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SB220, SB230, SB240, SB250, SB260

Vishay General Semiconductor

Schottky Barrier Plastic Rectifier



PRIMARY CHARACTERISTICS						
I _{F(AV)} 2.0 A						
V _{RRM} 20 V, 30 V, 40 V, 50 V, 60 V						
I _{FSM}	60 A					
V _F	0.50 V, 0.68 V					
T _J max.	125 °C, 150 °C					
Package	DO-204AC					
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.vishay.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-204AC (DO-15) 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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	SB220	SB230	SB240	SB250	SB260	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)}	2.0					А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	60					А	
Maximum full load reverse current, full cycle average at $T_A = 75$ °C	I _{R(AV)}	30					mA	
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		



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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	SB220	SB230	SB240	SB250	SB260	UNIT
Maximum instantaneous forward voltage	2.0 A	V _F ⁽¹⁾	0.50		0.68		V	
Maximum instantaneous reverse current	T _A = 25 °C	I _R ⁽¹⁾	0.50					mA
at rated DC blocking voltage	T _A = 100 °C	'R ` '	15		8	.0		
Typical junction capacitance		C _J 170			pF			

Note

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

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	SB220	SB230	SB240	SB250	SB260	UNIT	
Typical thermal resistance	R _{0JA} ⁽¹⁾	45						
	R _{0JL} ⁽¹⁾	14						

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			
SB240-E3/54	0.398	54	4000	13" diameter paper tape and reel			
SB240-E3/73	0.398	73	2000	Ammo pack packaging			

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

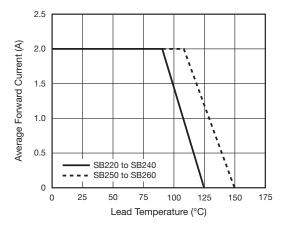


Fig. 1 - Forward Current Derating Curve

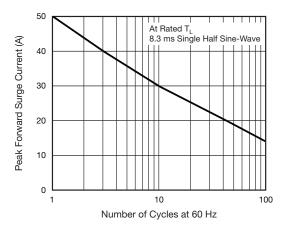


Fig. 2 - Maximum Non-Repetitive Surge Current

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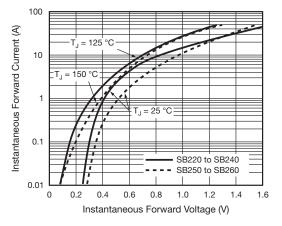


Fig. 3 - Typical Instantaneous Forward Characteristics

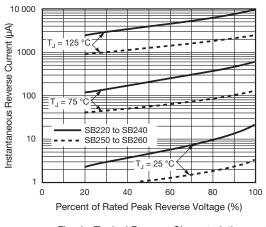


Fig. 4 - Typical Reverse Characteristics

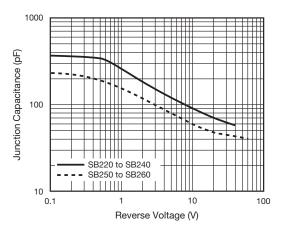


Fig. 5 - Typical Junction Capacitance

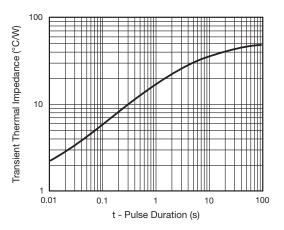
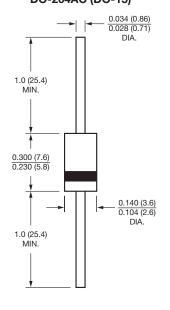


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-204AC (DO-15)



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