MBRS3201P

200 V, 3 A Schottky Fast Soft-Recovery Power Rectifier

SMC Power Surface Mount Package

Features

- Lower Forward Voltage than any Ultrafast Rectifier: $V_F < 0.59$ V at 150°C
- Fast Switching Speed: Reverse Recovery Time (t_{RR}) < 35 ns
- Soft Recovery Characteristics: Softness Factor (t_b/t_a) ≥ 1
- Highly Stable Over Temperature
- These are Pb−Free Packages

Benefits

- Significantly Reduced EMI
- Eliminates the Need of Snubber Circuits
- Low Switching and Heat Losses
- Improved Thermal Management

Applications

- Engine and Convenience Control Systems
- Motor Controls
- Battery Chargers and Switching Power Supplies

Mechanical Characteristics

- Small Compact Surface Mount Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Weight: 217 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- ESD Ratings:
  - Machine Model = A
  - Human Body Model = 1C
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Maximum for 10 Seconds
- Cathode Polarity Band

ON Semiconductor®

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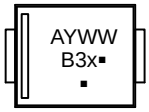
SCHOTTKY RECTIFIER
3 AMPS, 200 VOLTS

SMC
CASE 403AC

MARKING DIAGRAM



B321	= Specific Device Code
A	= Assembly Location
Y	= Year
WW	= Work Week
▪	= Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MBRS3201PT3G	SMC (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 Specification Brochure, BRD8011/D.

MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current (Rated V_R, T_C = 70°C)	$I_{F(AV)}$	3	A
Nonrepetitive Peak Surge Current	I_{FSM}	100	A
Operating Junction Temperature	T_J	−55 to +150	°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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	12	°C/W
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (I_F = 3 A, T_J = 25°C) (I_F = 3 A, T_J = 150°C)	V_F	 0.84 0.59	V
Maximum Instantaneous Reverse Current (Rated V_R) (Rated DC Voltage, T_J = 25°C) (Rated DC Voltage, T_J = 150°C)	I_R	 1.0 5.0	 mA mA
Maximum Reverse Recovery Time (I_F = 1 A, di/dt = 100 A/us, V_R = 30 V)	t_{rr}	 35	ns

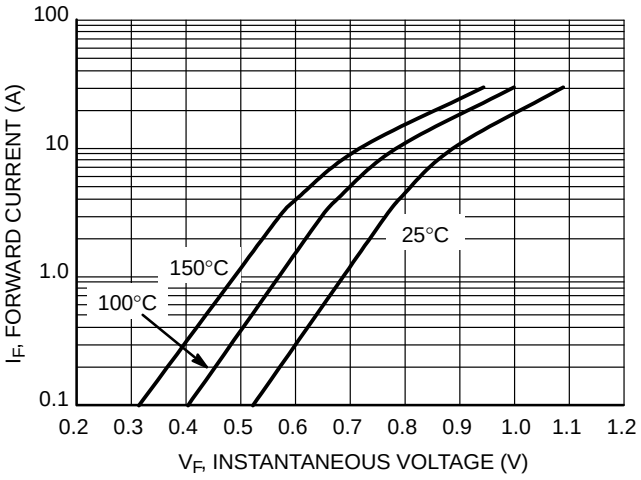


Figure 1. Typical Forward Voltage

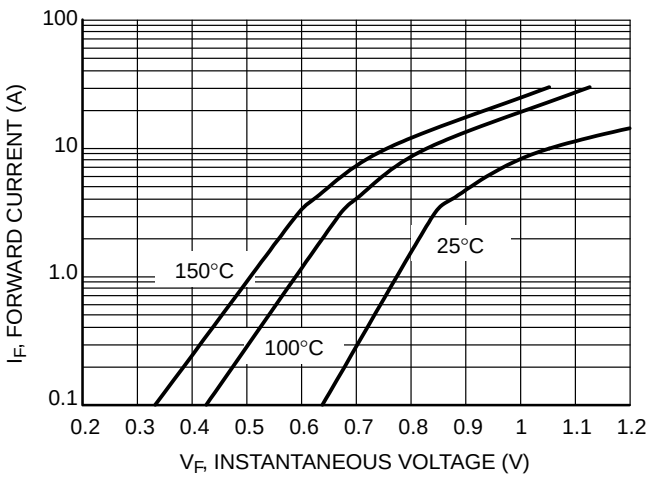


Figure 2. Maximum Forward Voltage

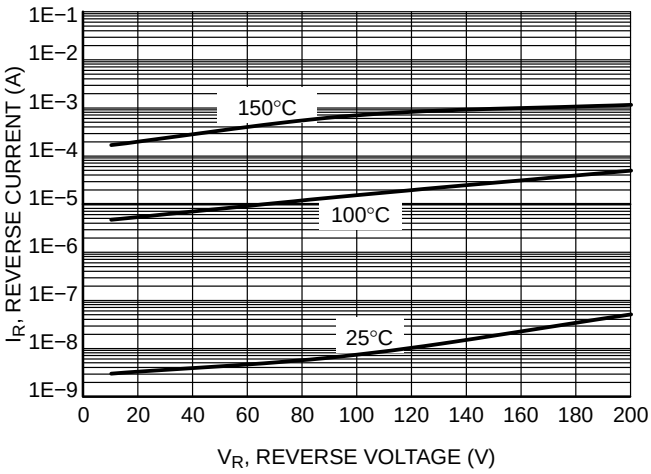


Figure 3. Typical Reverse Current

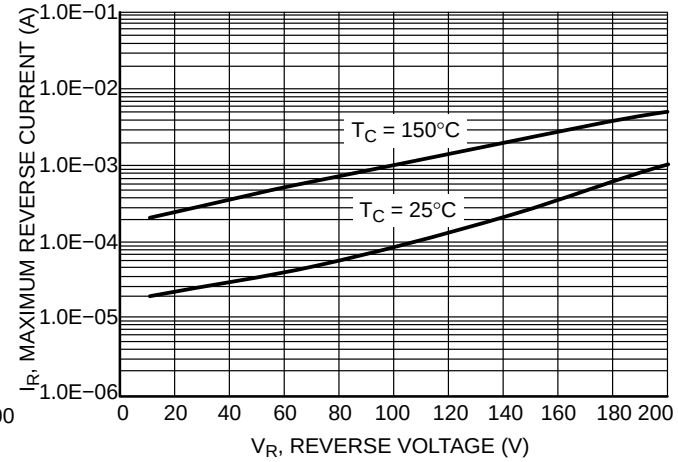


Figure 4. Maximum Reverse Current

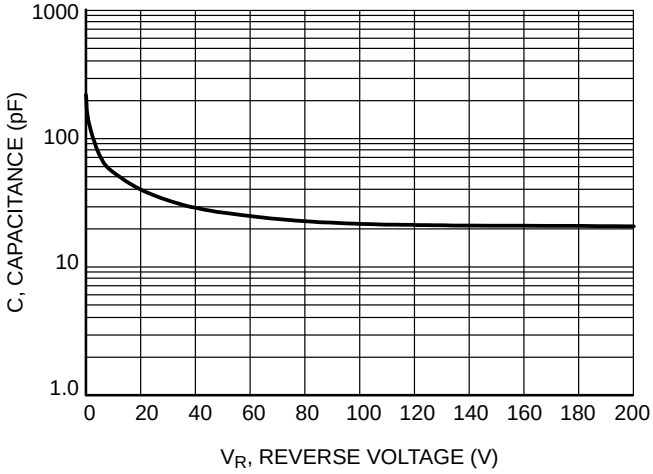


Figure 5. Typical Capacitance

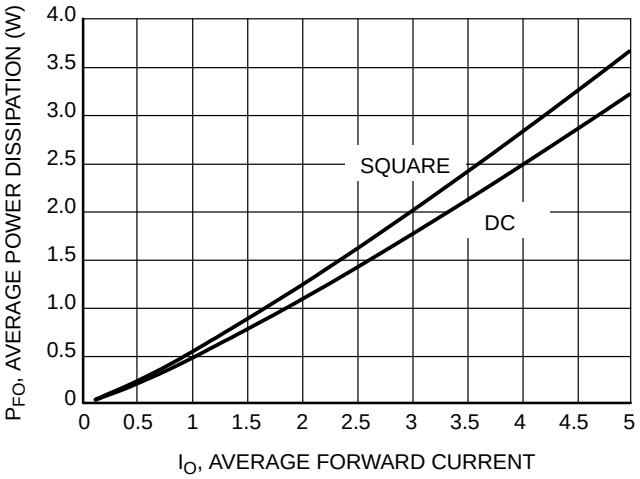


Figure 6. Power Dissipation

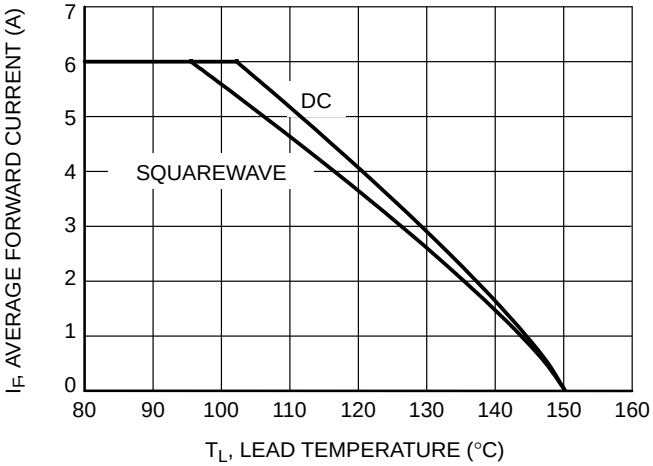
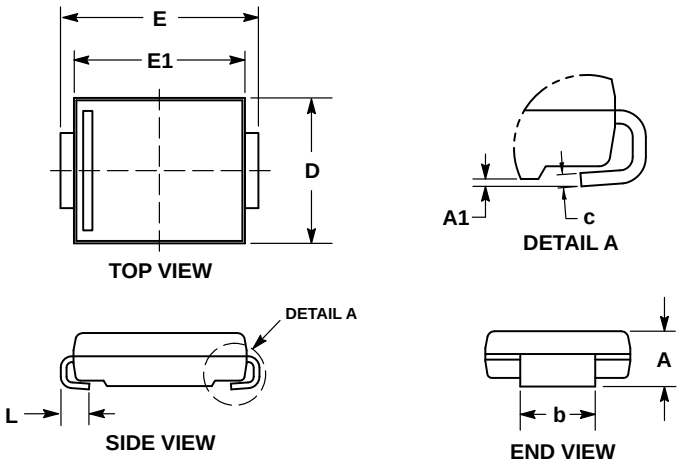


Figure 7. Derating Curve

MBRS3201P

PACKAGE DIMENSIONS

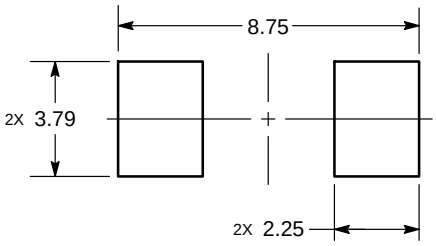
SMC 2−LEAD
CASE 403AC
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.13 PER SIDE.
4. DIMENSIONS D AND E1 TO BE DETERMINED AT DATUM H.
5. DIMENSION b SHALL BE MEASURED WITHIN THE AREA DETERMINED BY DIMENSION L.

	MILLIMETERS	
DIM	MIN	MAX
A	1.95	2.65
A1	0.05	0.20
b	2.90	3.20
c	0.15	0.41
D	5.55	6.25
E	7.75	8.15
E1	6.60	7.15
L	0.75	1.60

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
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