

Vishay General Semiconductor

Schottky Barrier Plastic Rectifier



PRIMARY CHARACTERISTICS						
I _{F(AV)}	1.0 A					
V_{RRM}	20 V, 30 V, 40 V, 50 V, 60 V					
I _{FSM}	50 A					
V_{F}	0.48 V, 0.65 V					
T _J max.	125 °C, 150 °C					
Package	DO-204AL					
Diode variations	Single					

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
- Material categorization: For definitions of compliance please see <u>www.vishav.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/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				42	V
Maximum DC blocking voltage	V_{DC}	20 30 40 50 60				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				Α	
Voltage rate of change (rated V _R)	dV/dt	10 000 V/					V/µs
Operating junction temperature range	T_J	- 65 to + 125 - 65 to + 150				°C	
Storage temperature range	T_{STG}	- 65 to + 150 °C					°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	ı (1)	I _R ⁽¹⁾ 0.50				A	
current at rated DC blocking voltage		T _A = 100 °C	'R '''			5	.0	mA	

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
Typical thermal resistance	R _{0JL} (1)			15			C/VV

Note

⁽¹⁾ Thermal resistance junction to lead PCB 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)

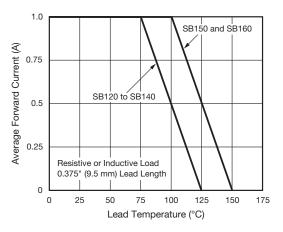


Fig. 1 - Forward Current Derating Curve

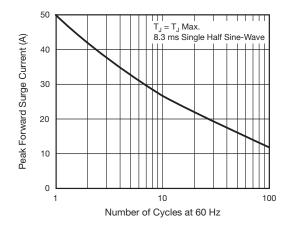


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

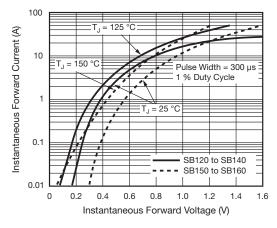


Fig. 3 - Typical Instantaneous Forward Characteristics

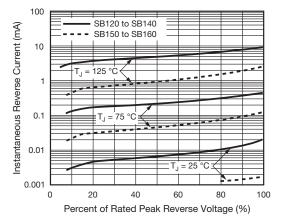


Fig. 4 - Typical Reverse Characteristics



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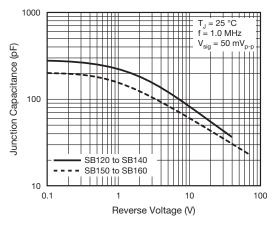


Fig. 5 - Typical Junction Capacitance

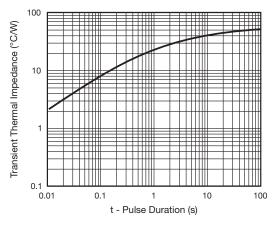


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

0.107 (2.7) 0.080 (2.0) DIA. 0.034 (0.86) 0.028 (0.71) DIA. 1.0 (25.4) MIN. 0.205 (5.2) 0.160 (4.1)



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