



THE DATASHEET OF SIE501.8LTR





Features

- Non-Isolated
- High Efficiency Topology
- Excellent Transient Response
- Sense and Power OK (SIE Model Only)
- Surface-Mount Construction
- Voltage Trim
- Vertical or Horizontal Mounting
- Water Washable

Description

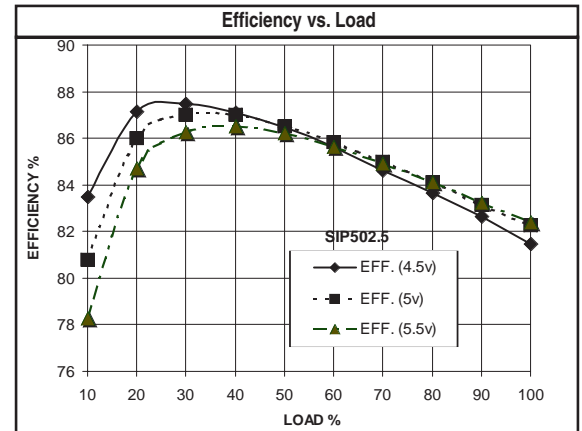
SIP/SIE non-isolated step-down DC-DC converters deliver high efficiency and excellent transient response in an industry-standard SIP package. The SIP/SIE Series has output voltages ranging from 1.2 to 3.3V and up to 6 amps of output current. The SIE model has power OK and remote sense pins for added flexibility and improved point-of-load regulation. The SIP/SIE Series is available for vertical or horizontal mounting. The SIP/SIE Series uses 100% surface-mount construction for maximum reliability and features over seven million hours MTBF.

Technical Specifications

| Input | |
|---------------|---------------|
| Voltage Range | 4.5 - 5.5 VDC |
| 5 VDC Nominal | |

| Output | |
|---|---------------|
| Setpoint Accuracy | ±1% |
| Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated | 1% V_{out} |
| Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom. | 1% V_{out} |
| Ripple and Noise, DC - 20 MHz | 50 mV Pk-Pk |
| Remote Sense Headroom | 0.25 V |
| Current Limit Protection Type | Foldback |
| Current Limit Threshold Range, % of I_{out} Rated | 120% to 180% |
| Short Circuit Protection Type | Continuous |
| Power Good Signal (SIE model only); Asserts "High" When V_{out} is Between the Following Thresholds: | |
| Lower Sense Threshold, % Vsetpoint | -16% to -10% |
| Upper Sense Threshold, % Vsetpoint | +10% to +16% |
| Power Good Signal Reference | Common Ground |
| V_{out} Ramp Up Rate, Minimum | 0.5V/ms |

| General | |
|--------------------------------|---------------------------|
| Remote Shutdown | Negative Logic |
| Switching Frequency | 330 kHz |
| Temperature Coefficient | 0.03%/°C |
| Ambient Operating Temperature | 0 to +55°C |
| Minimum Required Airflow | 200 LFM |
| Storage Range | -25 to +120°C |
| Humidity Max., Non-Condensing | 95% |
| Vibration, 3 Axes, 5 Min Each | 5 g, 10 - 55 Hz |
| MTBF† (Bellcore TR-NWT-000332) | 7.1 x 10 ⁶ hrs |
| Safety | UL, cUL, TUV |
| Weight (approx.) | 0.25 oz |



| Notes |
|--|
| † MTBF predictions may vary slightly from model to model. |
| Specifications typically at 25°C, normal line, and full load, unless otherwise stated. |
| Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment. |
| Safety: Agency approvals may vary from model to model. Please consult factory for specific model information. |
| Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment. |

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

Model Selection

| MODEL | INPUT VOLTAGE (VOLTS) | INPUT VOLTAGE RANGE (VOLTS) | MAXIMUM INPUT CURRENT (AMPS)* | OUTPUT VOLTAGE (VOLTS) | RATED OUTPUT CURRENT (AMPS) | TYPICAL EFFICIENCY** |
|------------|-----------------------|-----------------------------|-------------------------------|------------------------|-----------------------------|----------------------|
| SIP501.2LT | 5 | 4.5 - 5.5 | 2.3 | 1.2 | 6 | 70% |
| SIP501.5LT | 5 | 4.5 - 5.5 | 2.7 | 1.5 | 6 | 75% |
| SIP501.8LT | 5 | 4.5 - 5.5 | 3.1 | 1.8 | 6 | 77% |
| SIP502.1LT | 5 | 4.5 - 5.5 | 3.5 | 2.1 | 6 | 81% |
| SIP502.5LT | 5 | 4.5 - 5.5 | 4.0 | 2.5 | 6 | 83% |
| SIP503.3LT | 5 | 4.5 - 5.5 | 5.1 | 3.3 | 6 | 87% |
| SIE501.2LT | 5 | 4.5 - 5.5 | 2.3 | 1.2 | 6 | 70% |
| SIE501.5LT | 5 | 4.5 - 5.5 | 2.7 | 1.5 | 6 | 75% |
| SIE501.8LT | 5 | 4.5 - 5.5 | 3.1 | 1.8 | 6 | 77% |
| SIE502.1LT | 5 | 4.5 - 5.5 | 3.5 | 2.1 | 6 | 84% |
| SIE502.5LT | 5 | 4.5 - 5.5 | 4.0 | 2.5 | 6 | 83% |
| SIE503.3LT | 5 | 4.5 - 5.5 | 5.1 | 3.3 | 6 | 87% |

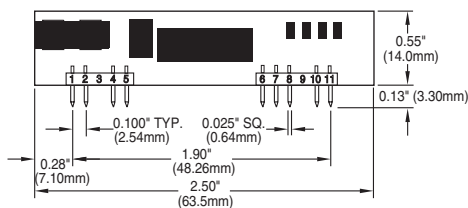
NOTES: * Maximum input current at minimum input voltage, maximum rated output power.

** At nominal V_{in} , rated output.

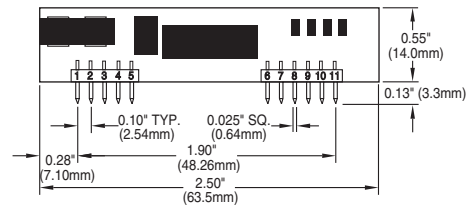
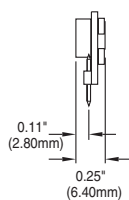
Model numbers highlighted in yellow or shaded are not recommended for new designs.

For right-angle pins, add suffix R to model number.

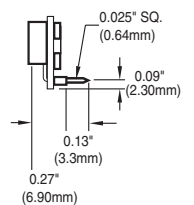
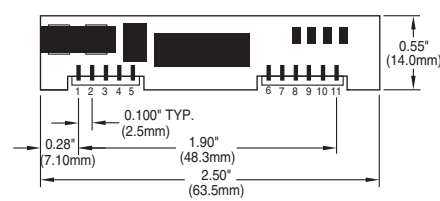
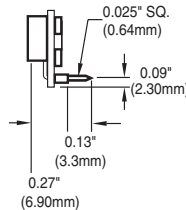
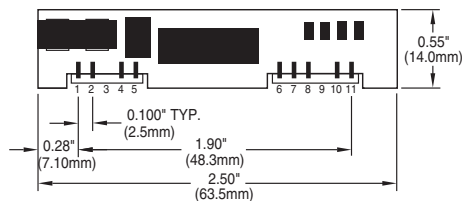
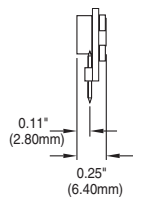
Mechanical Drawing



SIP MODEL



SIE MODEL



| Thermal Impedance | |
|--------------------|-----------|
| Natural Convection | 24.4 °C/W |
| 100 LFM | 18.3 °C/W |
| 200 LFM | 15.0 °C/W |
| 300 LFM | 11.1 °C/W |
| 400 LFM | 7.9 °C/W |

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

| Pin | Function |
|-----|-------------------|
| 1 | +V _{out} |
| 2 | +V _{out} |
| 3 | Sense (SIE) |
| 4 | +V _{out} |
| 5 | Ground |
| 6 | Ground |
| 7 | +V _{in} |
| 8 | +V _{in} |
| 9 | PWR OK (SIE) |
| 10 | Trim |
| 11 | Enable |

| Tolerances | |
|--|---------------|
| Inches: | (Millimeters) |
| .XX ± 0.020 | .X ± 0.5 |
| .XXX ± 0.010 | .XX ± 0.25 |
| Pin: | |
| ± 0.002 | ± 0.05 |
| (Dimensions as listed unless otherwise specified.) | |

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- ⊖ [Bel Power Solutions Information](#)

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- ✓ Shortage Management
- ✓ Alternative Solution
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