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USE SBR2U150SA

MBR2150

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	2	0.85	0.1

Description

The MBR2150 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 operations—particularly high-frequency circuits where low-switching losses and low noise are required.

The MBR2150 is available in standard DO-214AC and DO-15 packages.

Features

- Low Forward Voltage: 0.85V at +25°C
- High Surge Current Capacity
- Operating Junction Temperature: +150°C
- Guard−Ring for Stress Protection
- 2A Total
- Lead-Free Packages Available
- DO-15
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Available in “Green” Packages: 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 or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Applications

- Power Supply-Output Rectification
- Power Management
- Instrumentation

Mechanical Data

- Case: DO-214AC and DO-15
- 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:
  - DO-15—0.39 grams (Approximately)
  - DO-214AC—0.062 grams (Approximately)

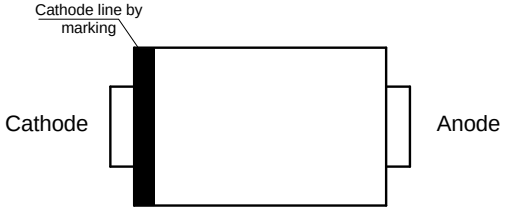
DO-214AC

DO-15

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.

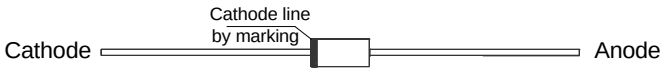
Pin Assignments

(Top View)



DO-214AC

(Top View)



DO-15

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Ordering Information (Note 4)

MBR2150 XX XX - XX

Product Name	Package	Packing	E1/G1
	VR : DO-214AC VG : DO-15	Blank : Bulk TR : Ammo or Tape & Reel	E1 : RoHS Compliant G1 : RoHS Compliant and Green

Package	Part Number	Marking ID	Packing	Status	Replacement
DO-214AC	MBR2150VRTR-G1	2150VR	7500/Tape & Reel	NRND	SBR2U150SA
DO-15	MBR2150VGTR-E1	2150VG	1500/Ammo	NRND	—

Note: 4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

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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)

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Marking Information (continued)

(2) DO-15

(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)

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Absolute Maximum Ratings (Note 5)

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 = TBD)	$I_{F(AV)}$	2	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half-Wave, Single-Phase, 60Hz)	I_{FSM}	75	A
Operating Junction Temperature Range (Note 6)	T_J	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/µs
ESD (Machine Model = C)	—	400	V
ESD (Human Body Model = 3B)	—	8000	V

Notes: 5. Stresses greater than those listed under *Absolute Maximum Ratings* can 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 can affect device reliability.

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

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Thermal Characteristics

Characteristic	Symbol	Rating		Unit
Maximum Thermal Resistance (Junction to Lead) (Note 7)	$R_{\theta JL}$	DO-214AC	23	°C/W
		DO-15		
Maximum Thermal Resistance (Junction to Ambient) (Note 7)	$R_{\theta JA}$	DO-214AC	90	
		DO-15	80	

Note: 7. 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 8)	V_F (MAX)	0.85	V	I_F = 2A, T_C = +25°C
		0.67		I_F = 2A, T_C = +125°C
Maximum Instantaneous Reverse Current (Note 8)	I_R (MAX)	0.1	mA	Rated DC Voltage, T_C = +25°C
		2.0		Rated DC Voltage, T_C = +125°C

Note: 8. Short-duration pulse test used to minimize self-heating effect. Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2.0%.

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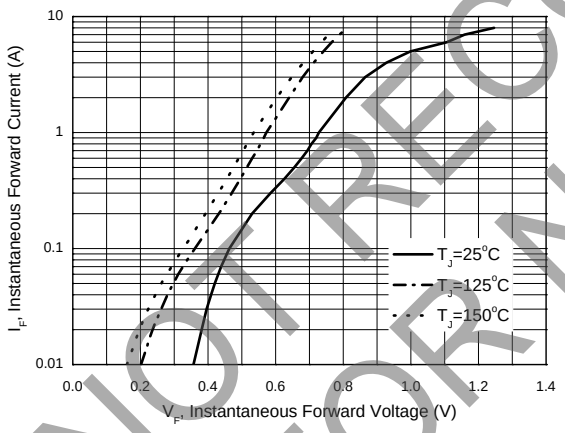

Figure 1. Typical Forward Characteristics

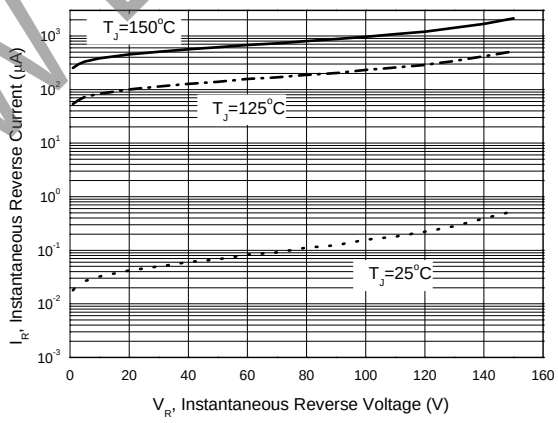

Figure 2. Typical Reverse Characteristics

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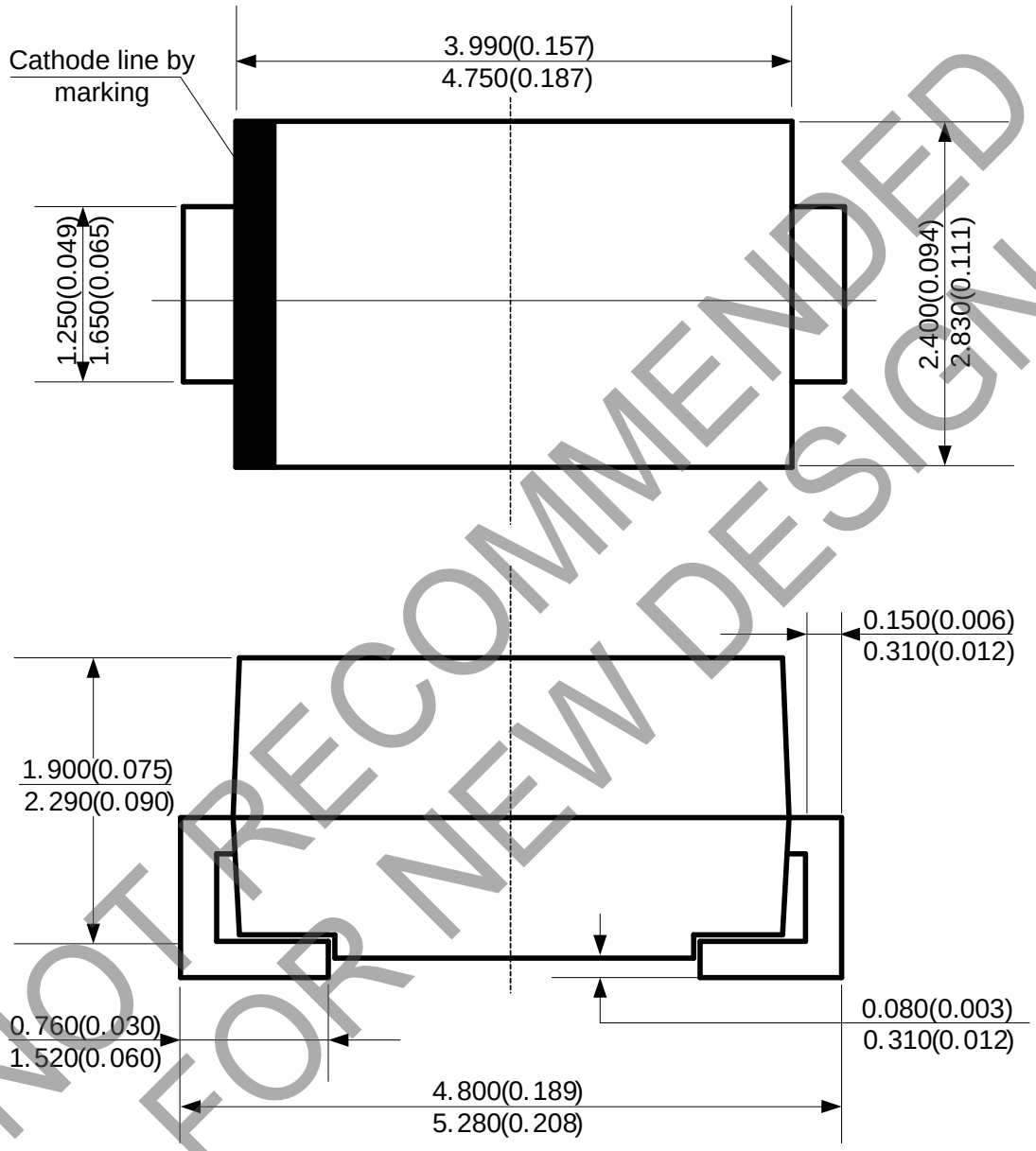
Package Outline Dimensions (All dimensions in mm(inch))

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

(1) Package Type: DO-214AC



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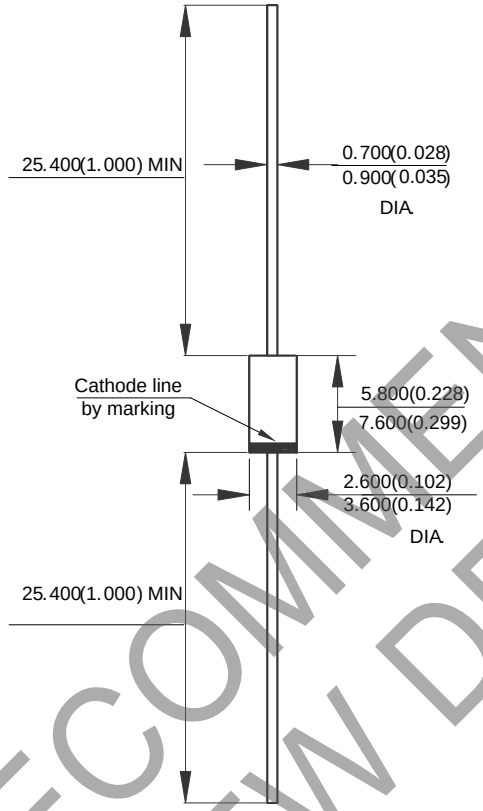
Package Outline Dimensions (continued) (All dimensions in mm(inch))

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

(2) Package Type: DO-15



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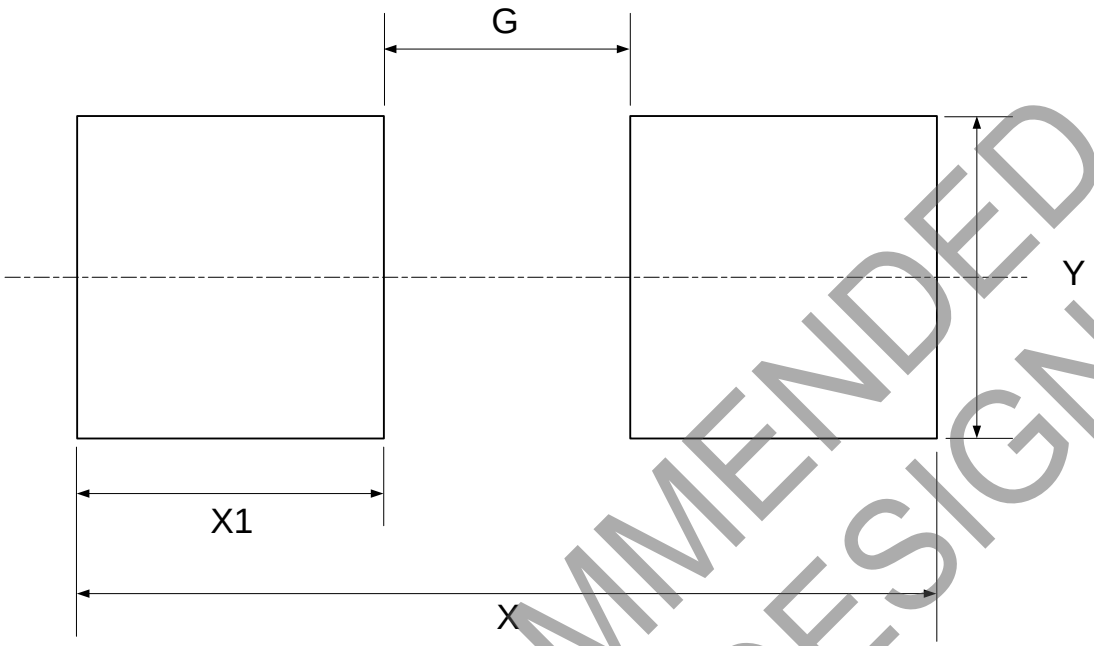
Suggested Pad Layout

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

(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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