



**THE DATASHEET OF  
MBR3100VRTR-G1**



## Product Summary

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (MAX) (mA) @ +25°C
100	3	0.85	0.5

## Description

The MBR3100 is a 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 MBR3100 is available in standard DO-214AC package.

## Applications

- Power Supply-Output Rectification
- Power Management
- Instrumentation

## Features

- Low Forward Voltage: 0.85V at +25°C
- High Surge Current Capacity
- Operating Junction Temperature: +150°C
- 3A Total
- Guard-Ring for Stress Protection
- Available in "Green" Package: DO-214AC
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **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](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

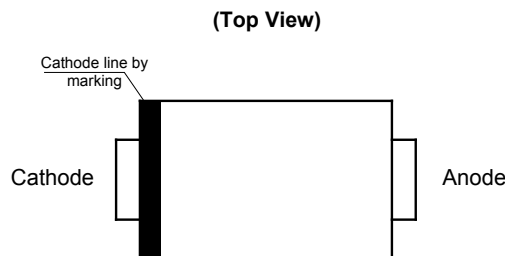
- Case: DO-214AC
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Weight (Approximately): 1.9 grams



DO-214AC

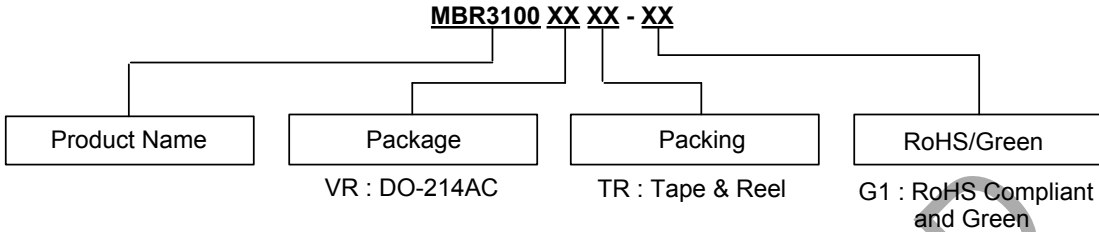
- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Pin Assignments



DO-214AC

**Ordering Information**

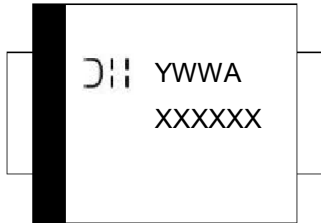


Package	Part Number	Marking ID	Packing
DO-214AC	MBR3100VRTR-G1	3100VR	7500 Pieces/Tape & Reel

**Marking Information**

(1) DO-214AC

(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)

NOT FOR FINAL DESIGN

**Maximum Ratings** (Note 4)

Characteristic	Symbol	Rating	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 $V_R$ , $T_C = +141^\circ\text{C}$ )	$I_{F(AV)}$	3	A
Non Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half Wave, Single Phase, 60Hz)	$I_{FSM}$	80	A
Operating Junction Temperature Range (Note 5)	$T_J$	-65 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +150	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10000	V/ $\mu\text{s}$
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
Thermal Resistance (Junction to Lead) (Note 6)	$R_{\theta JL}$	DO-214AC	20
Thermal Resistance (Junction to Ambient) (Note 6)	$R_{\theta JA}$	DO-214AC	70

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 (Note 7)	$V_{F(MAX)}$	0.85	V	$I_F = 3\text{A}$ , $T_C = +25^\circ\text{C}$
		0.7		$I_F = 3\text{A}$ , $T_C = +125^\circ\text{C}$
Maximum Instantaneous Reverse Current (Note 7)	$I_{R(MAX)}$	0.5	mA	Rated DC Voltage, $T_C = +25^\circ\text{C}$
		2.0		Rated DC Voltage, $T_C = +125^\circ\text{C}$

Note: 7. Short duration pulse test used to minimize self-heating effect, Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

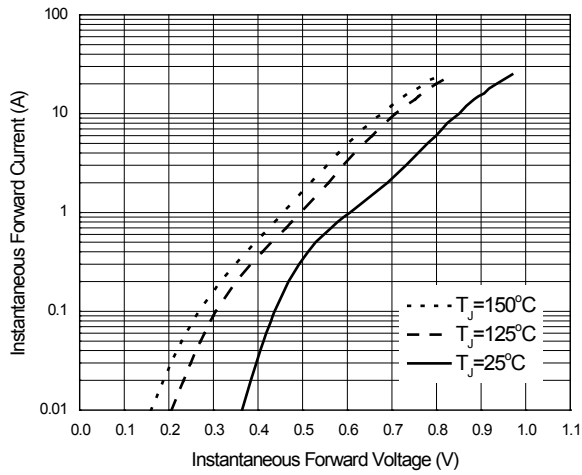


Figure 1. Typical Forward Characteristics

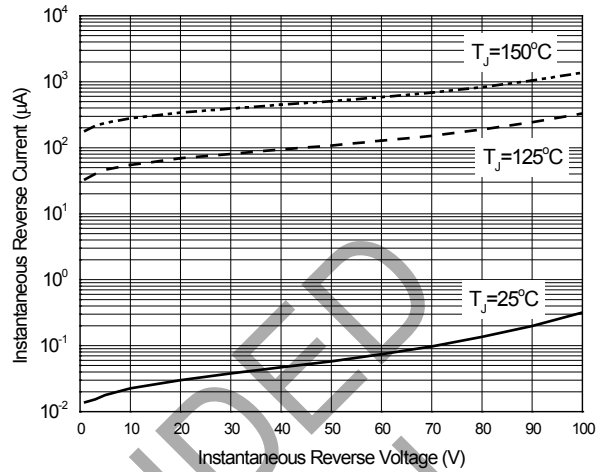


Figure 2. Typical Reverse Characteristics

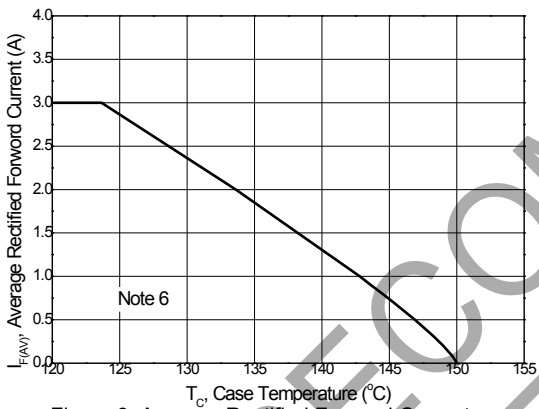


Figure 3. Average Rectified Forward Current vs. Case Temperature

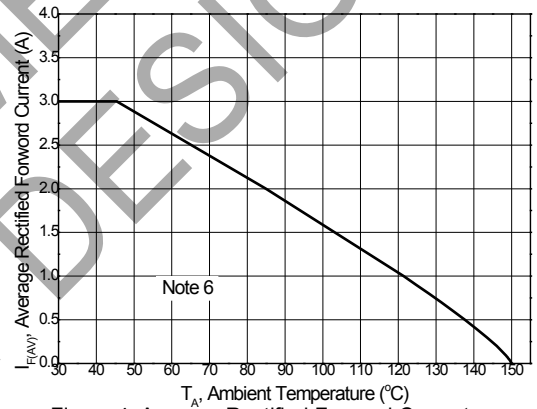
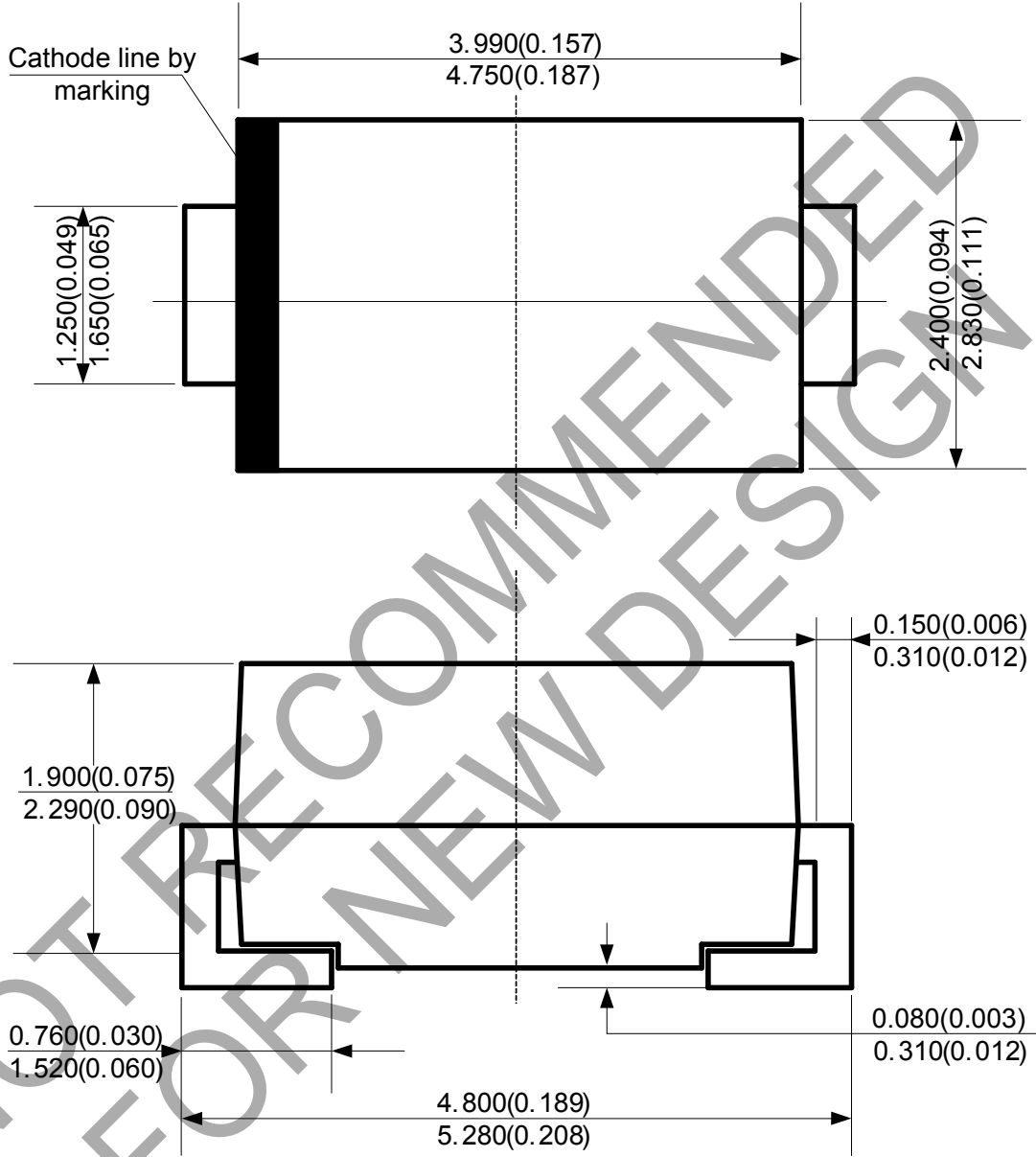


Figure 4. Average Rectified Forward Current vs. Ambient Temperature

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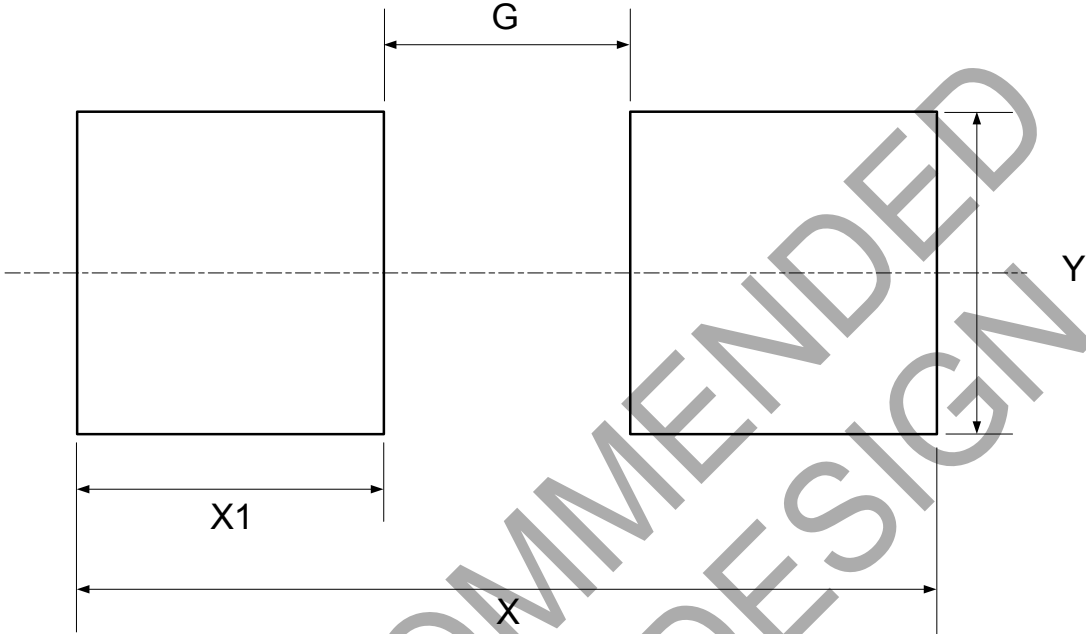
**Package Outline Dimensions** (All dimensions in mm(inch).)

(1) Package Type: DO-214AC



**Suggested Pad Layout**

(1) Package Type: DO-214AC



Dimensions	Y (mm)/(inch)	X1 (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)
Value	2.100/0.083	2.000/0.079	1.600/0.063	5.600/0.220

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