SB020 thru SB060

Vishay General Semiconductor

Miniature Schottky Barrier Rectifier

Major Ratings and Characteristics

$I_{F(AV)}$	0.6 A
V_{RRM}	20 V to 60 V
I_{FSM}	20 A
V_F	0.55 V, 0.70 V
T_j max.	125 °C, 150 °C

Case Style MPG06

Features

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- High frequency operation
- Solder Dip 260 °C, 40 seconds

Mechanical Data

Case: MPG06

Epoxy meets UL 94V-0 Flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
E3 suffix for commercial grade

Polarity: Color band denotes the cathode end

Typical Applications

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

Maximum Ratings

T_A = 25 °C unless otherwise specified#

Parameter	Symbol	SB020	SB030	SB040	SB050	SB060	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 (See Fig. 1)	$I_{F(AV)}$	0.6					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	20					A
Operating junction temperature range	T_J	- 65 to + 125			- 65 to + 150		°C
Storage temperature range	T_{STG}	- 65 to + 150					°C

Electrical Characteristics

T_A = 25 °C unless otherwise specified

Parameter	Test condition	Symbol	SB020	SB030	SB040	SB050	SB060	Unit
Maximum instantaneous forward voltage	at 0.6 A(1)	V_F	0.55			0.70		V
Maximum instantaneous reverse current at rated DC blocking voltage(1)	T_A = 25 °C	I_R	0.5					mA
	T_A = 100 °C		10			5.0		

Notes:

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

Thermal Characteristics

T_A = 25 °C unless otherwise specified

Parameter	Symbol	SB020	SB030	SB040	SB050	SB060	Unit
Typical thermal resistance(1)	$R_{\theta JA}$	80					°C/W
	$R_{\theta JL}$	20					

Notes:

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

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise specified)

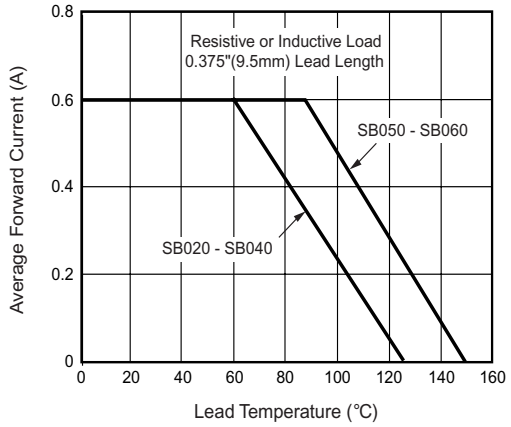


Figure 1. Forward Current Derating Curve

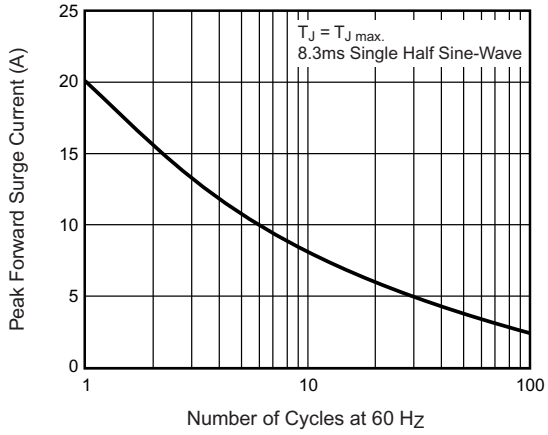


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

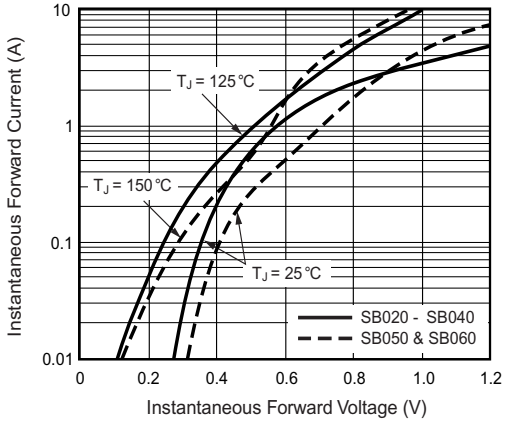


Figure 3. Typical Instantaneous Forward Characteristics

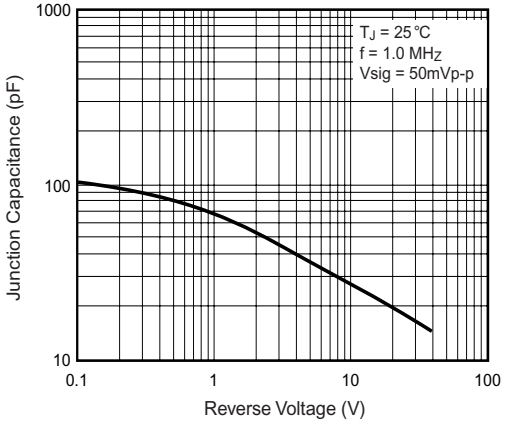


Figure 5. Typical Junction Capacitance

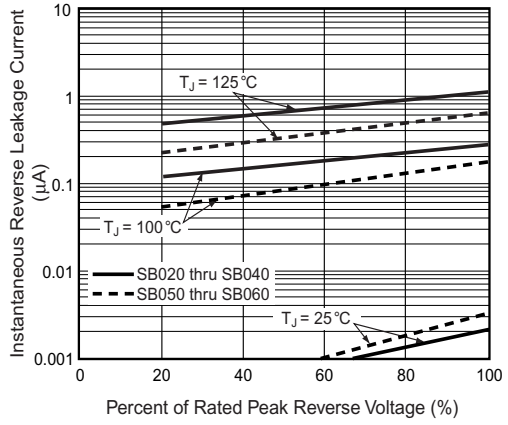


Figure 4. Typical Reverse Leakage Characteristics

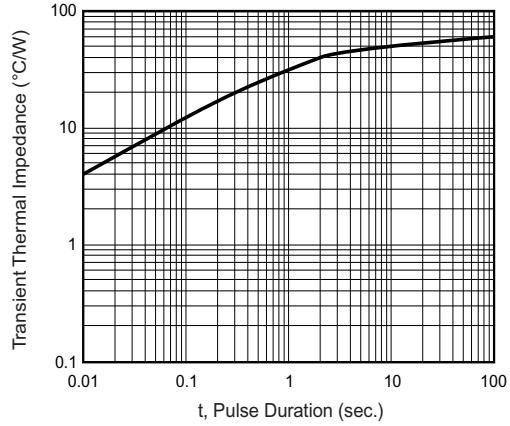
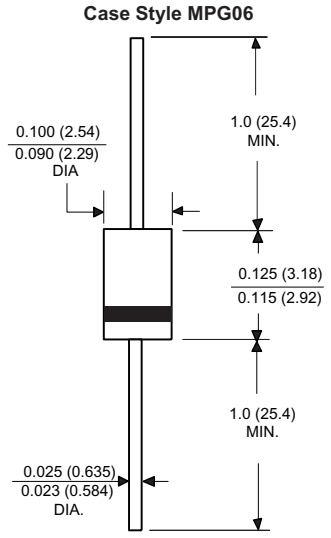


Figure 6. Transient Thermal Impedance

Package outline dimensions in inches (millimeters)



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