

Advance Information

SWITCHMODE™ Power Rectifier

The SWITCHMODE power rectifier employs the use of the Schottky Barrier principle with a Platinum barrier metal. This state-of-the-art device has the following features:

- Very Low Forward Voltage Drop (Max 0.58 V @ 100°C)
- Guardring for Stress Protection and High dv/dt Capability (> 10 V/ns)
- Guaranteed Reverse Avalanche
- 150°C Operating Junction Temperature
- Specially Designed for SWITCHMODE Power Supplies with Operating Frequency up to 300 kHz

Mechanical Characteristics

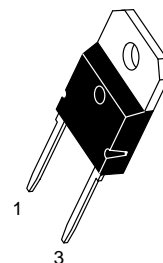
- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 Units Per Plastic Tube
- Marking: B5025L

MBR5025L

Motorola Preferred Device

**SCHOTTKY BARRIER
RECTIFIER
LOW v_F
40 AMPERES
45 VOLTS**

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CASE 340E-01

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	25	Volt
Average Rectified Forward Current $T_C = 125^\circ\text{C}$	$I_F(AV)$	50	Amp
Peak Repetitive Forward Current, Per Diode (Rated V_R , Square Wave, 20 kHz) @ $T_C = 90^\circ\text{C}$	I_{FRM}	150	Amp
Non Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	300	Amp
Peak Repetitive Reverse Current (2.0 μs , 1.0 kHz)	I_{RRM}	2.0	Amp
Operating Junction Temperature	T_J	-65 to +150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +175	$^\circ\text{C}$
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	$^\circ\text{C}$
Voltage Rate of Change	dv/dt	10,000	V/ μs

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Case	$R_{\theta JC}$	0.75	$^\circ\text{C/W}$
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SWITCHMODE is a trademark of Motorola Inc.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

Preferred devices are Motorola recommended choices for future use and best overall value.



ELECTRICAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Instantaneous Forward Voltage (1) @ $I_F = 50$ Amps, $T_C = 25^\circ\text{C}$ @ $I_F = 50$ Amps, $T_C = 125^\circ\text{C}$ @ $I_F = 30$ Amps, $T_C = 25^\circ\text{C}$	V_F	0.62 0.58 0.54	Volts
Instantaneous Reverse Current (1) @ Rated DC Voltage, $T_C = 25^\circ\text{C}$ @ Rated DC Voltage, $T_C = 100^\circ\text{C}$	I_R	0.5 60	mA

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle < 2.0%

TYPICAL ELECTRICAL CHARACTERISTICS

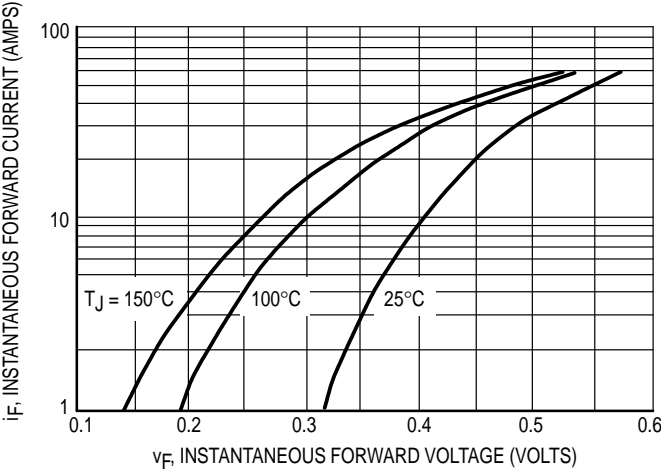


Figure 1. Typical Forward Voltage

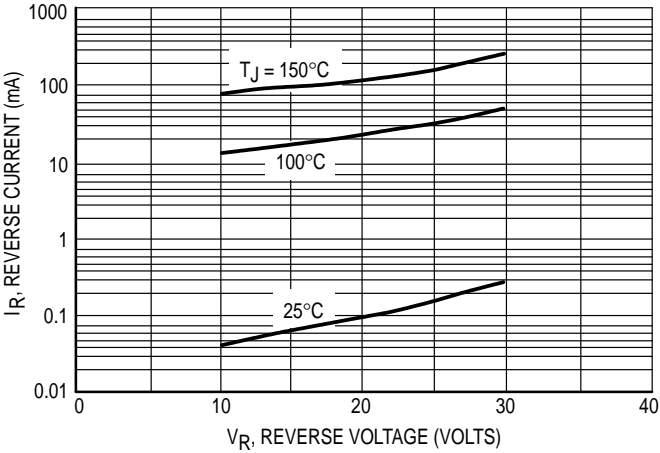


Figure 2. Typical Reverse Current

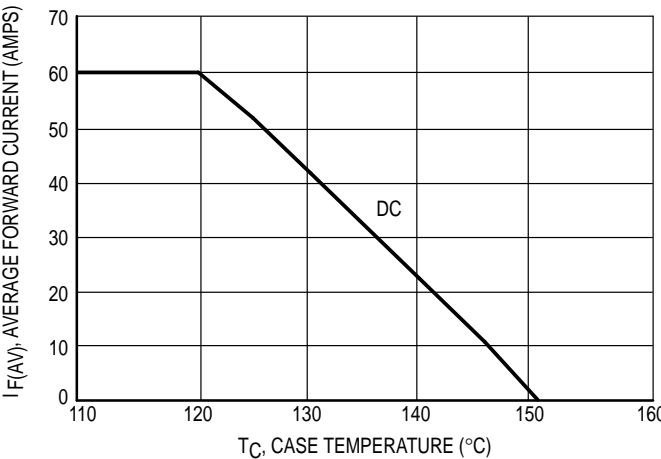


Figure 3. Current Derating, Case

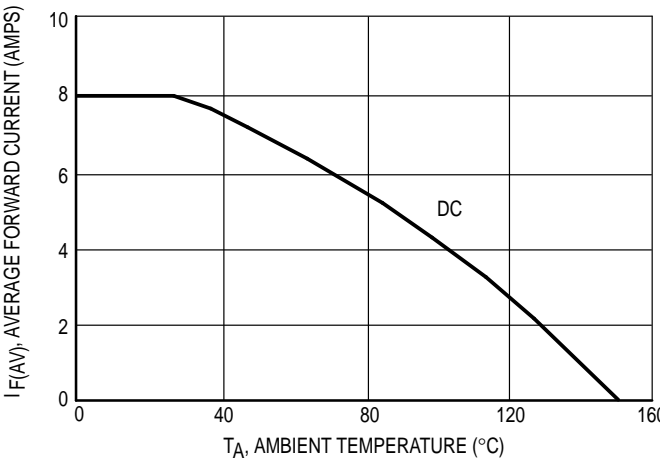
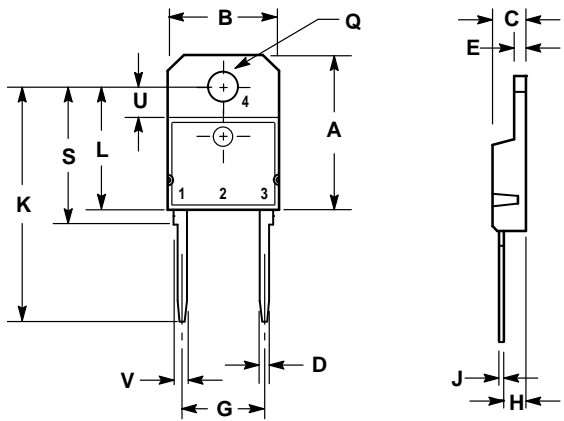


Figure 4. Current Derating, Ambient

PACKAGE DIMENSIONS




- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982
 2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	20.35	—	0.801
B	14.70	15.20	0.579	0.598
C	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
E	1.17	1.37	0.046	0.054
G	10.80	11.10	0.425	0.437
H	2.00	3.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF		1.220 REF	
L	—	16.20	—	0.638
Q	4.00	4.10	0.158	0.161
S	17.80	18.20	0.701	0.717
U	4.00 REF		0.157 REF	
V	1.75 REF		0.069	

STYLE 1:
PIN 1. CATHODE
3. ANODE
4. CATHODE

CASE 340E-02
ISSUE A

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MOTOROLA



MBR5025L/D

