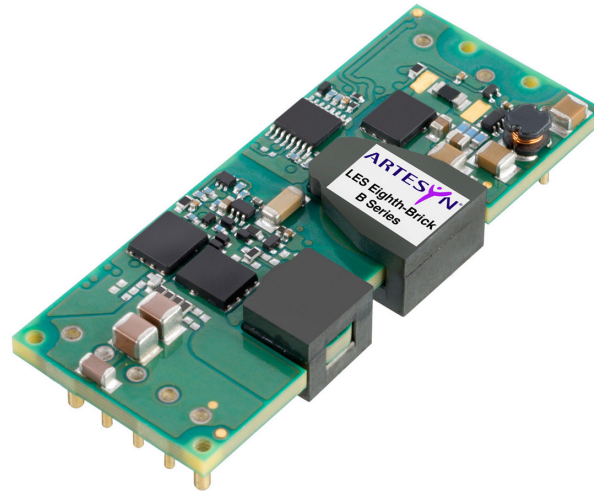


## Eighth-Brick B Series

**Total Power:** Up to 80 Watts  
**Input Voltage:** 36-75 Vdc  
**No. of Outputs:** Single



## Special Features

- High efficiency topology
- Industry standard eighth-brick foot print (identical to quarter-brick pinout)
- Low profile through-hole and surface mount version
- 38% space savings over quarter-brick converters
- Wide ambient temperature range, -40 °C to +85 °C
- 90% to 110% output trim
- 100 V, 100 ms input voltage transient rated
- Meets basic insulation requirements of EN60950-1
- Industry standard feature sets: UVLO, OVP, OCP, OTP, O/P trim, remote sense
- Regulation to zero load
- Fixed frequency switching
- Fast transient switching
- EU directive 2002/95/EC compliant for RoHS

## Safety

- UL/cUL60950-1 CAN/CSA 22.2
- TUV EN/IEC60950-1

## Electrical Specifications\*

| Output                              |                         |                                               |
|-------------------------------------|-------------------------|-----------------------------------------------|
| Voltage adjustability:              |                         | 90% to 110%                                   |
| Minimum load:                       |                         | 0 A                                           |
| Overshoot:                          | At turn-on and turn-off | None                                          |
| Undershoot:                         | At turn-on and turn-off | None                                          |
| Transient Response:<br>(See Note 1) |                         | 5% Vout typ. deviation<br>40 $\mu$ s recovery |
| Input                               |                         |                                               |
| Input voltage range:                | 48 V nominal            | 36-75 Vdc                                     |
| Input current:                      | No load                 | 100 mA                                        |
|                                     | Remote OFF              | 10 mA                                         |
| Active high remote ON/OFF           |                         |                                               |
| Logic compatibility:                |                         | TTL compatible ref to -input                  |
| ON                                  |                         | >2.4 Vdc                                      |
| OFF                                 |                         | <0.8 Vdc                                      |
| Undervoltage Lockout:               | Power up                | 35.5 V (typ.)                                 |
|                                     | Power up                | 35.5 V (typ.)                                 |
| Start-up time:                      | Power up                | 25 ms (typ.)                                  |
| (See Note 2)                        | Remote ON/OFF           | 5 ms (typ.)                                   |

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



## Electrical Specifications

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| General                       |                                                        |                                                     |
|-------------------------------|--------------------------------------------------------|-----------------------------------------------------|
| Basic insulation:             | Input/output                                           | 2250 V dc                                           |
| Switching frequency:          | Fixed                                                  | 500 kHz                                             |
| Approvals and standards:      |                                                        | EN60950-1 VDE<br>UL/cUL60950-1                      |
| Material flammability:        |                                                        | UL94V-0                                             |
| Weight:                       |                                                        | 20 g (0.70 oz)                                      |
| MTBF:                         | Telcordia SR-332 Issue 1,<br>50% stress, 40 °C ambient | 4.2 M hours                                         |
| EMC Characteristics           |                                                        |                                                     |
| Immunity:                     |                                                        |                                                     |
| ESD air enclosure:            | EN1000-4-2 8 kV/6 kV                                   | (O/P within spec.)                                  |
| Radiated field enclosure:     | EN1000-4-3 10 V/m                                      | (O/P within spec.)                                  |
| Conducted:                    | EN1000-4-6 10 V                                        | (O/P within spec.)                                  |
| Input transients:             | 100 V, 100 ms                                          |                                                     |
| Environmental Characteristics |                                                        |                                                     |
| Thermal performance:          | Operating ambient temperature                          | -40 °C to +85 °C                                    |
|                               | Non-operating                                          | -40 °C to +125 °C                                   |
| Protection                    |                                                        |                                                     |
| Short-circuit:                |                                                        | 115% with automatic recovery                        |
| Overvoltage:                  |                                                        | 125% Vo (typ) with automatic recovery               |
| Thermal:                      |                                                        | 125 °C hot spot temperature with automatic recovery |

### Notes

- 1  $di/dt = 1 \text{ A}/\mu\text{s}$ ,  $V_{in} = 48 \text{ Vdc}$ ,  $T_c = 25 \text{ °C}$ , load change = 50% to 75%  $I_o$  max. and 75% to 50%  $I_o$  max. Deviation varies by model. For further details see Technical Reference Notes (TRN).
- 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 Warranty: 2 years.
- 6 through-hole version intended for wave soldering process.
- 7 The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.

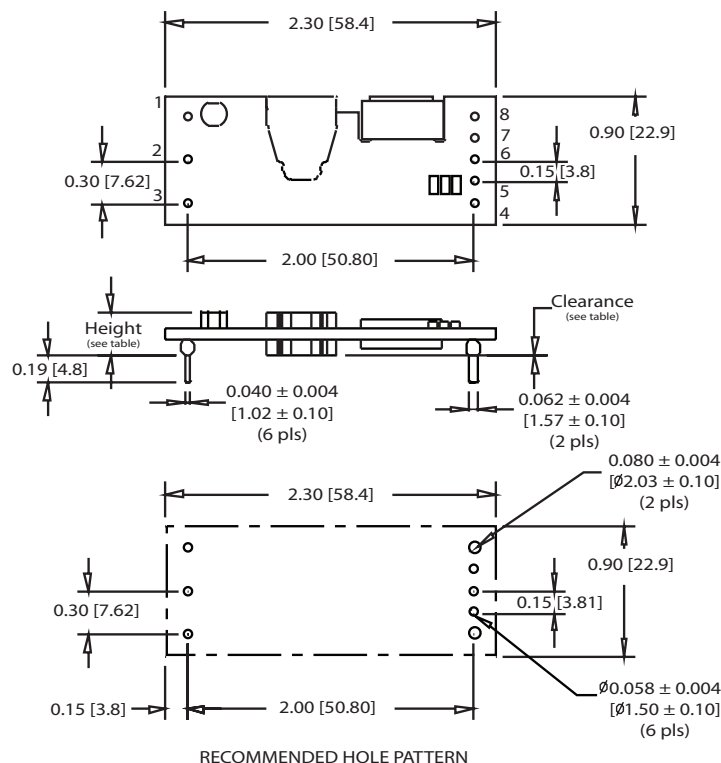
| Ordering Information |                      |                  |                          |       |       |                      |                  |
|----------------------|----------------------|------------------|--------------------------|-------|-------|----------------------|------------------|
| Output Voltage       | Output Current (Max) | Efficiency (Typ) | Regulation               |       |       | Ripple & Noise (Typ) | Model Number(7)  |
|                      |                      |                  | Set Point Accuracy (Typ) | Line  | Load  |                      |                  |
| 12.0 V               | 6.7                  | 92%              | ±1%                      | ±0.1% | ±0.2% | 70 mVp-p             | LES06B48-12V0REJ |
| 5.0 V                | 13                   | 92%              | ±1%                      | ±0.1% | ±0.2% | 30 mVp-p             | LES13B48-5V0REJ  |
| 3.3 V                | 20                   | 91%              | ±1%                      | ±0.1% | ±0.2% | 30 mVp-p             | LES20B48-3V3REJ  |
| 2.5 V                | 22                   | 90%              | ±1%                      | ±0.1% | ±0.2% | 30 mVp-p             | LES22B48-2V5REJ  |
| 1.8 V                | 25                   | 89%              | ±1%                      | ±0.1% | ±0.2% | 30 mVp-p             | LES25B48-1V8REJ  |
| 1.5 V                | 25                   | 88%              | ±1%                      | ±0.1% | ±0.2% | 25 mVp-p             | LES25B48-1V5REJ  |
| 1.2 V                | 25                   | 86%              | ±1%                      | ±0.1% | ±0.2% | 25 mVp-p             | LES25B48-1V2REJ  |
| 1.0 V                | 25                   | 85%              | ±1%                      | ±0.1% | ±0.2% | 20 mVp-p             | LES25B48-1V0REJ  |

## Part Number System with Options

| Product Family                                        | Rated Output Current                | Vintage                                  | Nominal Rated Input Voltage          | Type of Output                     | Remote ON/OFF LOGIC              | Body Height, Package Type and Pin Length                                                                                                                           | RoHS Compliance (7)              |   |
|-------------------------------------------------------|-------------------------------------|------------------------------------------|--------------------------------------|------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---|
| LES                                                   | 22                                  | B                                        | 48                                   | -                                  | 2V5                              | R                                                                                                                                                                  | E                                | J |
| L = Low Profile<br>E = 1/8 Brick<br>S = Single Output | 22 = 22 Amps,<br>20 = 20 Amps, etc. | A = 1st generation<br>B = 2nd generation | 48 = 48 Volts<br>(36 - 75 VDC range) | 2V5 = 2.5 Volts<br>3V3 = 3.3 Volts | Blank = Positive<br>R = Negative | A = 0.33 in (8.1 mm),Through Hole<br>0.19 in (4.8 mm), Pins<br>E = 0.37 in (9.1 mm), Through Hole<br>0.19 in (4.8 mm), Pins<br>S = 0.33 in (8.1 mm), Surface Mount | J = Pb free (RoHS 6/6 compliant) |   |

## Through-hole Mechanical Drawing (for 1.8, 1.5, 1.2 and 1.0 V)

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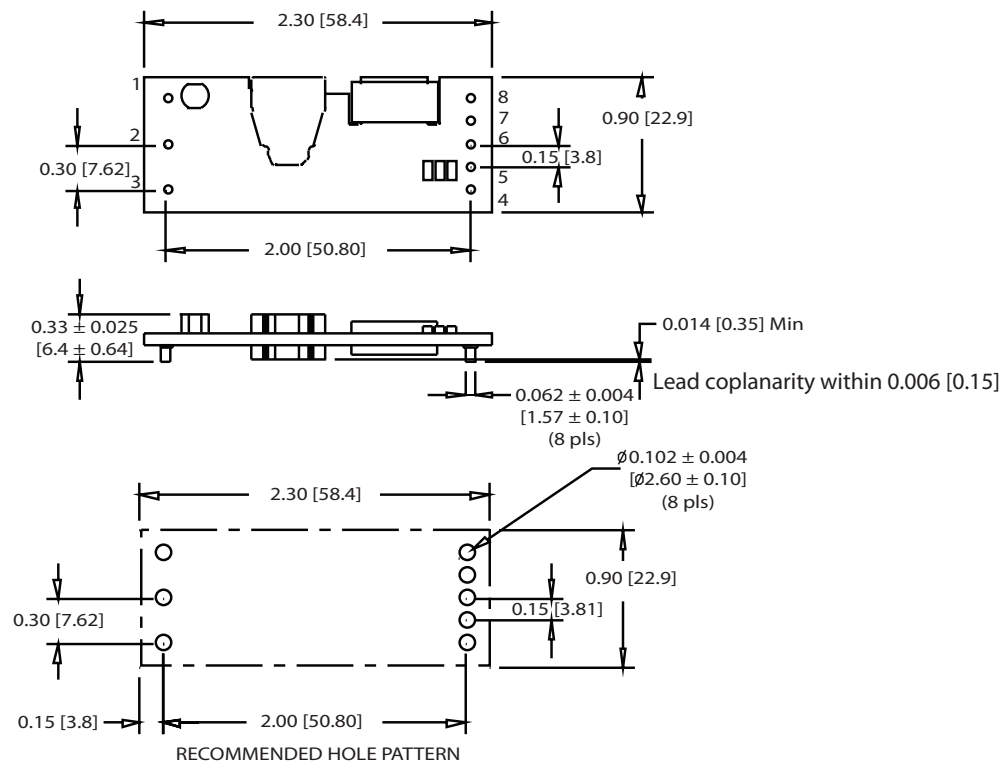
| Suffix | Height        | Clearance    |
|--------|---------------|--------------|
|        | ±0.025 [0.64] | Minimum      |
| A      | 0.33 (8.4)    | 0.004 (0.10) |
| E      | 0.37 (9.4)    | 0.047 (1.20) |

### Pin Connections

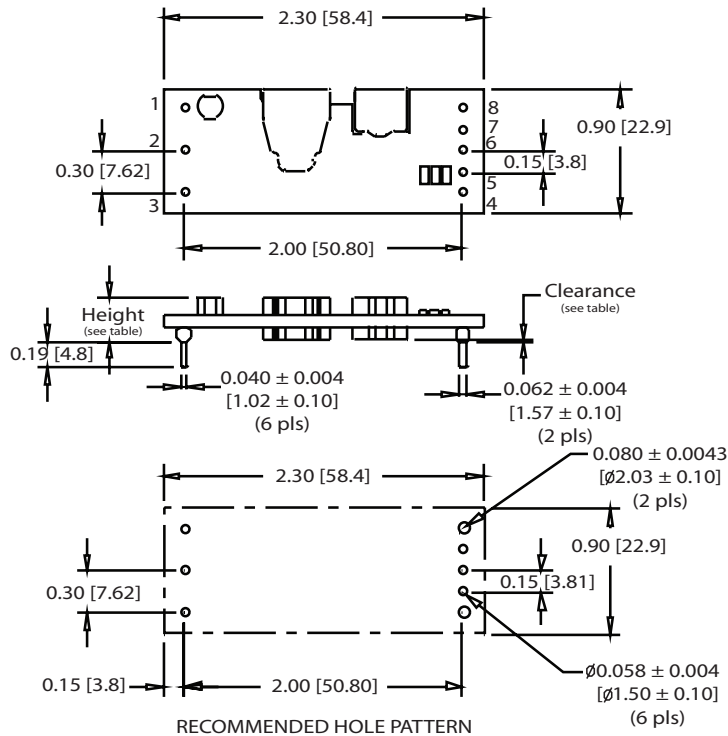
| Pin number | Function |
|------------|----------|
| 1          | Vin+     |
| 2          | ON/OFF   |
| 3          | Vin-     |
| 4          | Vout-    |
| 5          | Sense-   |
| 6          | Trim     |
| 7          | Sense+   |
| 8          | Vout+    |

Dimensions are in inches (millimeter)  
Tolerances (unless otherwise specified)  
X.XX±0.02 (X.X±0.5)  
X.XXX±0.010 (X.XX±0.25)

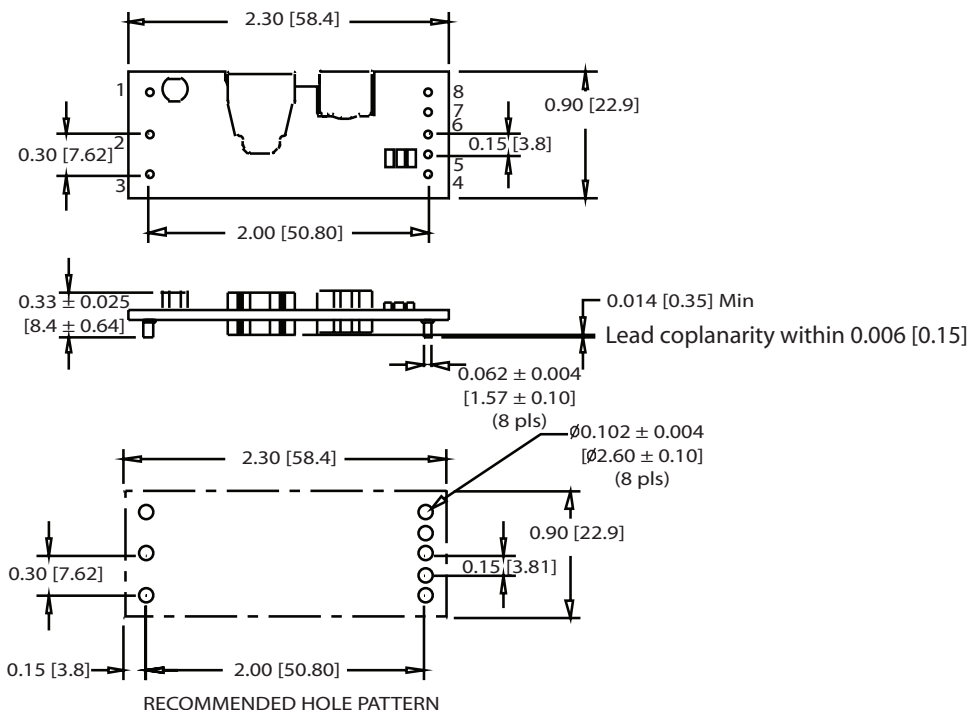
## Surface-mount Mechanical Drawing (for 1.8, 1.5, 1.2 and 1.0 V)



### Through-hole Mechanical Drawing (for 2.5, 3.3, 6 and 12 V)



### Surface-mount Mechanical Drawing (for 2.5, 3.3, 6 and 12 V)



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