MBRD5H100, NBRD5H100

This series of Power Rectifiers employs the Schottky Barrier principle in a large metal to silicon power diode. State of the art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for use in low voltage, high frequency switching power supplies, free wheeling diodes, and polarity protection diodes.

Features

- Guardring for Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V 0 @ 0.125 in
- Short Heat Sink Tab Manufactured Not Sheared!
- NBRD Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC Q101 Qualified and PPAP Capable
- These Devices are Pb Free and are RoHS Compliant*

Mechanical Characteristics:

- Case: Epoxy, Molded, Epoxy Meets UL 94 V 0
- Weight: 0.4 grams (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
- Device Meets MSL1 Requirements
- ESD Ratings:
 - Machine Model = C (> 400 V)
 - Human Body Model = 3B (> 8000 V)

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SCHOTTKY BARRIER RECTIFIER 5 AMPERES, 100 VOLTS

*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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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	Vrrm V _{rwm} Vr	100	V
Average Rectified Forward Current $T_{C} = 171^{\circ}C$	I _{F(AV)}	5	A
Peak Repetitive Forward Current (Square Wave, Duty = 0.5) T _C = 171°C	I _{FRM}	10	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	105	A
Operating Junction and Storage Temperature Range (Note 1)	T _J , T _{stg}	-65 to +175	°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. 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-Case (Note 2) Junction-to-Ambient (Note 2)	R _{θJC} R _{θJA}	1.6 95.8	°C/W

2. When mounted using minimum recommended pad size on FR-4 board.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) ($I_F = 5 \text{ A}, T_J = 25^{\circ}\text{C}$) ($I_F = 5 \text{ A}, T_J = 125^{\circ}\text{C}$)	V _F	0.71 0.60	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_J = 125^{\circ}C$) (Rated dc Voltage, $T_J = 25^{\circ}C$)	I _R	4.5 3.5	mA μA

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

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TYPICAL CHARACTERISTICS





DATE 31 MAY 2023

STYLE 1:	STYLE 2:	STYLE 3:	STYLE 4:	STYLE 5:
PIN 1. BASE	PIN 1. GATE	PIN 1. ANOE	DE PIN 1. CATHODE	PIN 1. GATE
2. COLLEC	CTOR 2. DRAI	N 2. CATH	IODE 2. ANODE	2. ANODE
3. EMITTE	R 3. SOUF	RCE 3. ANOE	DE 3. GATE	3. CATHODE
4. COLLEC	CTOR 4. DRAI	N 4. CATH	IODE 4. ANODE	4. ANODE
STYLE 6:	STYLE 7:	STYLE 8:	STYLE 9:	STYLE 10:
PIN 1. MT1	PIN 1. GATE	PIN 1. N/C	PIN 1. ANODE	PIN 1. CATHODE
2. MT2	2. COLLECTOR	2. CATHODE	2. CATHODE	2. ANODE
3. GATE	3. EMITTER	3. ANODE	3. RESISTOR ADJUST	3. CATHODE
4 MT2	4. COLLECTOR	4. CATHODE	4. CATHODE	4 ANODE

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