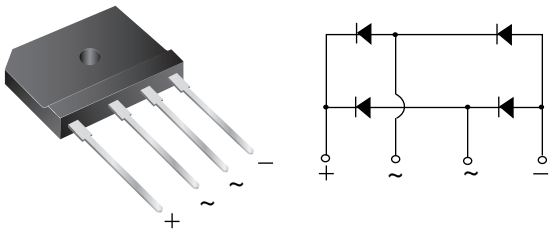
LVB1560

Vishay General Semiconductor

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_{RMS}
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**

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	
$I_{F(AV)}$	15 A
V_{RRM}	600 V
I_{FSM}	400 A
I_R	10 µA
V_F at I_F = 7.5 A, T_A = 125 °C	0.73 V
T_J max.	150 °C

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-repetiitive 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)	T_J = 25 °C	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

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I_F = 7.5 A	T_A = 25 °C	V_F (1)	0.87	0.90	V
		T_A = 125 °C		0.73	-	
Reverse current per diode	V_R = 600 V	T_A = 25 °C	I_R (2)	0.2	10	μA
		T_A = 125 °C		60	-	
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	1.8	-	μs
Typical junction capacitance	4.0 V, 1 MHz		C_J	260	-	pF

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	LVB1560	UNIT
Maximum thermal resistance	$R_{\theta JA}$ (2)	25	°C/W
	$R_{\theta JC}$ (1)	1.0	

Notes

(1) With heatsink

(2) Without heatsink, free air

EMC SURGE IMMUNITY TEST STANDARD (T_A = 25 °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 μs waveform, R = 2 Ω, T_A = 25 °C (1)	V_{PEAK}	-	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

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

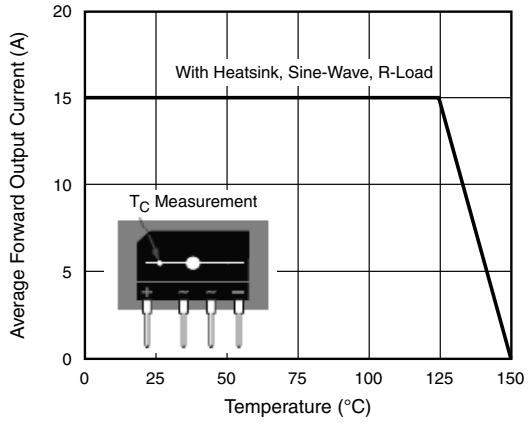

Fig. 1 - Derating Curve Output Rectified Current

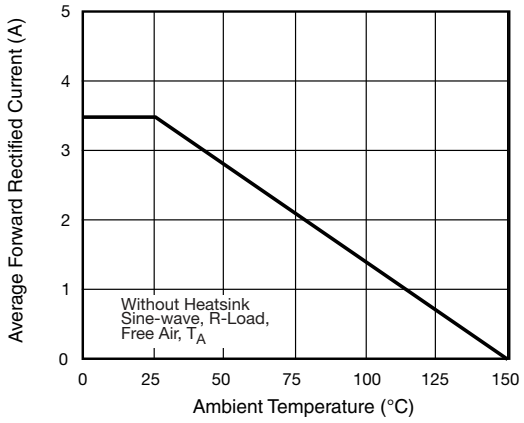

Fig. 2 - Forward Current Derating Curve

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Document Number: 89392
Revision: 20-Dec-10

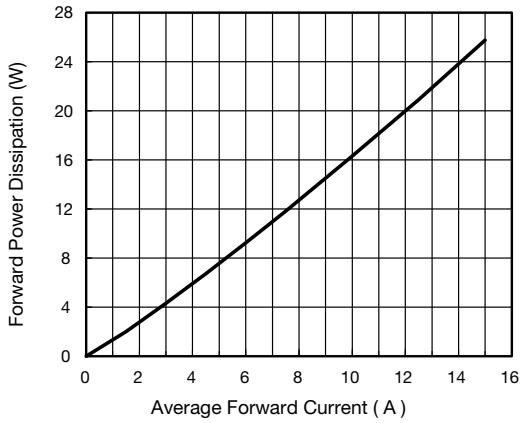


Fig. 3 - Forward Power Dissipation

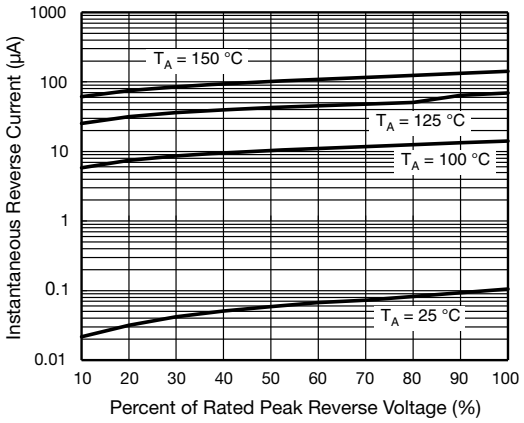


Fig. 5 - Typical Reverse Characteristics Per Diode

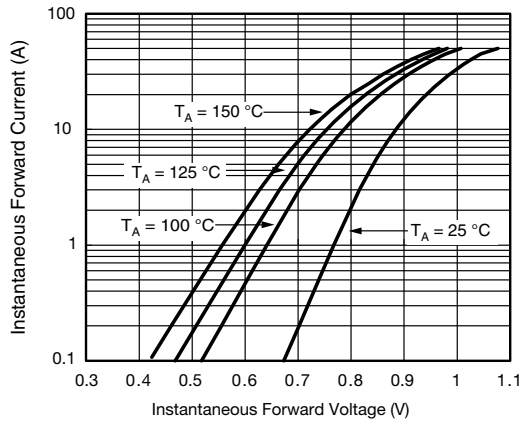


Fig. 4 - Typical Forward Characteristics Per Diode

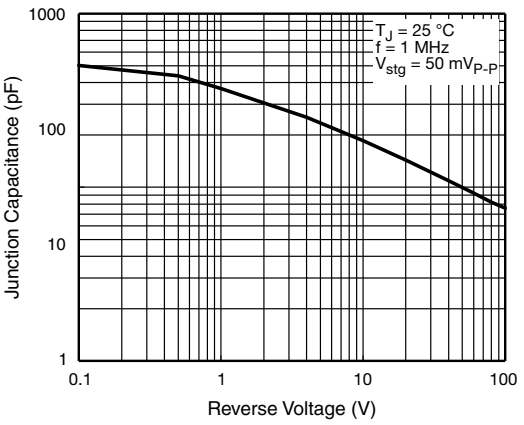
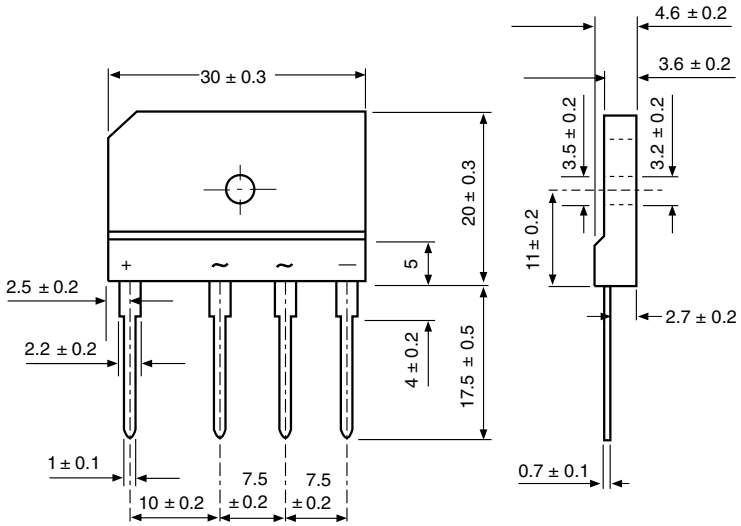


Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in millimeters

Case Style GSIB-5S



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