MBRS4201T3

200V, 4A Schottky Fast Soft-Recovery Power Rectifier

SMC Power Surface Mount Package

Features

- Lower Forward Voltage than any Ultrafast Rectifier: $V_F < 0.61 \ V$ at $150 ^{\circ} C$
- Fast Switching Speed: Reverse Recovery Time (t_{RR}) < 35 ns
- Soft Recovery Characteristics: Softness Factor $(t_b/t_a) \ge 1$
- Highly Stable Over Temperature
- Pb-Free Package is Available

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
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Maximum for 10 Seconds
- Polarity: Notch in Plastic Body Indicates Cathode Lead

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 _L = 70°C)	I _{F(AV)}	4	Α
Nonrepetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 MHz)	I _{FSM}	100	Α
Operating Junction Temperature	TJ	-55 to +150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



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SCHOTTKY RECTIFIER 4 AMPS, 200 VOLTS





SMC CASE 403 PLASTIC

MARKING DIAGRAM



B421 = 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 [†]
MBRS4201T3	SMC	2500 / Tape & Reel
MBRS4201T3G	SMC (Pb-Free)	2500 / Tape & Reel

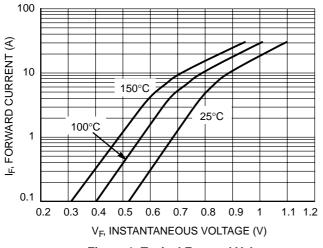
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

THERMAL CHARACTERISTICS

	Characteristic		Value	Unit
Т	Thermal Resistance, Junction-to-Lead		11	°C/W

ELECTRICAL CHARACTERISTICS

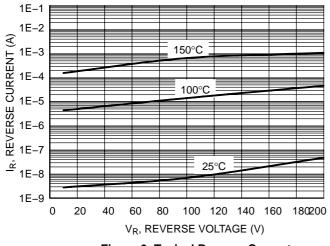
Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage $ (I_F=4~A,~T_J=25^\circ C) \\ (I_F=4~A,~T_J=150^\circ C) $	V _F	0.86 0.61	V
Maximum Instantaneous Reverse Current (Rated V_R) (Rated DC Voltage, $T_J = 25^{\circ}C$) (Rated DC Voltage, $T_J = 150^{\circ}C$)	I _R	1.0 5.0	mA mA
Maximum Reverse Recovery Time $(I_F=1.0~A,~di/dt=100~A/\mu s,~V_R=30~V)$	t _{rr}	35	ns



100 (Y) 100°C 150°C 100°C 25°C 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 V_F, INSTANTANEOUS VOLTAGE (V)

Figure 1. Typical Forward Voltage

Figure 2. Maximum Forward Voltage



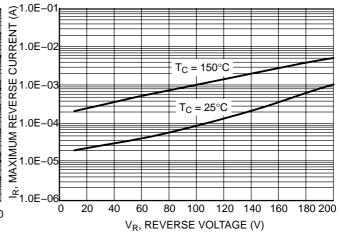


Figure 3. Typical Reverse Current

Figure 4. Maximum Reverse Current

MBRS4201T3

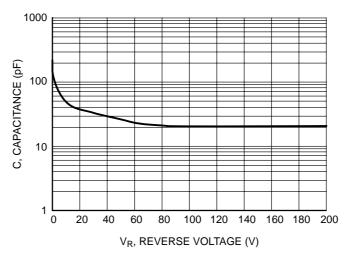


Figure 5. Typical Capacitance

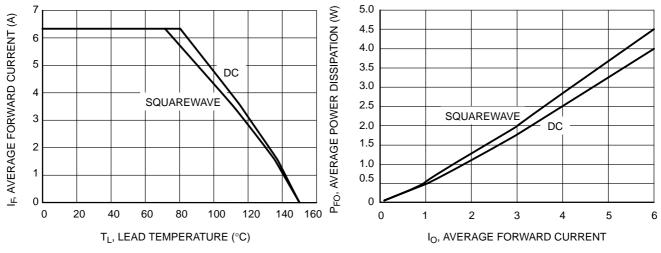


Figure 6. Derating Curve

Figure 7. Power Dissipation

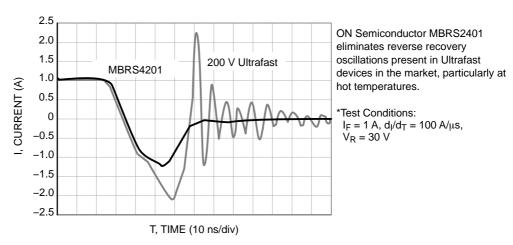
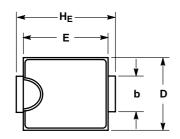


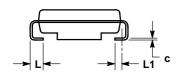
Figure 8. Reverse Recovery Time* (t_{RR}) at 125°C

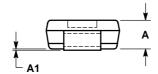
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PACKAGE DIMENSIONS

SMC CASE 403-03 **ISSUE E**





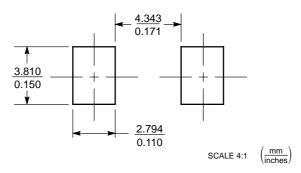


NOTES

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 CONTROLLING DIMENSION: INCH.
- D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.
- 4. 403-01 THRU -02 OBSOLETE, NEW STANDARD 403-03.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	1.90	2.13	2.41	0.075	0.084	0.095
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	2.92	3.00	3.07	0.115	0.118	0.121
С	0.15	0.23	0.30	0.006	0.009	0.012
D	5.59	5.84	6.10	0.220	0.230	0.240
E	6.60	6.86	7.11	0.260	0.270	0.280
HE	7.75	7.94	8.13	0.305	0.313	0.320
L	0.76	1.02	1.27	0.030	0.040	0.050
L1		0.51 REF		0.020 REF		

SOLDERING FOOTPRINT*



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

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