

SB220 thru SB260

Vishay General Semiconductor

Schottky Barrier Rectifiers



2.0 A

20 V to 60 V

60 A

0.50 V, 0.68 V

125 °C, 150 °C

PRIMARY CHARACTERISTICS

I_{F(AV)}

 V_{RRM}

I_{FSM}

 V_{F}

T_{.1} max.

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 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and 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-204AC (DO-15)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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	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				A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	60					A
Maximum full load reverse current, full cycle average at $T_A = 75 \ ^\circ C$	I _{R(AV)}	30					mA
Voltage rate of change (rated V _R)	dV/dt	10 000					V/µs
Operating junction temperature range	Т _Ј	- 65 to + 125 - 65 to + 150				°C	
Storage temperature range	T _{STG}	- 65 to + 150				°C	





COMPLIANT

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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 ⁽¹⁾	2.0 A		V _F	0.50		0.68		V	
Maximum instantaneous reverse current at	T _A = 25 °C T _A = 100 °C		L			0.50			
rated DC blocking voltage ⁽¹⁾	T _A = 100 °C	IR	15		8.0		mA		
Typical junction capacitance		•	C _J 170			pF			

Note:

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	SB220	SB230	SB240	SB250	SB260	UNIT
Typical thermal resistance ⁽¹⁾	$R_{ extsf{ heta}JA}$ $R_{ extsf{ heta}JL}$	45 14				°C/W	

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				
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)

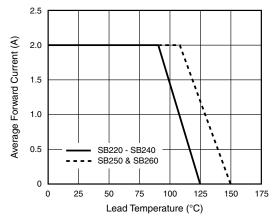


Figure 1. Forward Current Derating Curve

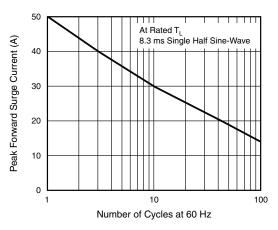


Figure 2. Maximum Non-Repetitive Surge Current



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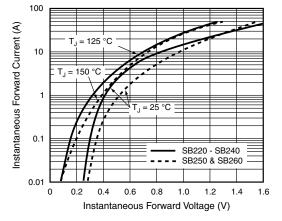


Figure 3. Typical Instantaneous Forward Characteristics

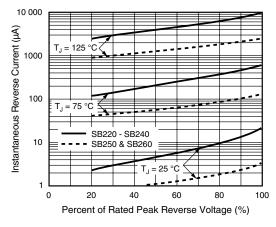


Figure 4. Typical Reverse Characteristics

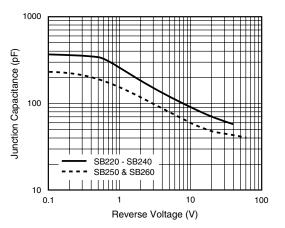


Figure 5. Typical Junction Capacitance

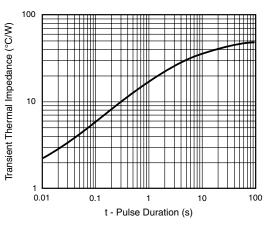
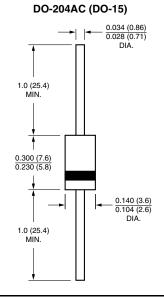


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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