Schottky Power Rectifier

Surface Mount Power Package

MBRS1100T3G, MBRS190T3G, SBRS81100N, SBRS8190N

Schottky Power Rectifiers employ the use of the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity protection diodes, in surface mount applications where compact size and weight are critical to the system. These state-of-the-art devices have the following features:

Features

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- High Blocking Voltage – 100 Volts
- 175 °C Operating Junction Temperature
- Guardring for Stress Protection
- HBM Class 3B, CDM(AEC) Class C5
- AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Devices

Mechanical Characteristics

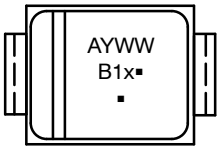
- Case: Epoxy, Molded
- Weight: 95 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260 °C Max. for 10 Seconds
- Shipped in 12 mm Tape and Reel, 2,500 units per reel
- Cathode Polarity Band

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERE 90, 100 VOLTS



SMB
CASE 403A

MARKING DIAGRAM



B1	=	Device Code
x	=	C for MBRS1100T3 9 for MBRS190T3
A	=	Assembly Location**
Y	=	Year
WW	=	Work Week
▪	=	Pb-Free Package

(Note: Microdot may be in either location)

**The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package, the front side assembly code may be blank.

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MBRS190T3 MBRS1100T3	V_{RRM} V_{RWM} V_R	 90 100	V
Average Rectified Forward Current T_L = 163 °C T_L = 148 °C	$I_{F(AV)}$	 1.0 2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	 50	A
Operating Junction Temperature (Note 1)	T_J	−65 to +175	°C
Voltage Rate of Change	dv/dt	10	V/ns

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 (T_L = 25 °C)	$R_{\theta JL}$	22	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (i_F = 1.0 A, T_J = 25°C)	V_F	0.75	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, TJ = 25 °C) (Rated dc Voltage, T_J = 100 °C)	I_R	 0.5 5.0	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. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Marking	Package	Shipping†
MBRS1100T3G	B1C	SMB (Pb-Free)	2500 / Tape & Reel
MBRS190T3G	B19	SMB (Pb-Free)	2500 / Tape & Reel
SBRS81100NT3G*	B1C	SMB (Pb-Free)	2500 / Tape & Reel
SBRS8190NT3G*	B19	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.

* SBRS8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

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TYPICAL ELECTRICAL CHARACTERISTICS

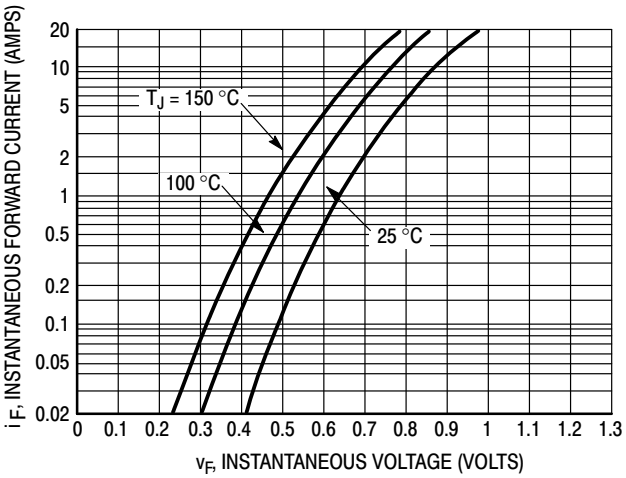


Figure 1. Typical Forward Voltage

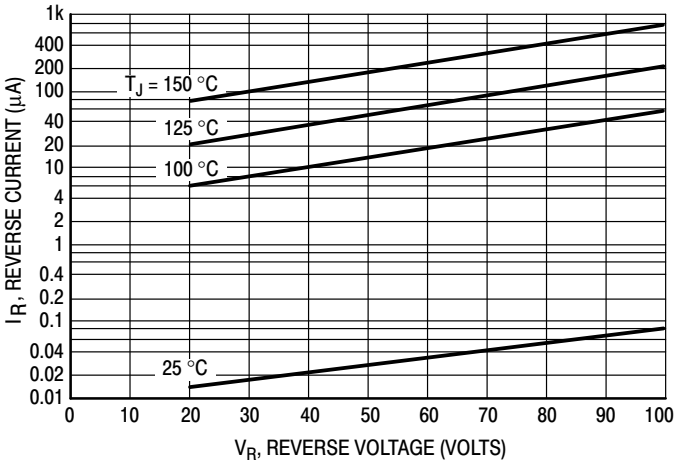


Figure 2. Typical Reverse Current*

*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficient below rated V_R.

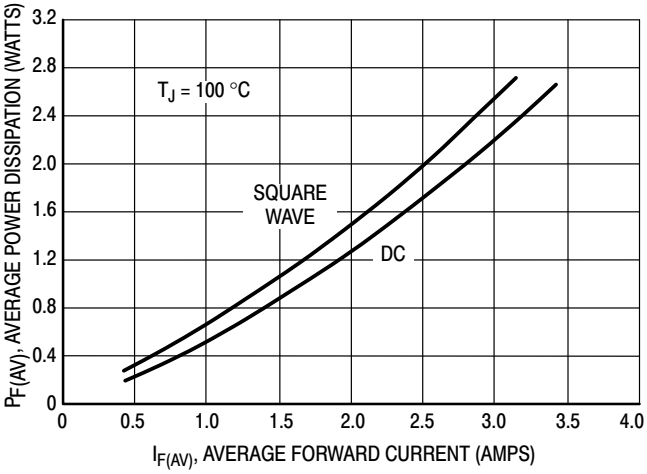


Figure 3. Power Dissipation

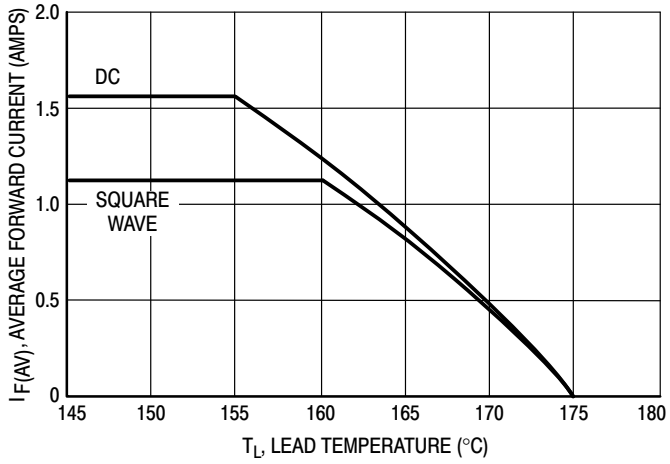


Figure 4. Current Derating, Lead

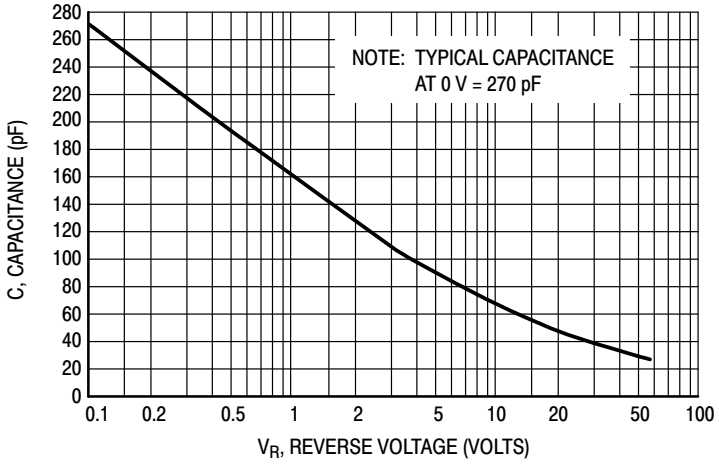


Figure 5. Typical Capacitance

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REVISION HISTORY

Revision	Description of Changes	Date
17	Removal of SBRS81100T3G, SBRS81100T3G-VF01 and SBRS8190T3G device from the datasheet.	12/16/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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CASE 403A−03
ISSUE J

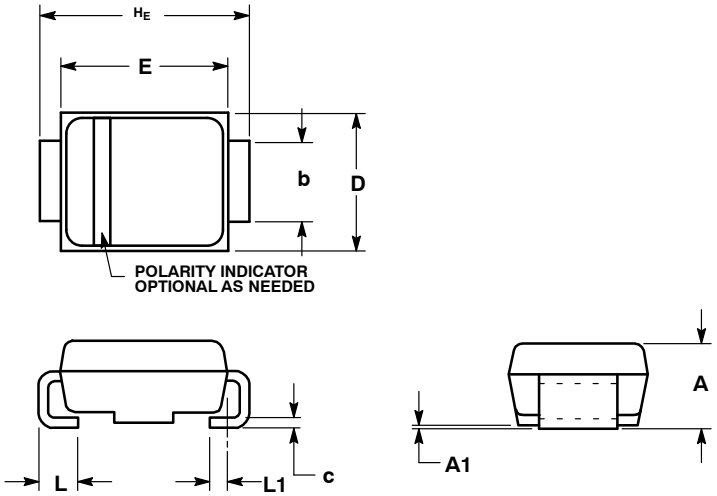
DATE 19 JUL 2012



SCALE 1:1
Polarity Band



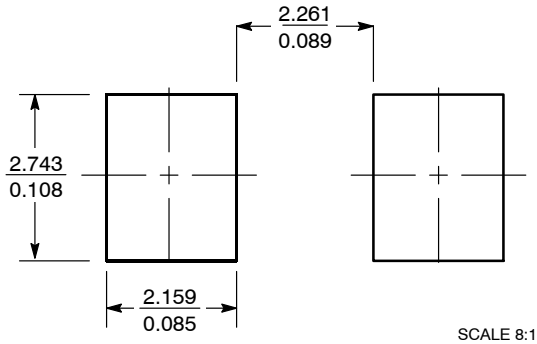
SCALE 1:1
Non−Polarity Band



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L1.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.95	2.30	2.47	0.077	0.091	0.097
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
H_E	5.21	5.44	5.60	0.205	0.214	0.220
L	0.76	1.02	1.60	0.030	0.040	0.063
L1	0.51 REF			0.020 REF		

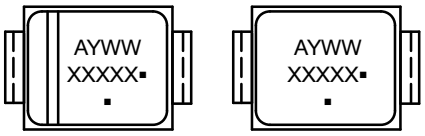
SOLDERING FOOTPRINT*



SCALE 8:1 (mm / inches)

*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



Polarity Band **Non−Polarity Band**

XXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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