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Surface Mount Schottky Power Rectifier

SMB Power Surface Mount Package

MBRS230LT3G,MBRS240LT3G MBRS2040LT3G

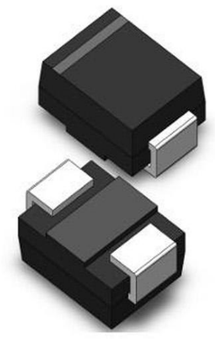
. . . employing the Schottky Barrier principle in a metal−to−silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

- Compact Package with J−Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Overvoltage Protection
- Low Forward Voltage Drop
- Pb−Free Package is Available

Mechanical Characteristics:

- Case: Molded Epoxy
- Weight: 95 mg (approximately)
- Cathode Polarity Band
- Maximum Temperature of 260°C/10 Seconds for Soldering
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable

SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES 30-40 VOLTS



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CASE 403A
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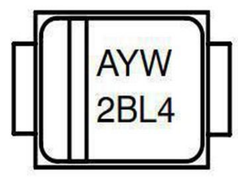
MARKING DIAGRAM



2BL4 = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
Average Rectified Forward Current (At Rated V_R, T_C = 100°C)	I_O	2.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 20 kHz, T_C = 105°C)	I_{FRM}	4.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	25	A
Storage/Operating Case Temperature	T_{stg}, T_C	−55 to +150	°C
Operating Junction Temperature	T_J	−55 to +125	°C
Voltage Rate of Change (Rated V_R, T_J = 25°C)	dv/dt	10,000	V/μs

ORDERING INFORMATION

Device	MARKING	Package	Shipping†
MBRS230LT3G	2BL3	SMB (Pb−Free)	2500/Tape & Reel
MBRS240LT3G	2BL4	SMB (Pb−Free)	2500/Tape & Reel
MBRS2040LT3G	BKJL	SMB (Pb−Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance — Junction–to–Lead (Note 1) Thermal Resistance — Junction–to–Ambient (Note 3)	$R_{\theta JL}$ $R_{\theta JA}$	18 78	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) see Figure 2	V_F	T_J = 25°C	T_J = 125°C	Volts
(I_F = 2.0 A) (I_F = 4.0 A)		0.43 0.54	0.375 0.55	
Maximum Instantaneous Reverse Current (Note 2) see Figure 4	I_R	T_J = 25°C	T_J = 100°C	mA
(V_R = 40 V) (V_R = 20 V)		2.0 0.5	60 40	

1. Mounted with minimum recommended pad size, PC Board FR4.
2. Pulse Test: Pulse Width ≤ 250 μs, Duty Cycle ≤ 2.0%.
3. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.

TYPICAL CHARACTERISTICS

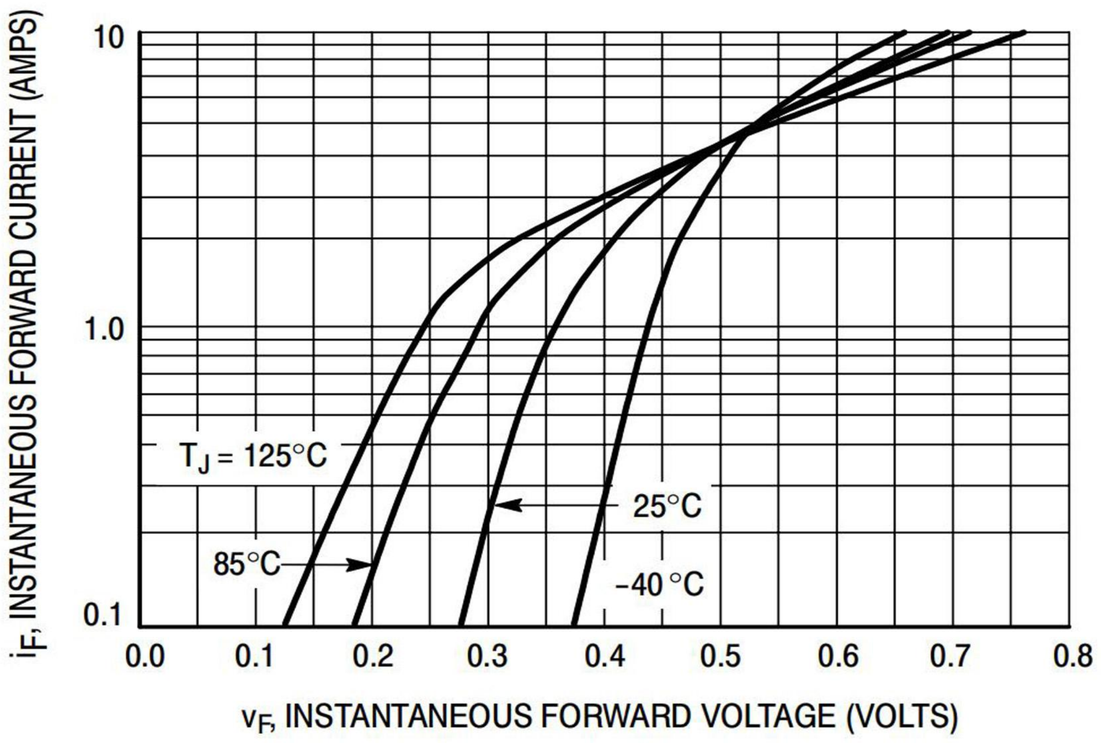

Figure 1. Typical Forward Voltage

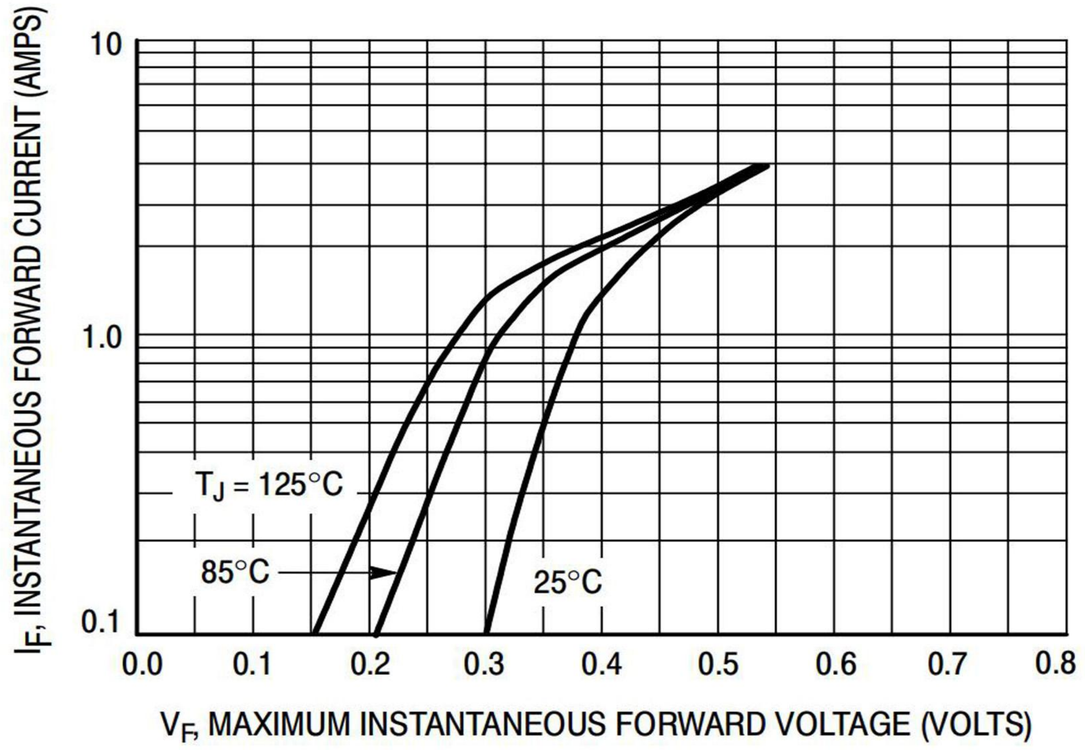

Figure 2. Maximum Forward Voltage

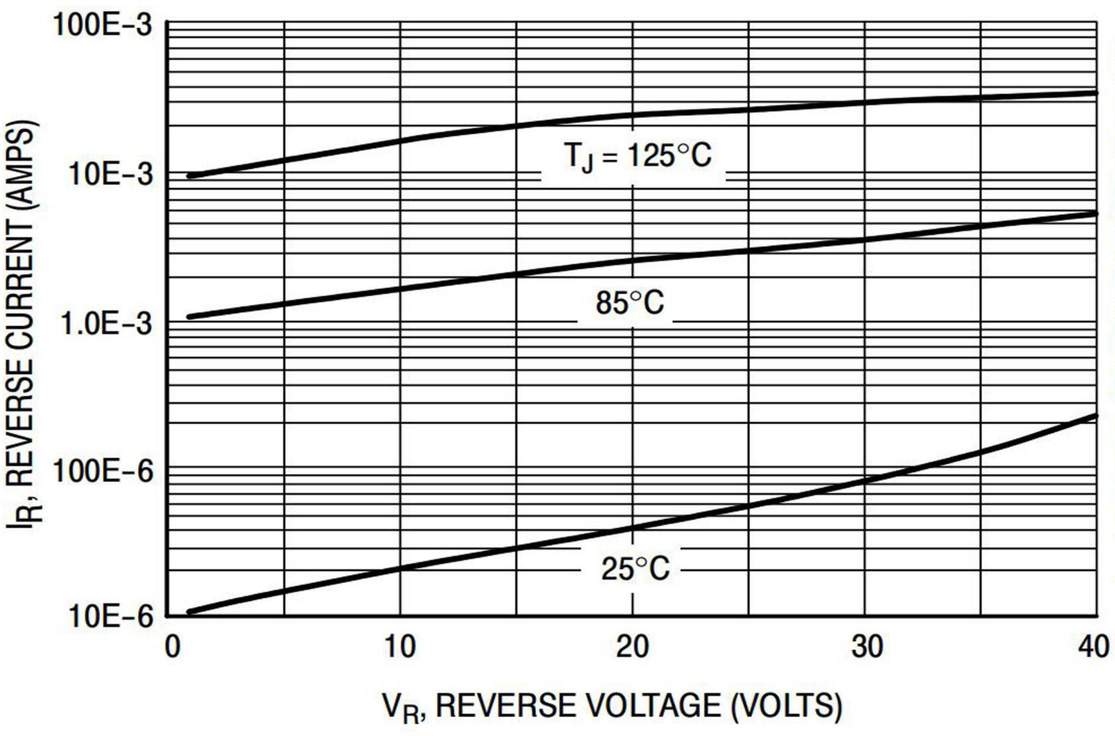

Figure 3. Typical Reverse Current

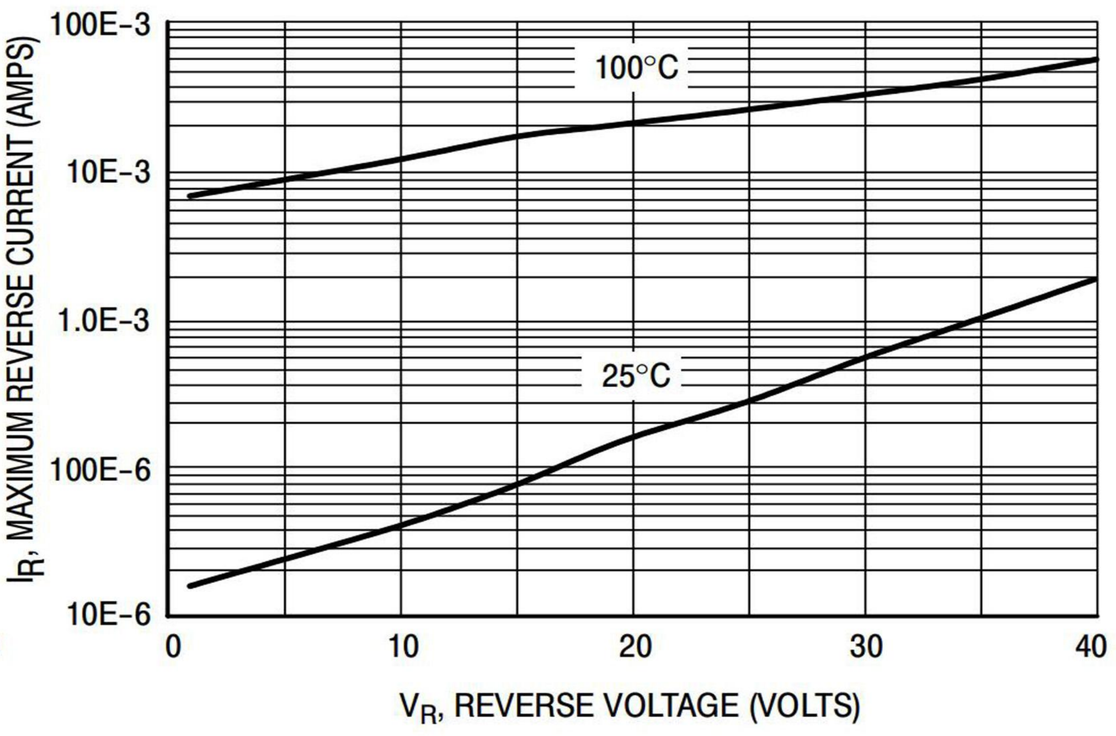

Figure 4. Maximum Reverse Current

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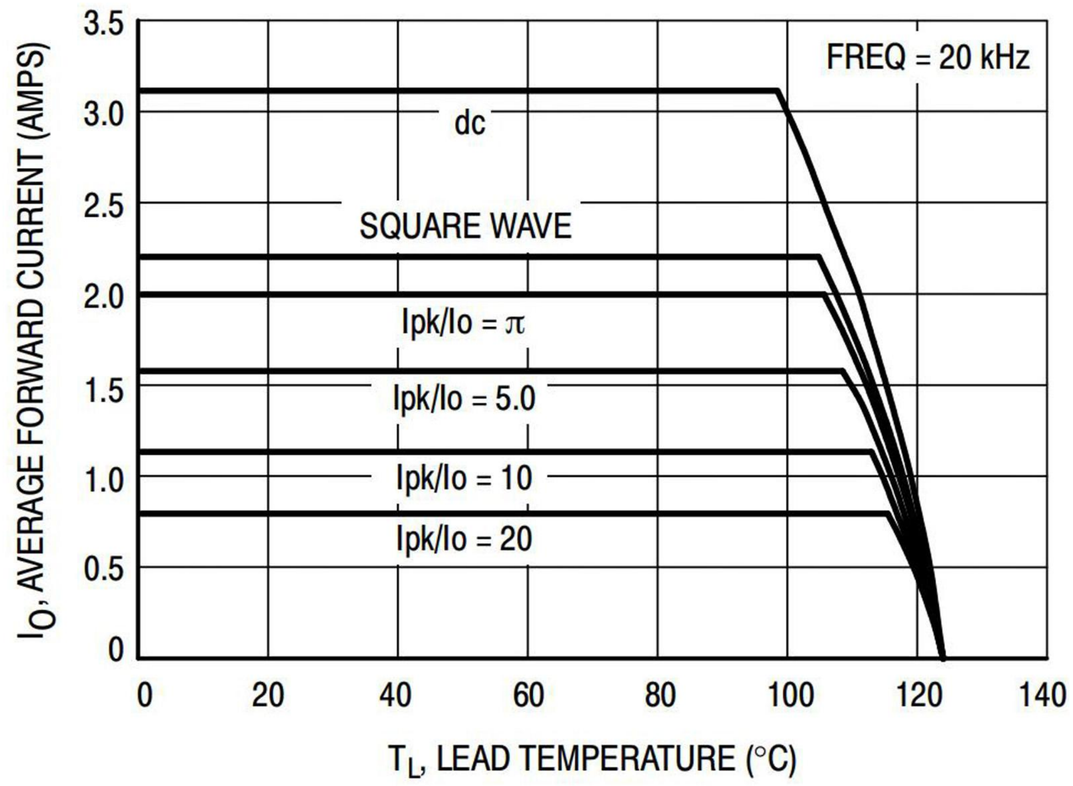

Figure 5. Current Derating

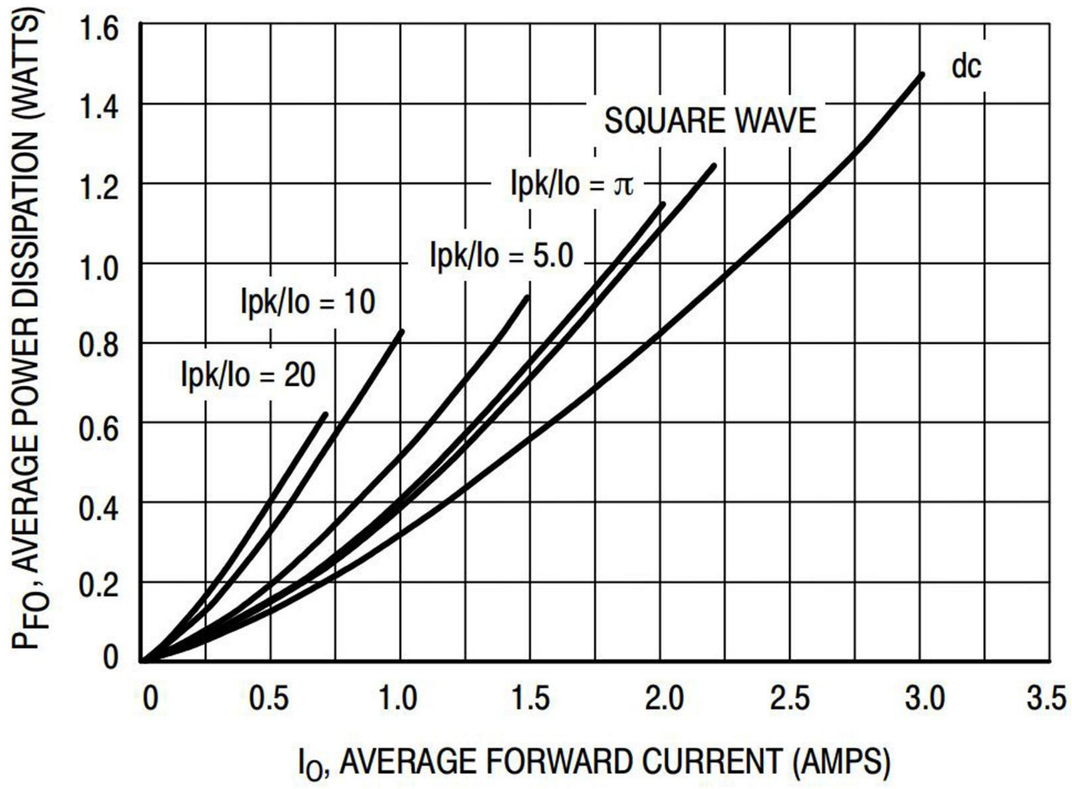

Figure 6. Forward Power Dissipation

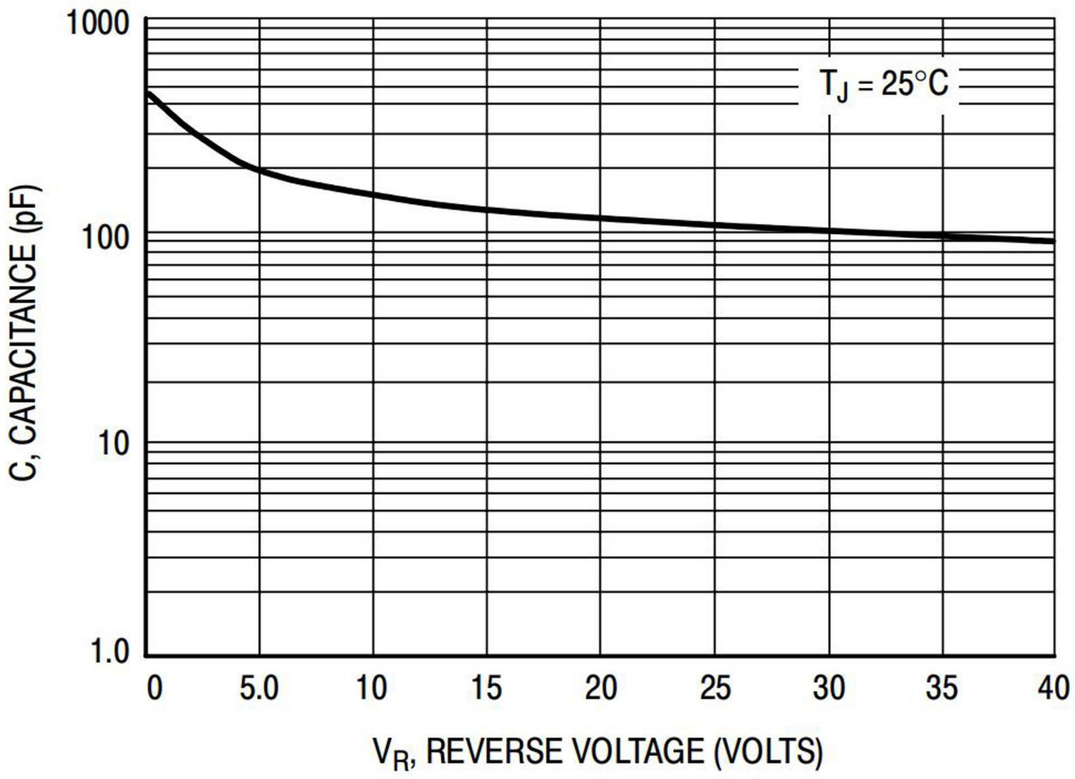

Figure 7. Capacitance

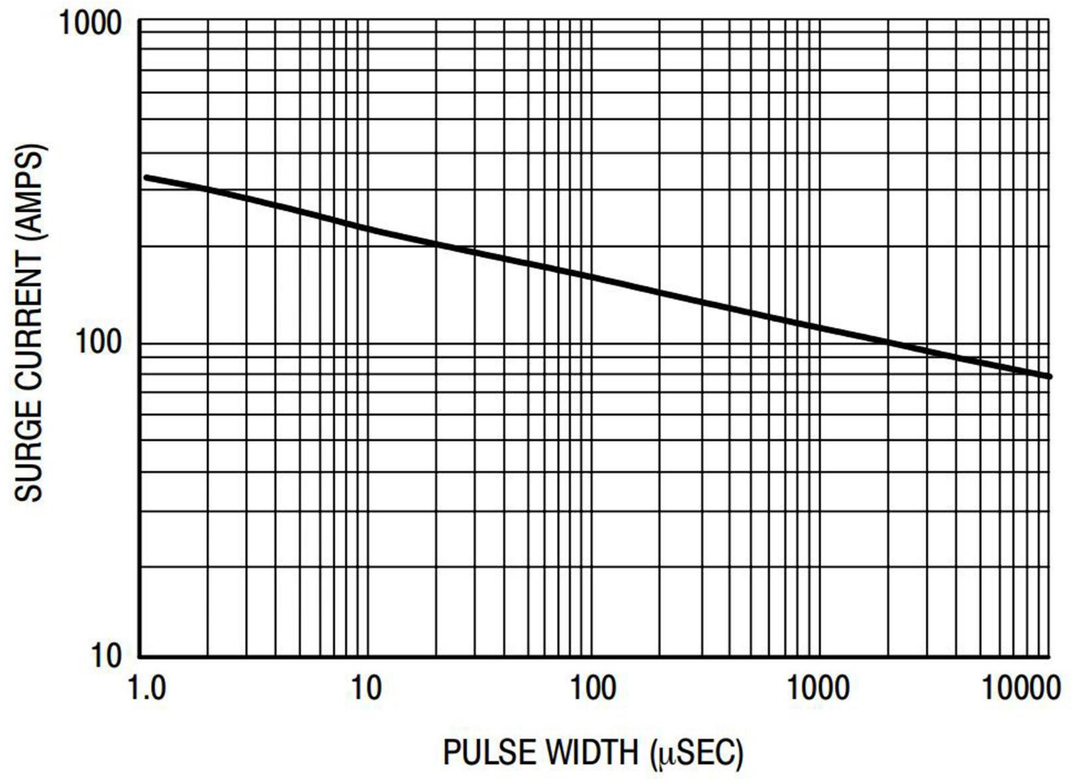

Figure 8. Maximum Non−Repetitive Forward Surge Current

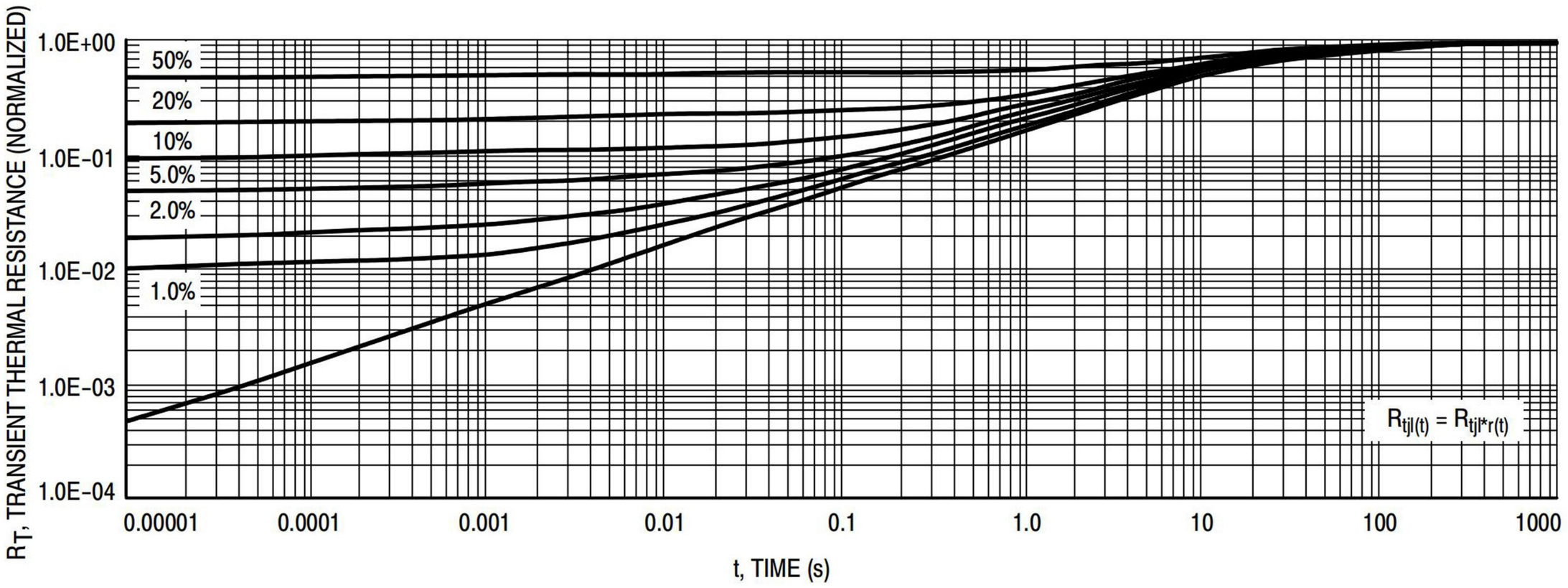

Figure 9. Thermal Response

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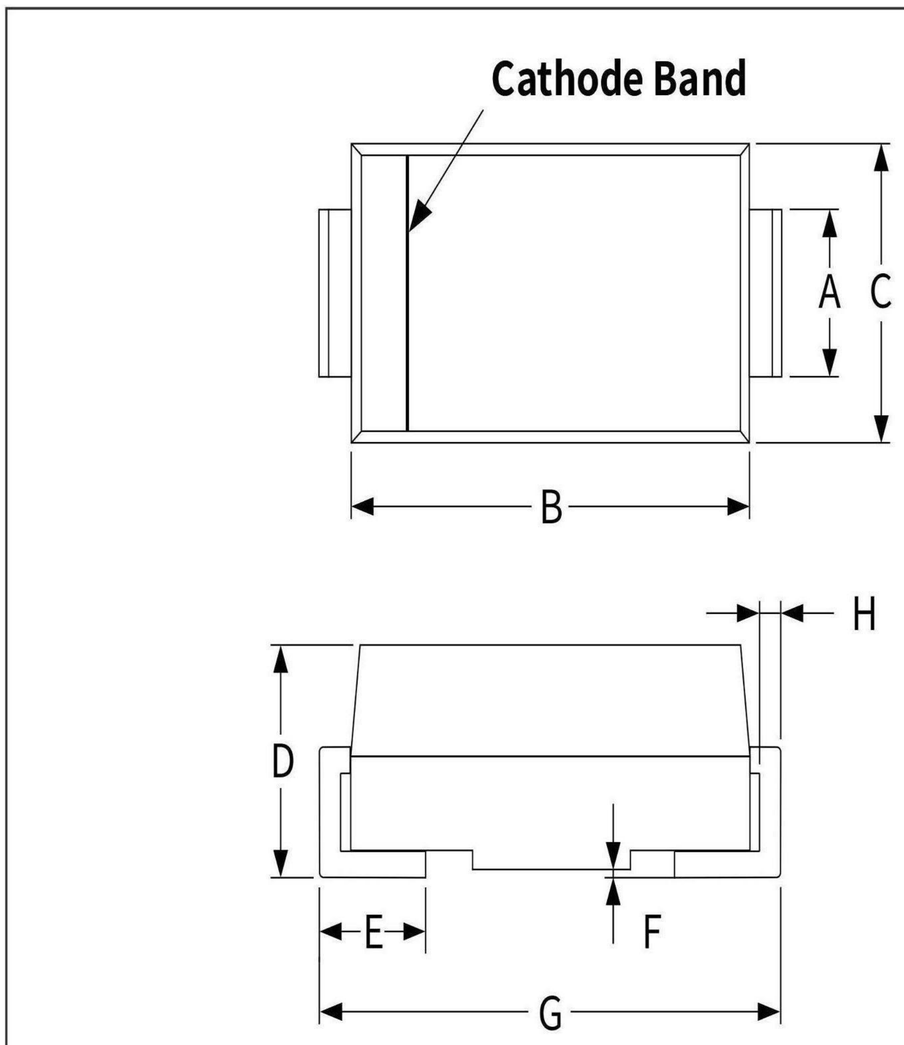
Ordering Information

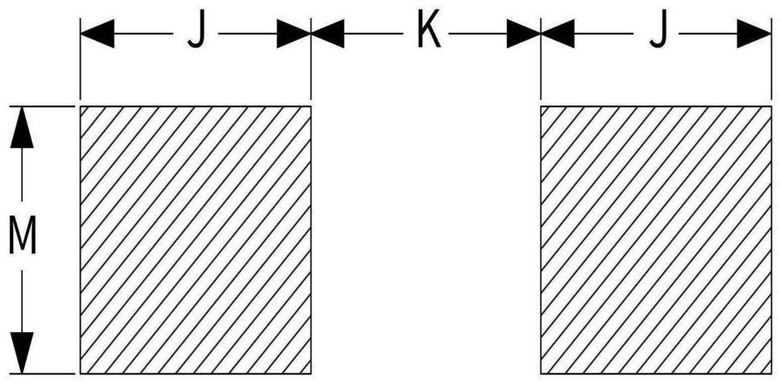
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMB	R3	0.098	2500	5000	25000	13

Package Outline Dimensions (SMB/DO-214AA)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.85	2.21	0.073	0.087
B	4.25	4.85	0.167	0.191
C	3.30	3.94	0.130	0.155
D	2.15	2.65	0.085	0.104
E	0.75	1.52	0.030	0.060
F	-	0.203	-	0.008
G	5.08	5.59	0.200	0.220
H	0.15	0.31	0.006	0.012

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	2.26	-	0.089	-
J	2.10	-	0.085	-
K	-	2.74	-	0.107