

Product Summary

V_{RRM} (V)	I_O (A)	V_F (MAX) (V) @ +25°C	I_R (MAX) (mA) @ +25°C
40	5	0.55	0.1

Description

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

The MBR540 is available in standard DO-214AA package.

Applications

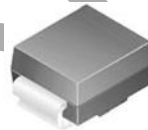
- Power Supply Output Rectification
- Power Management
- Instrumentation

Features

- Low Forward Voltage: 0.55V@+25°C
- High Surge Current Capacity
- +150°C Operating Junction Temperature
- Guard-ring for Stress Protection
- 5A Total
- Pb-free Package
- Available in "Green" Packages: DO-214AA
 - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
 - **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: DO-214AA
- 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): 0.11 Grams

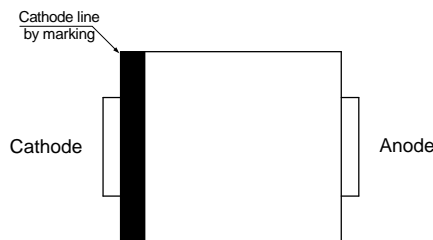


DO-214AA

- 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.

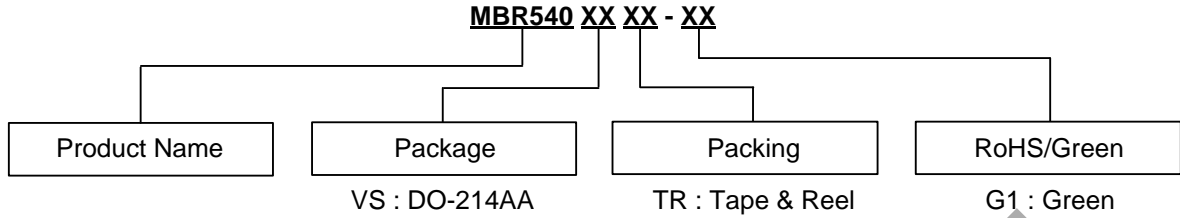
Pin Assignments

(Top View)



DO-214AA

Ordering Information

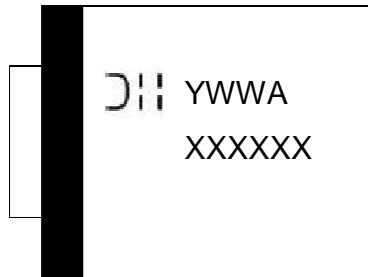


Package	Part Number	Marking ID	Packing
DO-214AA	MBR540VSTR-G1	540VSG	3000 Pieces/Tape & Reel

Marking Information

(1) DO-214AA

(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	V_{RRM}	40	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
Average Rectified Forward Current (Rated V_R , $T_C = +132^\circ\text{C}$)	$I_{F(AV)}$	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	-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/ μs

- Notes:
- 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.
 - 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 Case) (Note 6)	$R\theta_{JC}$	6	°C/W
Maximum Thermal Resistance (Junction to Ambient) (Note 6)	$R\theta_{JA}$	60	

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	0.55	V	$I_F = 5A, T_C = +25^\circ C$
		0.45		$I_F = 5A, T_C = +125^\circ C$
Maximum Instantaneous Reverse Current (Note 7)	I_R	0.1	mA	Rated DC Voltage, $T_C = +25^\circ C$
		20		Rated DC Voltage, $T_C = +125^\circ C$

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

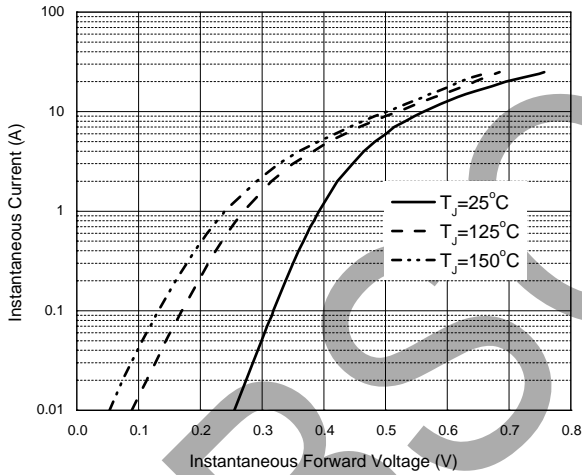


Figure 1. Typical Forward Characteristics

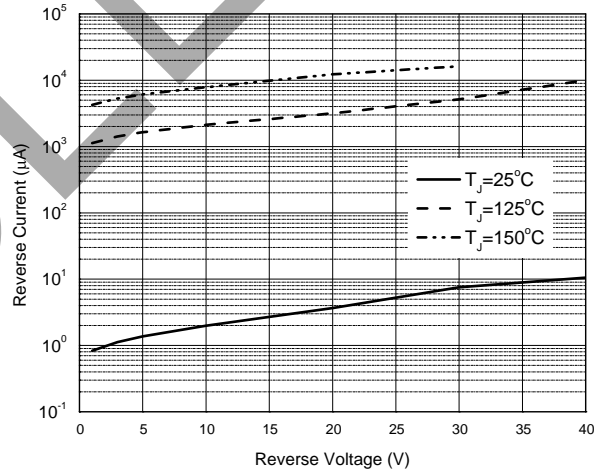


Figure 2. Typical Reverse Characteristics

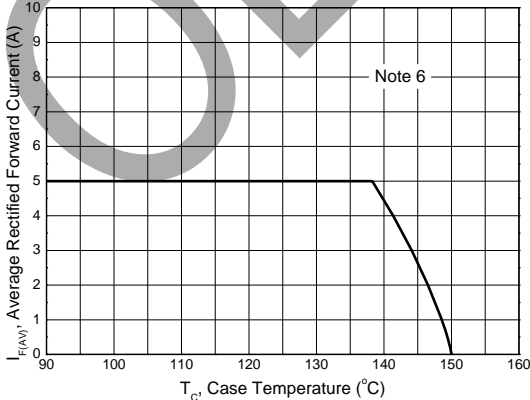
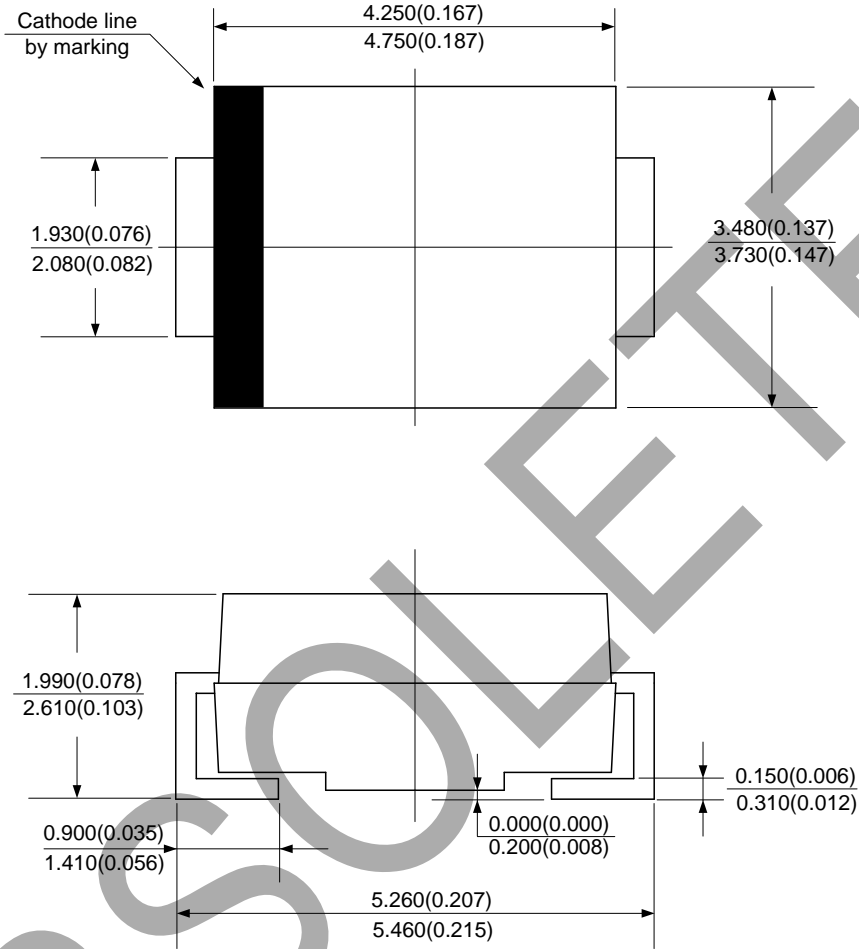


Figure 3. Average Rectified Forward Current vs. Case Temperature

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

(1) Package Type: DO-214AA

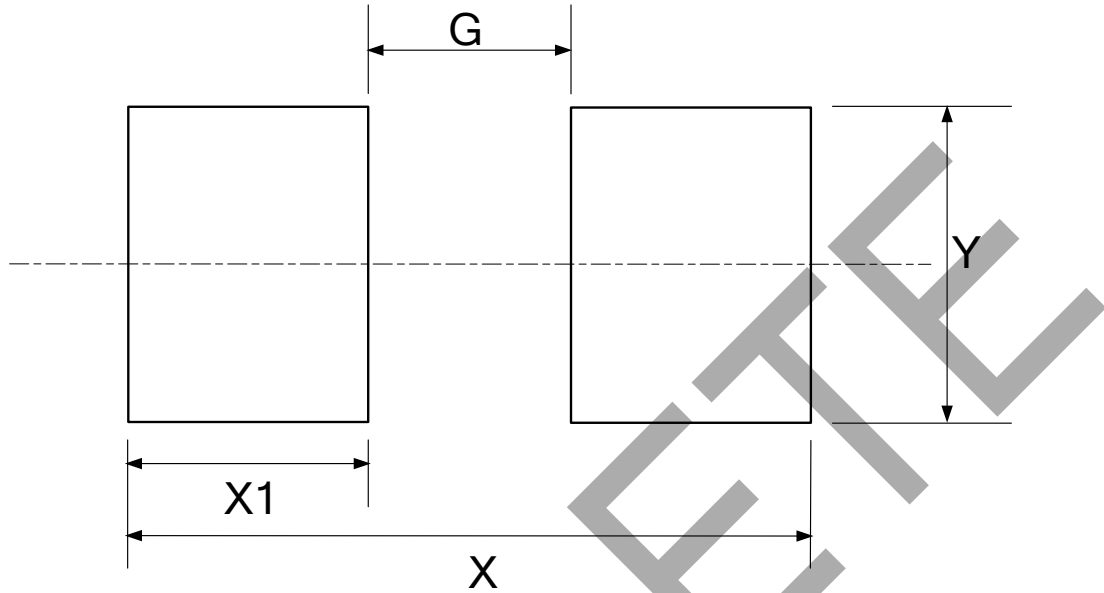


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Suggested Pad Layout

(1) Package Type: DO-214AA



Dimensions	Y (mm)/(inch)	X1 (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)
Value	2.720/0.107	2.072/0.082	1.760/0.069	5.904/0.232

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