

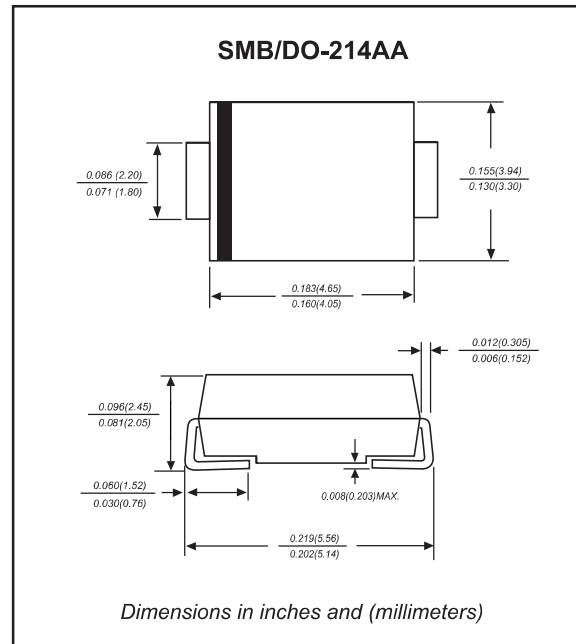
### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed: 260°C/10 seconds at terminals
- ◆ Compliant to RoHS 2.0

### Mechanical data

- ◆ **Case:** JEDEC DO-214AA molded plastic body
- ◆ **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ **Polarity:** Color band denotes cathode end
- ◆ **Mounting Position:** Any

### Package outline



### Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	60	V
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ $T_L = 137^\circ\text{C}$ 4.0 @ $T_L = 127^\circ\text{C}$	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	125	A
Storage Temperature Range	$T_{stg}$	- 65 to +175	$^\circ\text{C}$
Operating Junction Temperature (Note 1)	$T_J$	- 65 to +175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Lead (Note 2) SMC Package SMB Package	$R_{\theta JL}$	11 15	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient (Note 2) SMC Package SMB Package	$R_{\theta JA}$	136 145	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient (Note 3) SMC Package SMB Package (Note 4)	$R_{\theta JA}$	71 73	$^\circ\text{C/W}$

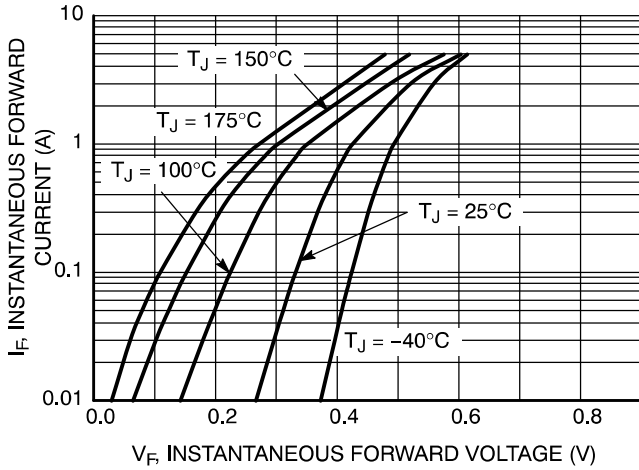
### ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 5) ( $i_F = 3.0\text{ A}$ , $T_J = 25^\circ\text{C}$ )	$V_F$	0.63	V
Maximum Instantaneous Reverse Current (Note 5) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 100^\circ\text{C}$ )	$i_R$	0.03 3.0	mA

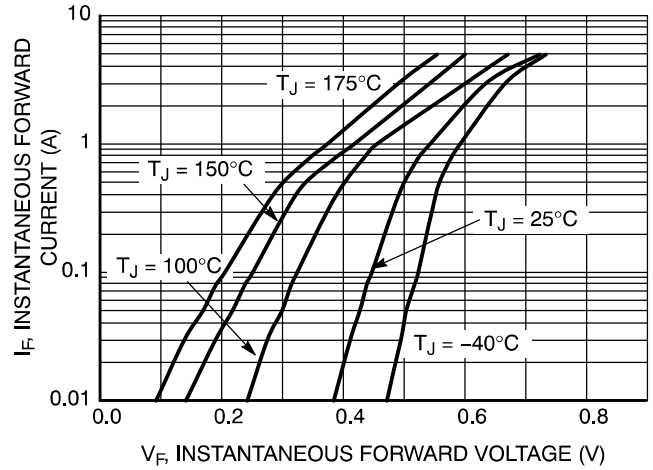
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Mounted with minimum recommended pad size, PC Board FR4.
3. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
4. Typical Value; 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
5. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

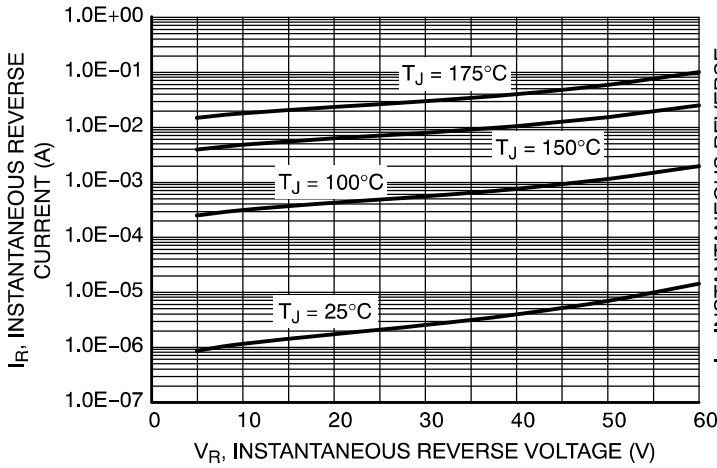
**Rating and characteristic curves**



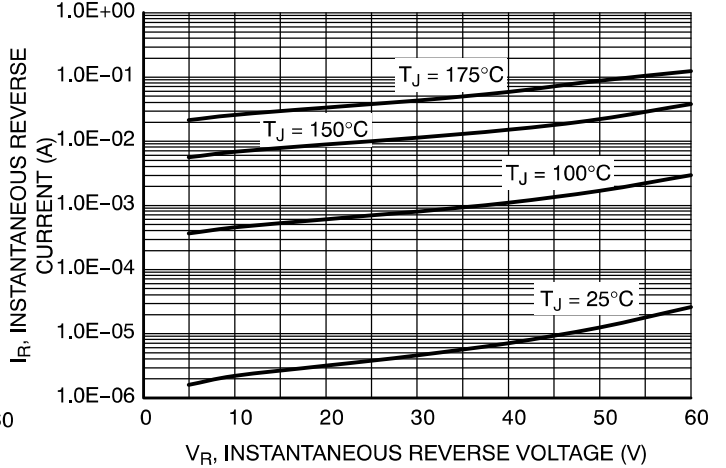
**Figure 1. Typical Forward Voltage**



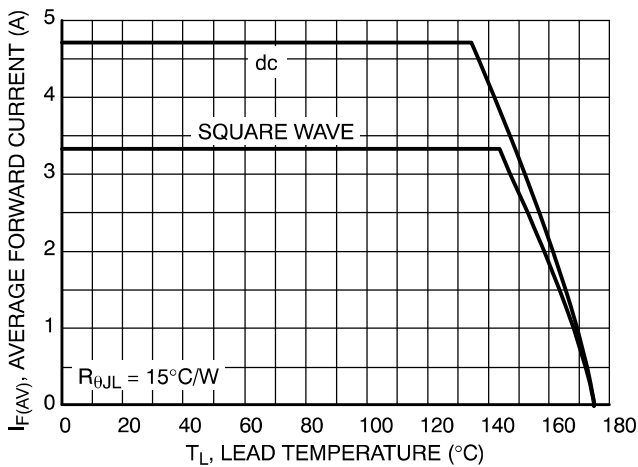
**Figure 2. Maximum Forward Voltage**



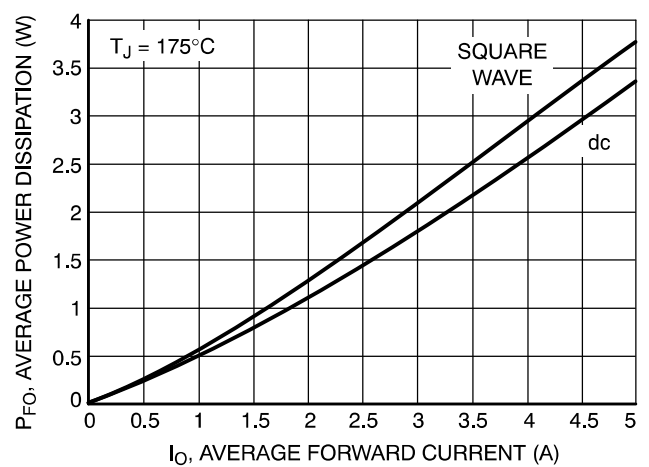
**Figure 3. Typical Reverse Current**



**Figure 4. Maximum Reverse Current**

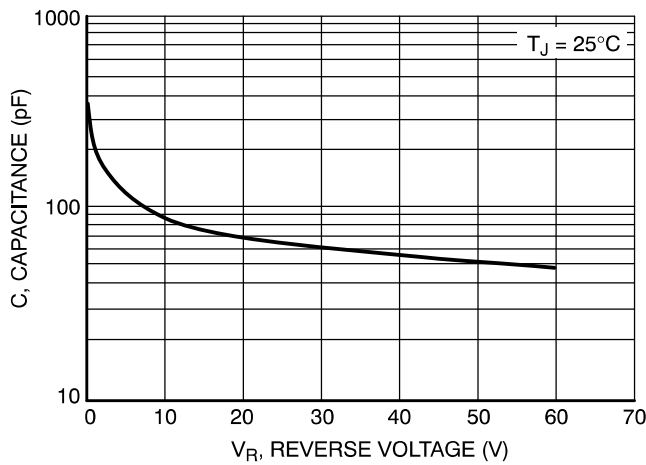


**Figure 5. Current Derating**



**Figure 6. Forward Power Dissipation**

**Rating and characteristic curves**



**Figure 7. Typical Capacitance**

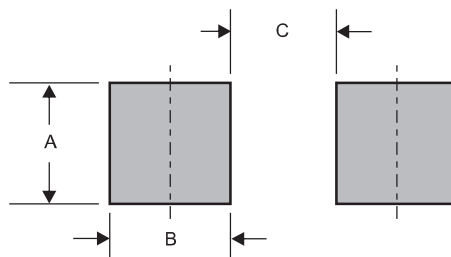
**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

**Marking**

Type number	Marking code	Example
MBRS360BT3G	B36	

**Suggested solder pad layout**

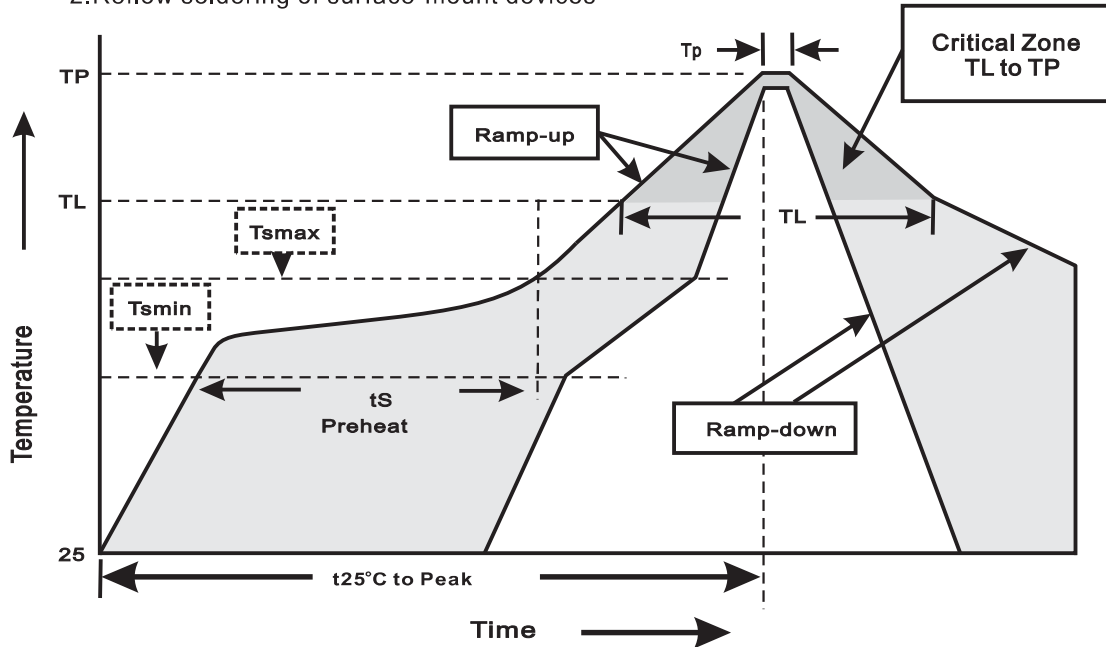


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMB	0.078 (2.00)	0.059 (1.50)	0.110 (2.80)

**Suggested thermal profiles for soldering processes**

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes