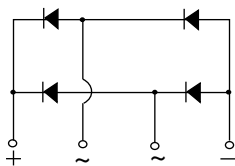
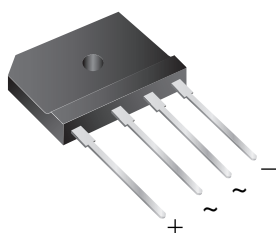


## Low $V_F$ Single-Phase Single In-Line Bridge Rectifiers



Case Style GSIB-5S

### 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 $I_O^{(1)}$	15	A
	$T_A = 25$ °C $I_O^{(2)}$	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 <sup>2</sup> s
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> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 7.5\text{ A}$	$T_A = 25\text{ }^{\circ}\text{C}$	0.87	0.90	V
		$T_A = 125\text{ }^{\circ}\text{C}$	0.73	-	
Reverse current per diode	$V_R = 600\text{ V}$	$T_A = 25\text{ }^{\circ}\text{C}$	0.2	10	$\mu\text{A}$
		$T_A = 125\text{ }^{\circ}\text{C}$	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> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	LVB1560	UNIT
Maximum thermal resistance	$R_{\theta JA}$ (2)	25	$^{\circ}\text{C/W}$
	$R_{\theta JC}$ (1)	1.0	

**Notes**

(1) With heatsink

(2) Without heatsink, free air

<b>EMC SURGE IMMUNITY TEST STANDARD</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ , 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, $R = 2\text{ }\Omega$ , $T_A = 25\text{ }^{\circ}\text{C}$ (1)	$V_{PEAK}$	-	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**

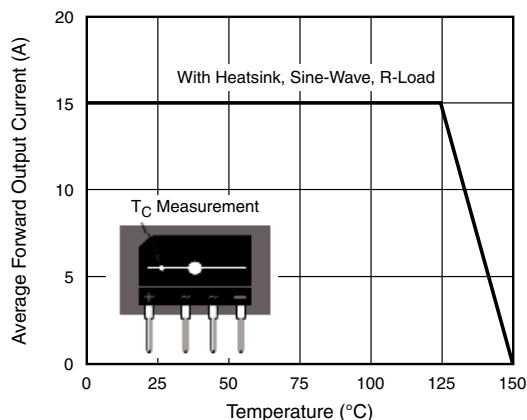
( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Derating Curve Output Rectified Current

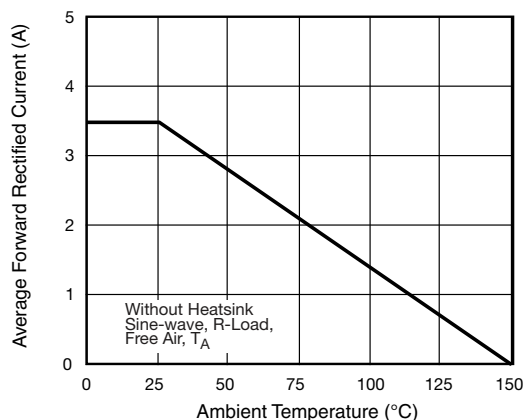


Fig. 2 - Forward Current Derating Curve

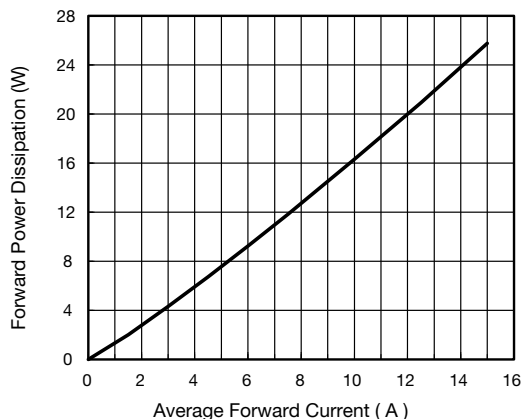


Fig. 3 - Forward Power Dissipation

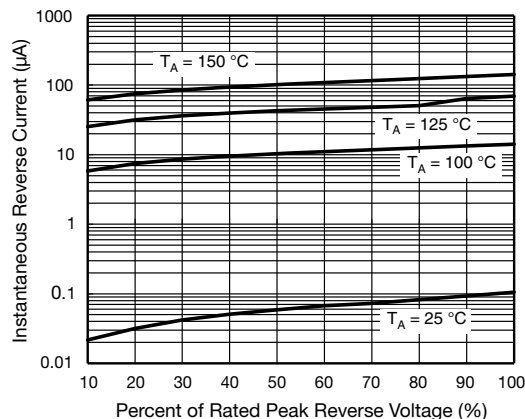


Fig. 5 - Typical Reverse Characteristics Per Diode

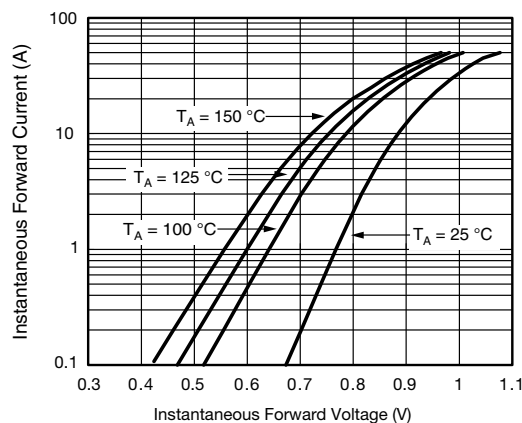


Fig. 4 - Typical Forward Characteristics Per Diode

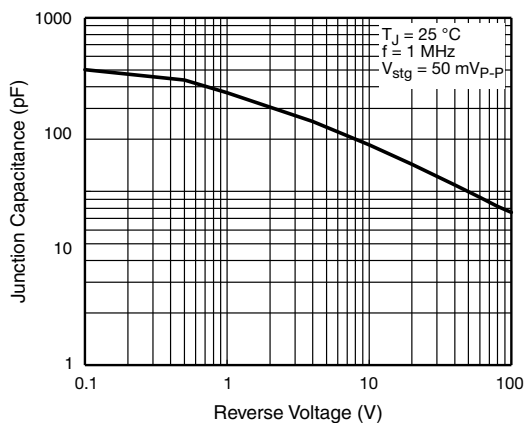
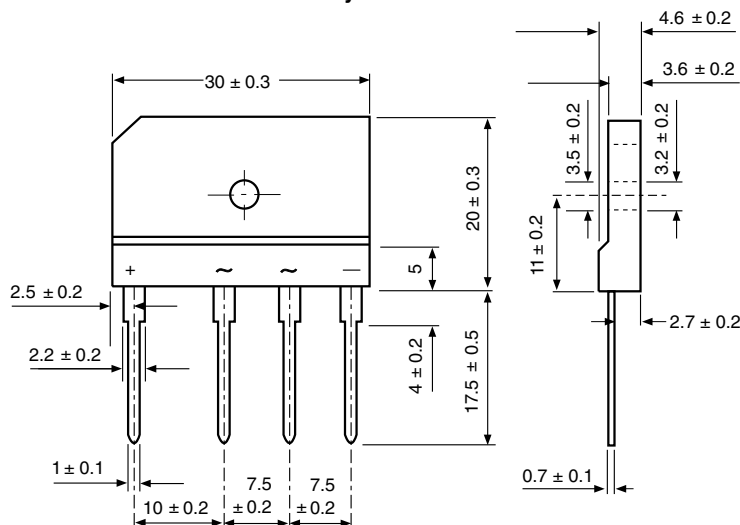


Fig. 6 - Typical Junction Capacitance Per Diode

# **PACKAGE OUTLINE DIMENSIONS** in millimeters

## Case Style GSIB-5S





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