

Vishay General Semiconductor

Schottky Barrier Rectifier



PRIMARY CHARACTERISTICS						
I _{F(AV)}	1.0 A					
V _{RRM}	20 V to 60 V					
I _{FSM}	50 A					
V _F	0.48 V, 0.65 V					
T _J max.	125 °C, 150 °C					

FEATURES

- · Guardring for overvoltage protection
- Very small conduction losses
- · Extremely fast switching
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- 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

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-204AL (DO-41)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test **Polarity:** Color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	SB120	SB130	SB140	SB150	SB160	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	V
Maximum DC blocking voltage	V_{DC}	20 30 40 50				60	V
Maximum average forward rectified current at 0.375" (9.5 mm) lead length (fig. 1)	I _{F(AV)}	1.0					А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50					А
Voltage rate of change (rated V _R)	dV/dt	10 000					V/µs
Operating junction temperature range	TJ	- 65 to + 125 - 65 to + 150				°C	
Storage temperature range	T _{STG}	- 65 to + 150				°C	

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	TEST	CONDITIONS	SYMBOL	SB120	SB130	SB140	SB150	SB160	UNIT
Maximum instantaneous forward voltage	1.0 A		V _F ⁽¹⁾	0.48		0.65		V	
Maximum instantaneous reverse		T _A = 25 °C	I _R ⁽¹⁾	0.50				- mA	
current at rated DC blocking voltage		T _A = 100 °C	'R''		10		5	.0	IIIA

Note

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

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THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	SB120	SB130	SB140	SB150	SB160	UNIT
Typical thermal resistance	R _{0JA} (1)			50			°C/W
	R _{0JL} (1)			15			G/ VV

Note

⁽¹⁾ Thermal resistance junction to lead P.C.B. mounted 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
SB140-E3/54	0.35	54	5500	13" diameter paper tape and reel			
SB140-E3/73	0.35	73	3000	Ammo pack packaging			

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

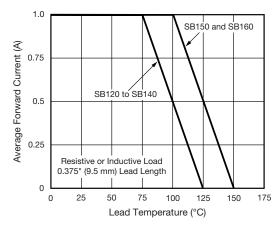


Fig. 1 - Forward Current Derating Curve

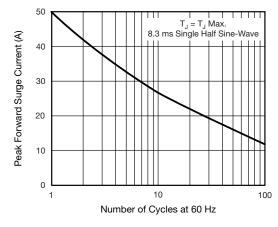


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

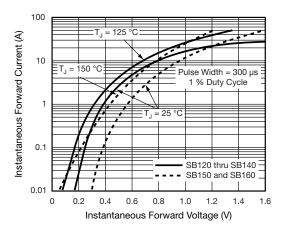


Fig. 3 - Typical Instantaneous Forward Characteristics

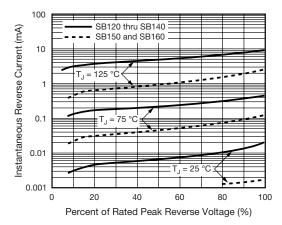


Fig. 4 - Typical Reverse Characteristics



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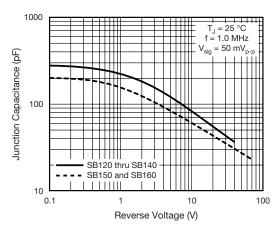


Fig. 5 - Typical Junction Capacitance

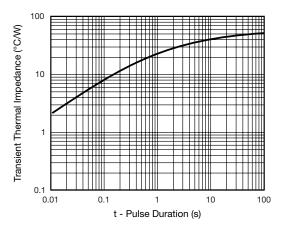
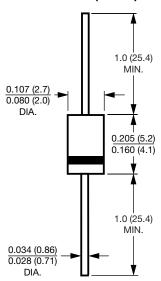


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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Document Number: 91000 www.vishay.com
Revision: 11-Mar-11 1