Switch-mode Schottky Power Rectifier

The Switch-mode Power Rectifier employs 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 use as rectifiers in very low-voltage, high-frequency switching power supplies, free wheeling diodes and polarity protection diodes.

Features

- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop
- Matched Dual Die Construction
- High Junction Temperature Capability
- High dv/dt Capability
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guardring for Stress Protection
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Electrically Isolated. No Isolation Hardware Required.
- These are Pb–Free Devices

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



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SCHOTTKY BARRIER RECTIFIER 20 AMPERES, 100 VOLTS





ORDERING AND MARKING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

MAXIMUM RATINGS (Per Leg)

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V _{RRM} V _{RWM} V _R	100	V
Average Rectified Forward Current (Rated V_R), $T_C = 133^{\circ}C$	Total Device	I _{F(AV)}	10 20	A
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz), T _C = 133°C		I _{FRM}	20	A
Non-repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I _{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 µs, 1.0 kHz)		I _{RRM}	0.5	А
Operating Junction and Storage Temperature Range (Note 1)		T _J , T _{stg}	– 65 to +175	°C
Voltage Rate of Change (Rated V _R)		dv/dt	10000	V/µs
RMS Isolation Voltage (t = 0.3 second, R.H. \leq 30%, T _A = 25°C) (Note 2)		V _{iso1}	4500	V

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 (Per Leg)

Rating	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Case	$R_{ extsf{ heta}JC}$	3.5	°C/W
Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	TL	260	°C

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 3)	٧ _F		V
(i _F = 10 Amp, T _C = 25°C)		0.85	
(i _F = 10 Amp, T _C = 125°C)		0.75	
$(i_F = 20 \text{ Amp}, T_C = 25^{\circ}C)$		0.95	
$(i_F = 20 \text{ Amp}, T_C = 125^{\circ}C)$		0.85	
Maximum Instantaneous Reverse Current (Note 3)	i _R		mA
(Rated DC Voltage, $T_C = 25^{\circ}C$)		0.15	
(Rated DC Voltage, $T_C = 125^{\circ}C$)		150	

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

2. Proper strike and creepage distance must be provided.

3. Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.



Figure 1. Typical Forward Voltage Per Diode

Figure 2. Typical Reverse Current Per Diode

MARKING DIAGRAMS



B20100	= Device Code	
A	= Assembly Location	
Υ	= Year	
WW	= Work Week	
G	= Pb-Free Package	

AKA = Polarity Designator

ORDERING INFORMATION

Device	Package	Shipping [†]
MBRF20100CTG	TO–220 (Pb–Free)	50 Units / Rail

+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.

PACKAGE DIMENSIONS

TO-220 FULLPACK, 3-LEAD CASE 221AH ISSUE F



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