	60mV	LES20A48-5V0

Part Number System with Options

LES50A48-1V2RA



Notes

- 1 di/dt = 1A/μs, Vin = 48VDC, 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 10A HRC 200V 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 Please consult factory to check availability.

CAUTION: Hazardous internal voltages and high temperatures. Ensure that unit is not user accessible.



Eighth-Brick Series

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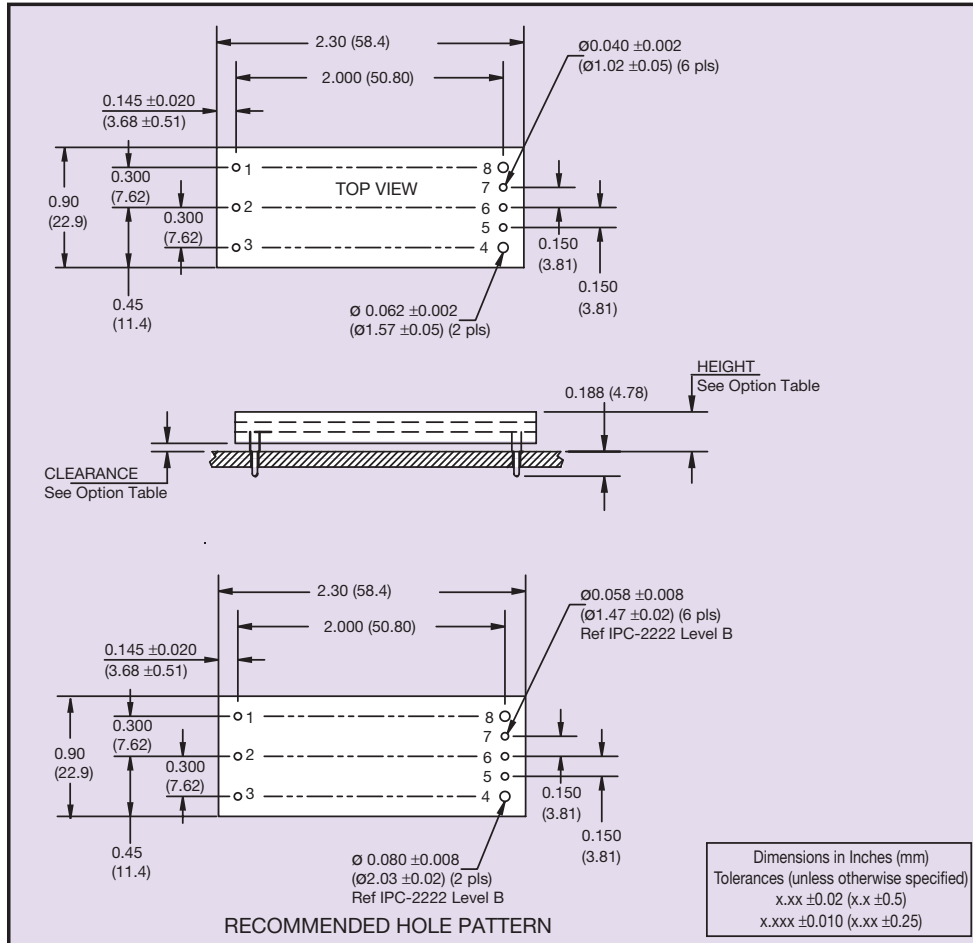
DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

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NEW Product



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

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

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