COMPLIANT

HALOGEN

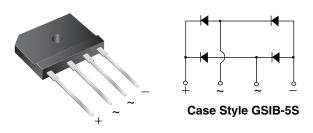
FREE



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# Vishay General Semiconductor

# Low V<sub>F</sub> Single-Phase Single In-Line Bridge Rectifiers



#### **LINKS TO ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	15 A			
$V_{RRM}$	600 V			
I <sub>FSM</sub>	400 A			
I <sub>R</sub>	10 μΑ			
$V_F$ at $I_F = 7.5$ A, $T_A = 125$ °C	0.73 V			
T <sub>J</sub> max.	150 °C			
Package	GSIB-5S			
Circuit configuration	In-line			

#### **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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### 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)

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<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 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 <sub>C</sub> = 125 °C	I <sub>O</sub> <sup>(1)</sup>	15		
	T <sub>A</sub> = 25 °C	I <sub>O</sub> <sup>(2)</sup>	3.6	— A	
Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25  ^{\circ}\text{C}$		I <sub>FSM</sub>	400	А	
Rating for fusing (t < 8.3 ms)	T <sub>J</sub> = 25 °C	l <sup>2</sup> t	664	A <sup>2</sup> s	
Operating junction and storage temperation	ature range	T <sub>.I</sub> , T <sub>STG</sub>	-55 to +150	°C	

#### Notes

- (1) Unit case mounted on aluminum plate heatsink
- (2) Units mounted on PCB without heatsink



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CO	TEST CONDITIONS		TYP.	MAX.	UNIT
Instantaneous forward voltage	1 75 4	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.87	0.90	V
	I <sub>F</sub> = 7.5 A	T <sub>A</sub> = 125 °C		0.73	-	
Reverse current per diode	V 600 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	0.2	10	μΑ
	V <sub>R</sub> = 600 V	T <sub>A</sub> = 125 °C		60	-	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> =	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		1.8	-	μs
Typical junction capacitance	4.0 V, 1 MHz	4.0 V, 1 MHz		260	-	pF

#### Notes

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

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER SYMBOL LVB1560				
Maximum thermal resistance	$R_{\theta JA}$ (2)	25	°C/W	
	R <sub>0</sub> JC (1)	1.0	G/W	

#### Notes

(1) With heatsink

(2) Without heatsink, free air

EMC SURGE IMMUNITY TEST STANDARD (T <sub>A</sub> = 25 °C, unless otherwise noted)						
STANDARD	STANDARD TEST TYPE TEST CONDITIONS			CLASS	VALUE	
IEC 61000-4-5	Power supply coupling mode, line to line	1.2/50 $\mu$ s waveform, R = 2 $\Omega$ , T <sub>A</sub> = 25 °C <sup>(1)</sup>	V <sub>PEAK</sub>	-	6 kV maximum	

#### Note

(1) Immunity to IEC 61000-4-5 peak pulse voltage test, 1.2/50 µs, 2 Ω, 5 times each of positive and negative polarity test

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

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### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

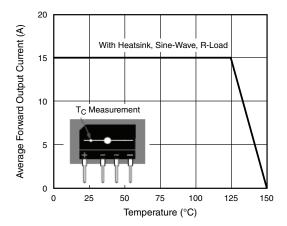


Fig. 1 - Derating Curve Output Rectified Current

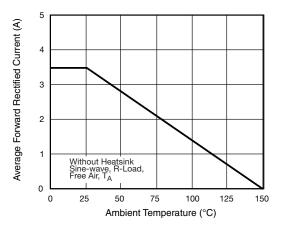


Fig. 2 - Forward Current Derating Curve

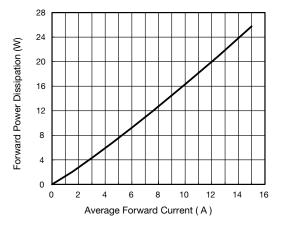


Fig. 3 - Forward Power Dissipation

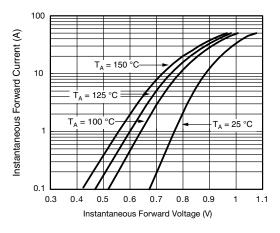


Fig. 4 - Typical Forward Characteristics Per Diode

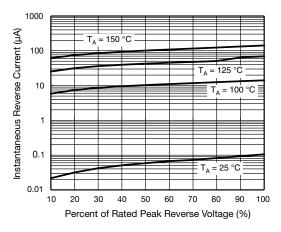


Fig. 5 - Typical Reverse Characteristics Per Diode

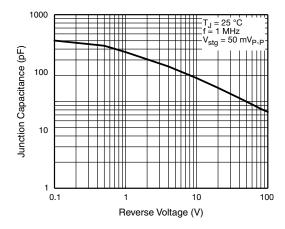
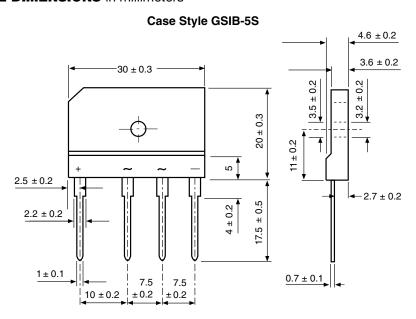


Fig. 6 - Typical Junction Capacitance Per Diode

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### **PACKAGE OUTLINE DIMENSIONS** in millimeters





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