

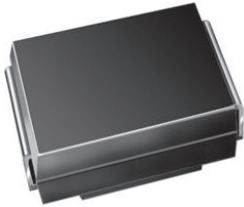


**THE DATASHEET OF  
SB2K-M3/52T**





## Surface-Mount Glass Passivated Rectifier



SMB (DO-214AA)



### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### ADDITIONAL RESOURCES



3D Models

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer and telecommunication.

### MECHANICAL DATA

**Case:** SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** color band denotes the cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	55 A
$I_R$	1.0 $\mu$ A
$V_F$ at $I_F = 2.0$ A	0.86 V
$T_J$ max.	150 °C
Package	SMB (DO-214AA)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	SB2D	SB2G	SB2J	SB2K	SB2M	UNIT
Device marking code		B2D	B2G	B2J	B2K	B2M	
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	800	1000	V
Maximum DC forward current (fig. 1)	$I_F^{(1)}$	2.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	55					A
Operating and storage temperature range	$T_J, T_{STG}$	-55 to +150					°C

#### Note

(1) Mounted on 8 mm x 8 mm pad areas, 1 oz. FR4 PCB



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.90	-	V
	$I_F = 2.0\text{ A}$			0.96	1.15	
	$I_F = 1.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.78	-	
	$I_F = 2.0\text{ A}$			0.86	1.05	
Reverse current	Rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	0.15	1.0	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		36	125	
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$		$t_{rr}$	2.0		$\mu\text{s}$
Typical junction capacitance	Rated $V_R = 4.0\text{ V}$ , 1 MHz		$C_J$	16		pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width,  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	SB2D	SB2G	SB2J	SB2K	SB2M	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	70					$^\circ\text{C/W}$
	$R_{\theta JM}^{(1)}$	10					

**Note**

- (1) Units mounted on PCB with 8.0 mm x 8.0 mm copper pad areas, 1 oz. FR4 PCB;  $R_{\theta JA}$  - junction-to-ambient  $R_{\theta JM}$  - junction-to-mount

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SB2J-M3/52T	0.096	52T	750	7" diameter plastic tape and reel
SB2J-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

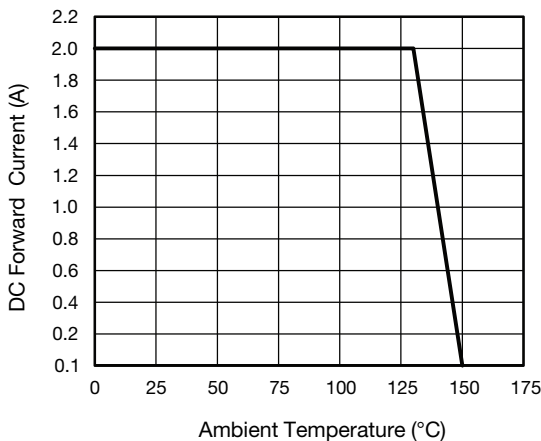


Fig. 1 - Maximum Forward Current Derating Curve

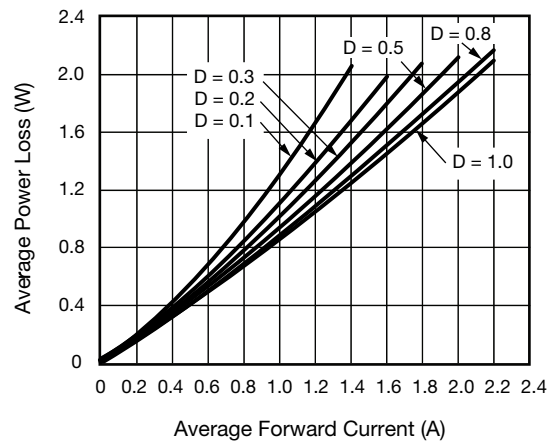


Fig. 2 - Forward Power Loss Characteristics

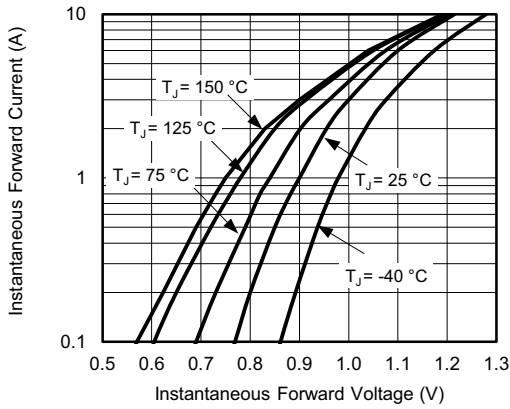


Fig. 3 - Typical Instantaneous Forward Characteristics

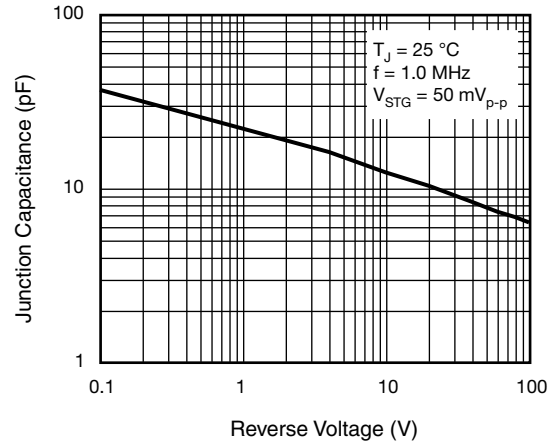


Fig. 5 - Typical Junction Capacitance

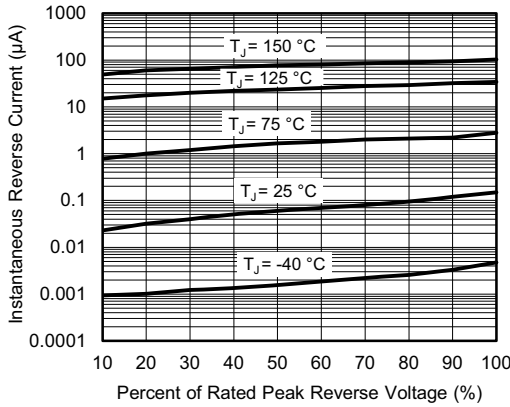


Fig. 4 - Typical Reverse Characteristics

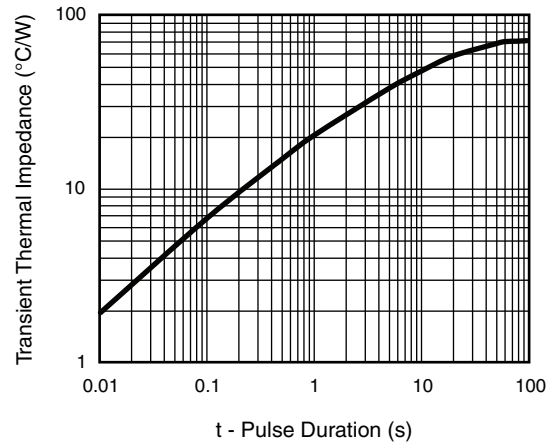
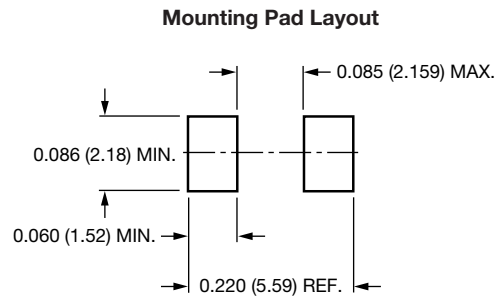
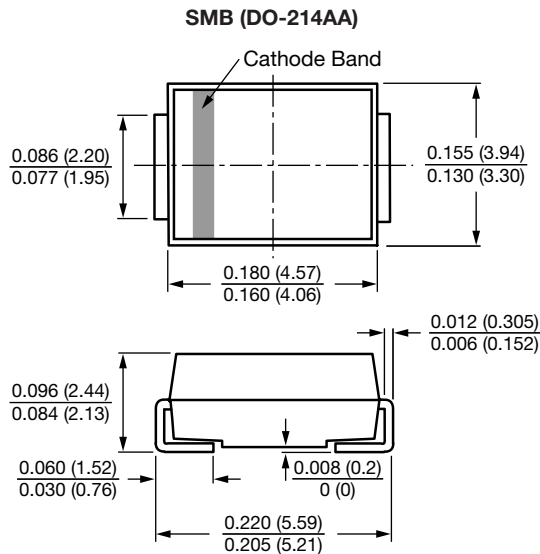


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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