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

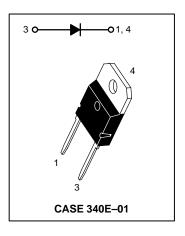
Mechanical Characteristics

- · 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 vF
40 AMPERES
45 VOLTS



MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		25	Volt
Average Rectified Forward Current T _C = 125°C	I _{F(AV)}	50	Amp
Peak Repetitive Forward Current, Per Diode (Rated V _R , Square Wave, 20 kHz) @ T _C = 90°C	IFRM	150	Amp
Non Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	IFSM	300	Amp
Peak Repetitive Reverse Current (2.0 μs, 1.0 kHz)	I _{RRM}	2.0	Amp
Operating Junction Temperature	TJ	-65 to +150	°C
Storage Temperature	T _{stg}	-65 to +175	°C
Peak Surge Junction Temperature (Forward Current Applied)	T _{J(pk)}	175	°C
Voltage Rate of Change	dv/dt	10,000	V/μs

THERMAL CHARACTERISTICS

Thomas Business Livering to Occasi	_	0.75	°C/M
Thermal Resistance — Junction to Case	KθJC	0.75	°C/VV

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, $T_C = 25^{\circ}C$ @ $I_F = 50$ Amps, $T_C = 125^{\circ}C$ @ $I_F = 30$ Amps, $T_C = 25^{\circ}C$	V _F	0.62 0.58 0.54	Volts
Instantaneous Reverse Current (1) @ Rated DC Voltage, T _C = 25°C @ Rated DC Voltage, T _C = 100°C	I _R	0.5 60	mA

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

TYPICAL ELECTRICAL CHARACTERISTICS

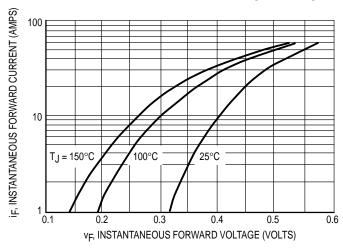


Figure 1. Typical Forward Voltage

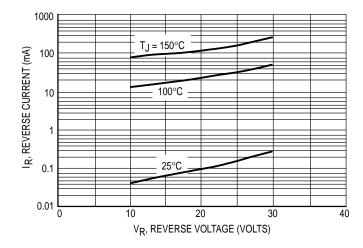


Figure 2. Typical Reverse Current

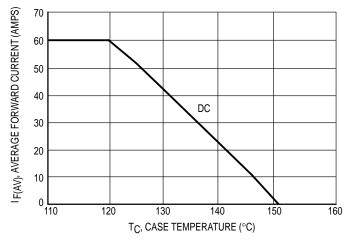


Figure 3. Current Derating, Case

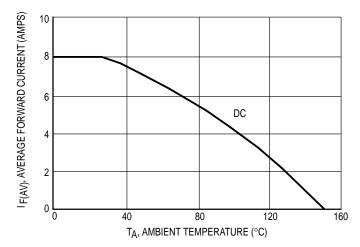
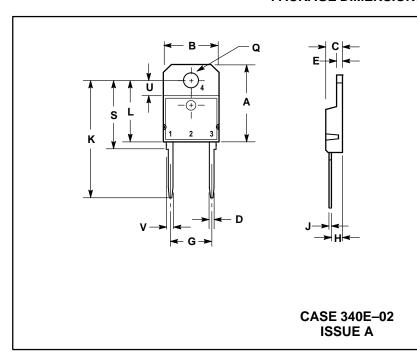


Figure 4. Current Derating, Ambient

PACKAGE DIMENSIONS



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

	MILLIN	MILLIMETERS INCHES		HES
DIM	MIN	MAX	MIN	MAX
Α		20.35		0.801
В	14.70	15.20	0.579	0.598
С	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
Е	1.17	1.37	0.046	0.054
G	10.80	11.10	0.425	0.437
Н	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	.75 REF 0.069)69

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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447 or 602–303–5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609 INTERNET: http://Design-NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–81–3521–8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park, 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298



