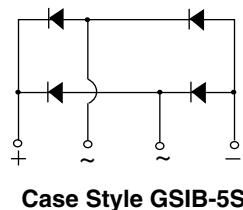
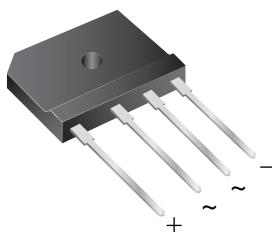


## Low $V_F$ Single-Phase Single In-Line Bridge Rectifiers



### FEATURES

- UL recognition file number E54214, Vol. 1
- Thin single in-line package
- Oxide planar chip junction
- Low forward voltage drop
- High surge current capability
- High case dielectric strength of 2500 V<sub>RMS</sub>
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
**HALOGEN**  
**FREE**

### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for switching power supply, home appliances and white-goods applications specially for telecom power supply, high efficiency desktop PC and server SMPS.

### MECHANICAL DATA

#### Case: GSIB-5S

Epoxy meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

**Mounting Torque:** 10 cm-kg (8.8 in-lbs) maximum

**Recommended Torque:** 5.7 cm-kg (5 in-lbs)

| PRIMARY CHARACTERISTICS                |            |
|--|------------|
| Package                                | GSIB-5S    |
| $I_{F(AV)}$                            | 15 A       |
| $V_{RRM}$                              | 600 V      |
| $I_{FSM}$                              | 400 A      |
| $I_R$                                  | 10 $\mu$ A |
| $V_F$ at $I_F = 7.5$ A, $T_A = 125$ °C | 0.73 V     |
| $T_J$ max.                             | 150 °C     |
| Diode variations                       | In-Line    |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                          |                      |               |        |
|--|----------------------|---------------|--------|
| PARAMETER  | SYMBOL               | LVB1560       | UNIT   |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$            | 600           | V      |
| Maximum average forward rectified output current at $T_C = 125$ °C               | $I_O$ <sup>(1)</sup> | 15            | A      |
| $T_A = 25$ °C  | $I_O$ <sup>(2)</sup> | 3.6           |        |
| Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C | $I_{FSM}$            | 400           | A      |
| Rating for fusing ( $t < 8.3$ ms)  | $I^2t$               | 664           | $A^2s$ |
| Operating junction and storage temperature range                                 | $T_J, T_{STG}$       | - 55 to + 150 | °C     |

#### Notes

(1) Unit case mounted on aluminum plate heatsink

(2) Units mounted on PCB without heatsink

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |  |                      |      |      |               |
|--|--|----------------------|------|------|---------------|
| PARAMETER  | TEST CONDITIONS  | SYMBOL               | TYP. | MAX. | UNIT          |
| Instantaneous forward voltage  | $I_F = 7.5\text{ A}$   | $V_F$ <sup>(1)</sup> | 0.87 | 0.90 | V             |
|  |  |                      | 0.73 | -    |               |
| Reverse current per diode  | $V_R = 600\text{ V}$   | $I_R$ <sup>(2)</sup> | 0.2  | 10   | $\mu\text{A}$ |
|  |  |                      | 60   | -    |               |
| Typical reverse recovery time  | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$ | $t_{rr}$             | 1.8  | -    | $\mu\text{s}$ |
| Typical junction capacitance   | 4.0 V, 1 MHz   | $C_J$                | 260  | -    | pF            |

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq 40\text{ ms}$

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |                          |         |  |  |                    |
|---|--------------------------|---------|--|--|--------------------|
| PARAMETER   | SYMBOL                   | LVB1560 |  |  | UNIT               |
| Maximum thermal resistance  | $R_{0JA}$ <sup>(2)</sup> | 25      |  |  | $^\circ\text{C/W}$ |
|   | $R_{0JC}$ <sup>(1)</sup> | 1.0     |  |  |                    |

**Notes**

(1) With heatsink

(2) Without heatsink, free air

| <b>EMC SURGE IMMUNITY TEST STANDARD</b> ( $T_A = 25^\circ\text{C}$ , unless otherwise noted) |  |  |                   |       |              |
|--|--|--|-------------------|-------|--------------|
| STANDARD   | TEST TYPE                                | TEST CONDITIONS  | SYMBOL            | CLASS | VALUE        |
| IEC 61000-4-5  | Power supply coupling mode, line to line | 1.2/50 $\mu\text{s}$ waveform, $R = 2\Omega$ , $T_A = 25^\circ\text{C}$ <sup>(1)</sup> | $V_{\text{PEAK}}$ | -     | 6 kV maximum |

**Note**

(1) Immunity to IEC 61000-4-5 peak pulse voltage test, 1.2/50  $\mu\text{s}$ , 2  $\Omega$ , 5 times each of positive and negative polarity test

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |               |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| LVB1560-M3/45                         | 6.9             | 45                     | 20            | Tube          |

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

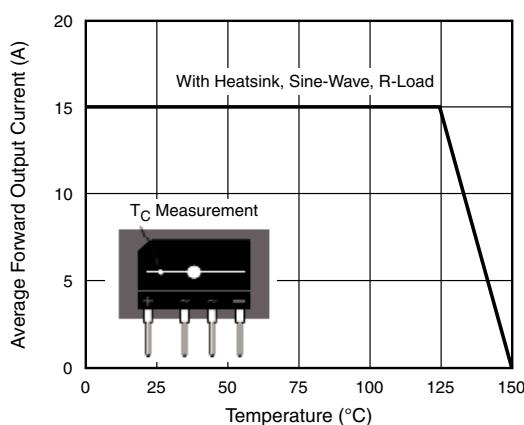


Fig. 1 - Derating Curve Output Rectified Current

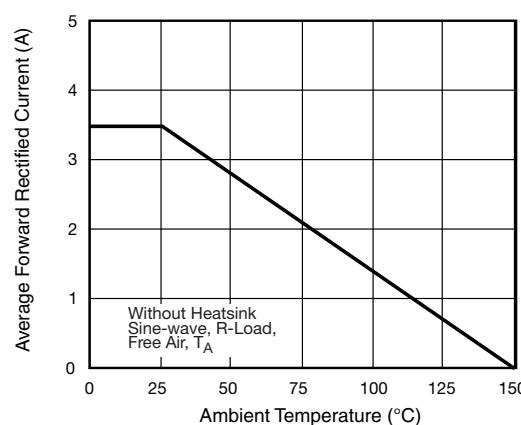


Fig. 2 - Forward Current Derating Curve

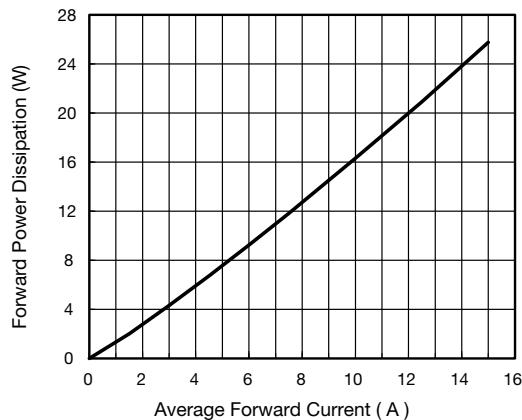


Fig. 3 - Forward Power Dissipation

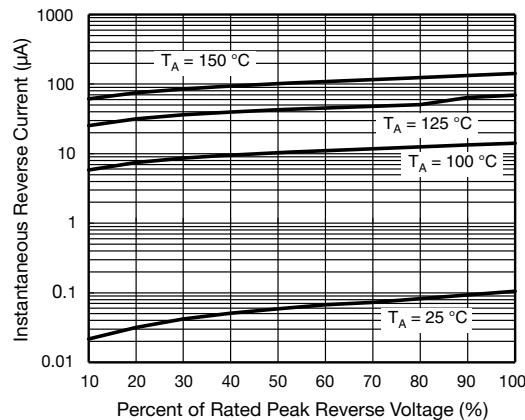


Fig. 5 - Typical Reverse Characteristics Per Diode

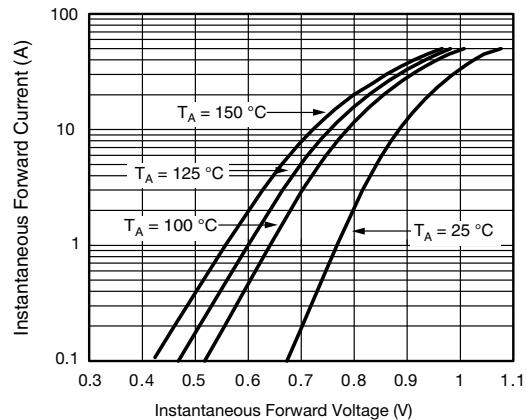


Fig. 4 - Typical Forward Characteristics Per Diode

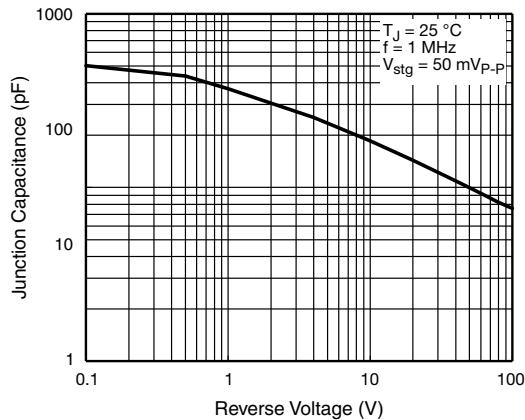
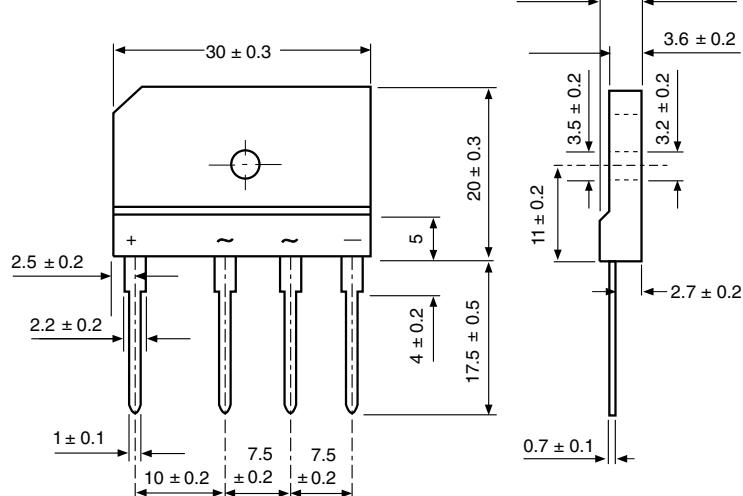


Fig. 6 - Typical Junction Capacitance Per Diode

## PACKAGE OUTLINE DIMENSIONS in millimeters

### Case Style GSIB-5S



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