



Eighth-Brick Series

24Vin, Single Output



DC/DC CONVERTERS

High Current, High Efficiency, Low Profile

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NEW Product

- Ultra-high efficiency topology
- Industry standard eighth-brick footprint (identical to 1/4 brick pinout)
- Low profile through-hole version
- Low profile with 38% space savings over other 1/4 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
- 50V, 100ms input voltage transient rated



The 24V, Typhoon™ eighth-brick series 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 66W of output power. The series delivers very high output current at low voltages, and provides an excellent amount of usable power for today's high performance applications. The series features an input voltage range of 18 to 36VDC and is available with output voltages of 1.8V and 3.3V. 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 to 150mV typ. deviation 20µs recovery	

INPUT SPECIFICATIONS

Input voltage range	24V nominal	18 to 36VDC
Input current	No load Remote OFF	70mA 5mA
Active high remote ON/OFF		
Logic compatibility		Open collector ref to -input
ON		Open circuit or >2.4VDC
OFF		<0.4VDC
Undervoltage lockout	Power up Power down	17.5V (typ.) 16.5V (typ.)
Start-up time (See Note 2)	Power up Remote ON/OFF	15ms (max.) 15ms (max.)

EMC CHARACTERISTICS

Immunity:	
ESD air enclosure	EN61000-4-2 8kV/6kV (output within spec.)
Radiated field enclosure	EN61000-4-3 10V/m (output within spec.)
Conducted	EN61000-4-6 10V (output within spec.)
Input transients	50V, 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		21g (0.73oz)
MTBF	Telcordia Tech SR-332	5,000,000 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°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



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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) ⁽⁵⁾	MODEL NUMBER
					SET POINT ACCURACY MAX	LINE	LOAD		
1.8V	2.40A	50mA	20A	91%	±1.5%	±0.1%	±0.2%	35mV	LES20A24-1V8
3.3V	4.25A	170mA	20A	90%	±1.5%	±0.1%	±0.2%	60mV	LES20A24-3V3

Part Number System with Options

LES20A24-1V8RA

L = Low Profile

E = 1/8 Brick

Number of outputs
S = Single

Rated Output Current
20A = 20A

Nominal Rated Input Voltage
24 = 24Volts (18 to 36V range)

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 = 0.280" (7.11mm) Surface-mount

Remote ON/OFF Logic

Blank = Positive
R = Negative

Output Voltage
1V8 = 1.8 Volts etc.

Notes

- 1 di/dt = 1A/μs, Vin = 24VDC, 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 sheet.
- 2 Start-up into resistive load. Start-up time is the time between application of power or RTO to output being within specification.
- 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 63V rated fuse.
- 5 Peak to peak measured with no external π filter and 20MHz BW. Significant reduction possible with external filter. See Application Note 138 for further details.

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



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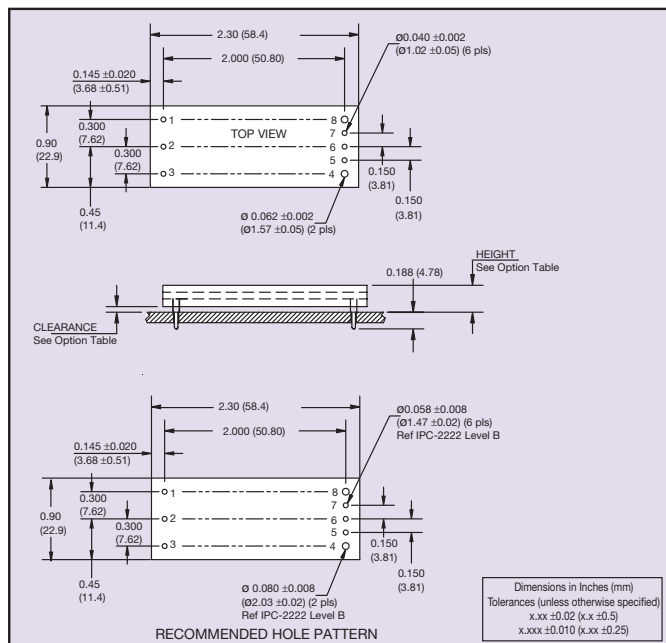
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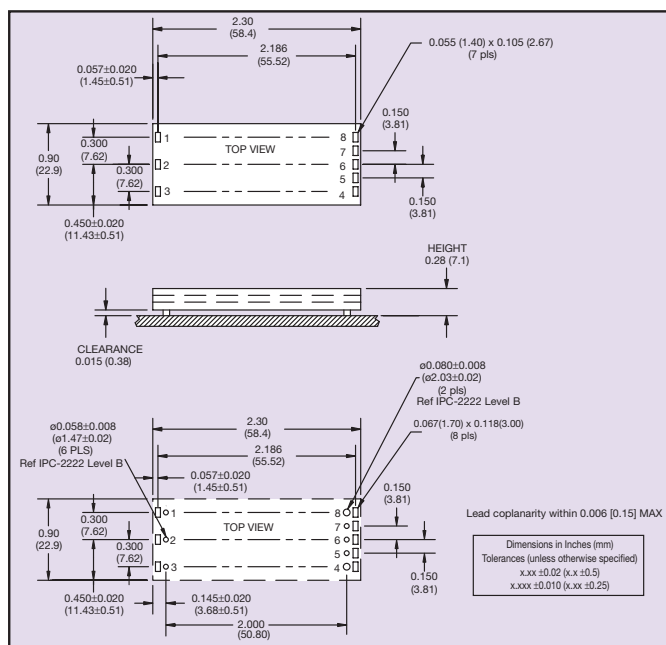
NEW Product



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	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

Data Sheet © Artesyn Technologies® 2004

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

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