HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
150	5	0.92	0.008

Features

- Low Forward Voltage: 0.92V @ +25°C
- High Surge Current Capacity
- +175°C Operating Junction Temperature
- 5A Total
- Guard-Ring for Stress Protection
- Pb-Free and Halogen-Free Packages are available
- The Plastic Material Carries UL Recognition 94V-0
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description

High-voltage Schottky rectifier suited for switch mode power supplies and other power converters. This device is intended for use in medium-voltage operation, and particularly, in high-frequency circuits where low switching losses and low noise are required.

The MBR5H150 is available in standard DO-27 packages.

Applications

- Power Supply-Output Rectification
- Power Management
- Instrumentation

Mechanical Data

- Case: DO-27
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight (Approximately): 1.2 grams

DO-27

Notes: 1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, "Green" and Lead-free.

Pin Assignments

(Top View)

DO-27

Ordering Information (Notes 3)

Package	Part Number	Marking ID	Packing	Status	Replacement
DO-27	MBR5H150VPTR-E1	515VP	500 Pieces/Ammo	NRND	—

Note: 3: NRND: Not recommended for new design.

Marking Information

(1) DO-27

(Top View)

First Line: Logo and Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
Second Line: Marking ID
(See Ordering Information)

Maximum Ratings (Per Diode Leg) (Note 4)

Characteristic	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	150	V
Average Rectified Forward Current (Rated V_R, T_C = +150°C)	$I_{F(AV)}$	5	A
Non Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half Wave, Single Phase, 60Hz)	I_{FSM}	125	A
Operating Junction Temperature Range (Note 5)	T_J	+175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10000	V/µs
ESD (Machine Model = C)	—	>400	V
ESD (Human Body Model = 3B)	—	>8000	V

Notes: 4. Stresses greater than those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions* is not implied. Exposure to *Absolute Maximum Ratings* for extended periods may affect device reliability.

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

Thermal Characteristics

Characteristic	Symbol	Rating	Unit
Maximum Thermal Resistance (Junction to Case) (Note 6)	$R_{\theta JC}$	10	°C/W
Maximum Thermal Resistance (Junction to Ambient) (Note 6)	$R_{\theta JA}$	40	

Note: 6. Device mounted on heat sink, with minimum recommended pad layout per http://www.diodes.com/package-outlines.html.

Electrical Characteristics

Characteristic	Symbol	Rating	Unit	Test Condition
Maximum Instantaneous Forward Voltage Drop (Note7)	V_F	0.92	V	I_F = 5A, T_C = +25°C
Maximum Instantaneous Reverse Current (Note 7)	I_R	8.0	µA	Rated DC Voltage, T_C = +25°C
		50.0	mA	Rated DC Voltage, T_C = +150°C

Note: 7. Short duration pulse test used to minimize self-heating effect, Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2.0%.

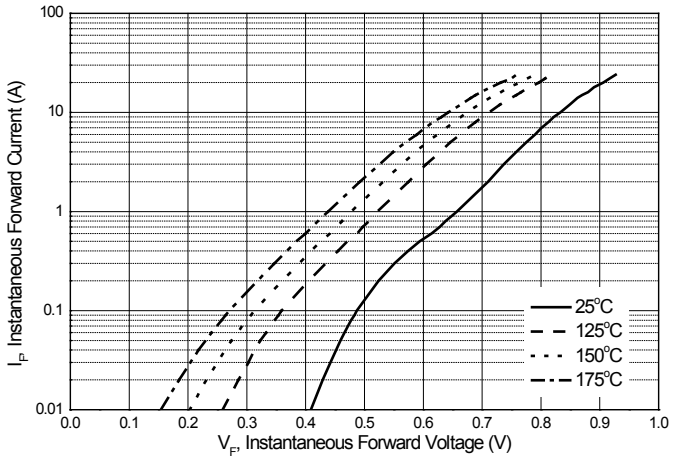


Figure 1. Typical Forward Characteristics

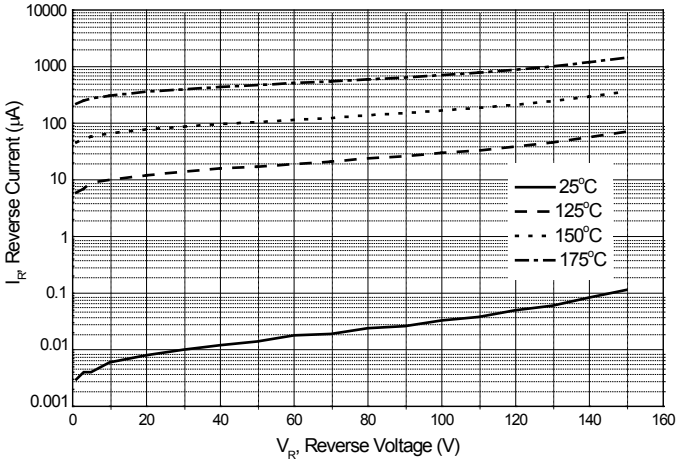


Figure 2. Typical Reverse Characteristics

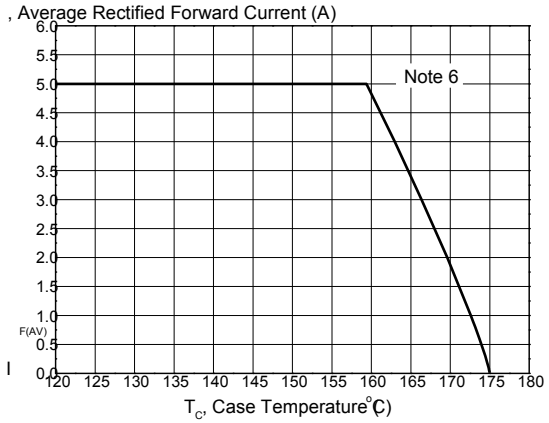


Figure 3. Average Rectified Forward Current vs Case Temperature

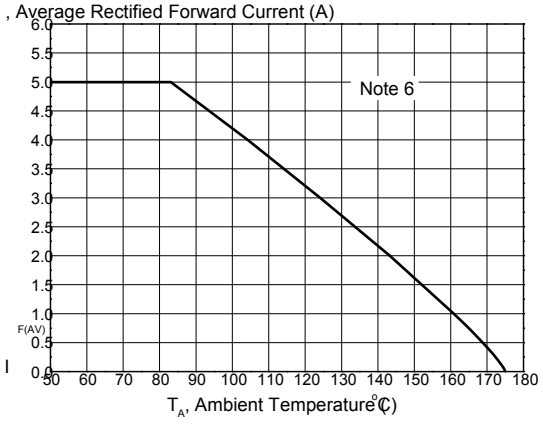


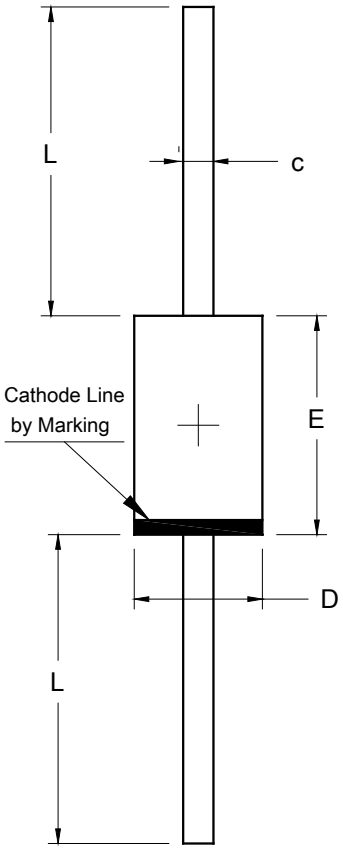
Figure 4. Average Rectified Forward Current vs Ambient Temperature

Package Outline Dimensions (All dimensions in mm(inch).)

Please see http://www.diodes.com/package-outlines.html for the latest version.

Package Type: DO-27

DO-27



DO-27		
Dim	**Min**	**Max**
cØ	1.200	1.300
DØ	5.000	5.600
E	8.500	9.500
L	25.400	--
All Dimensions in mm		

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