

SWITCHMODE™ Power Rectifier

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Dual Diode Construction — Terminals 1 and 3 may be Connected for Parallel Operation at Full Rating
- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Guaranteed Reverse Avalanche

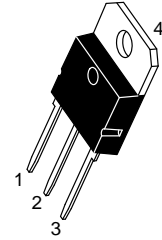
Mechanical Characteristics:

- 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: B3045

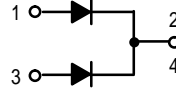
MBR3045PT

Motorola Preferred Device

**SCHOTTKY BARRIER
RECTIFIER
30 AMPERES
45 VOLTS**



CASE 340D-02



MAXIMUM RATINGS

Rating	Symbol	Maximum	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	Volts
Average Rectified Forward Current (Rated V_R) $T_C = 105^\circ\text{C}$	$I_F(AV)$	30 15	Amps
Peak Repetitive Forward Current, Per Diode (Rated V_R , Square Wave, 20 kHz)	I_{FRM}	30	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	200	Amps
Peak Repetitive Reverse Current, Per Diode (2.0 μs , 1.0 kHz) See Figure 6	I_{RRM}	2.0	Amps
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 (Rated V_R)	dv/dt	10000	$\text{V}/\mu\text{s}$

THERMAL CHARACTERISTICS PER DIODE

Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.4	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	40	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS PER DIODE

Instantaneous Forward Voltage (1) ($i_F = 20$ Amps, $T_C = 125^\circ\text{C}$) ($i_F = 30$ Amps, $T_C = 125^\circ\text{C}$) ($i_F = 30$ Amps, $T_C = 25^\circ\text{C}$)	V_F	0.60 0.72 0.76	Volts
Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$) (Rated dc Voltage, $T_C = 25^\circ\text{C}$)	i_R	100 1.0	mA

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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

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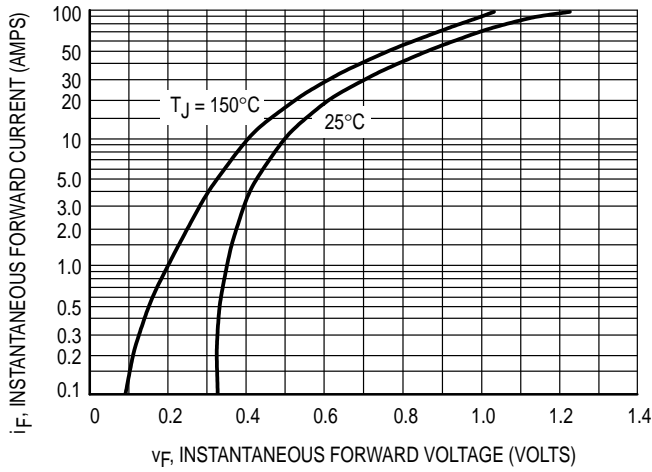


Figure 1. Typical Forward Voltage

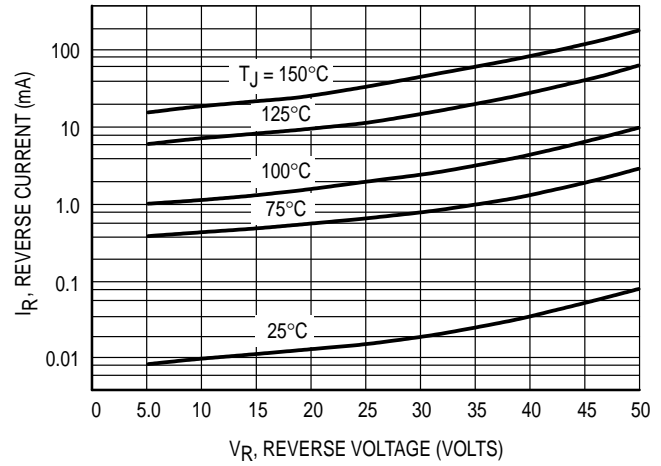


Figure 2. Typical Reverse Current

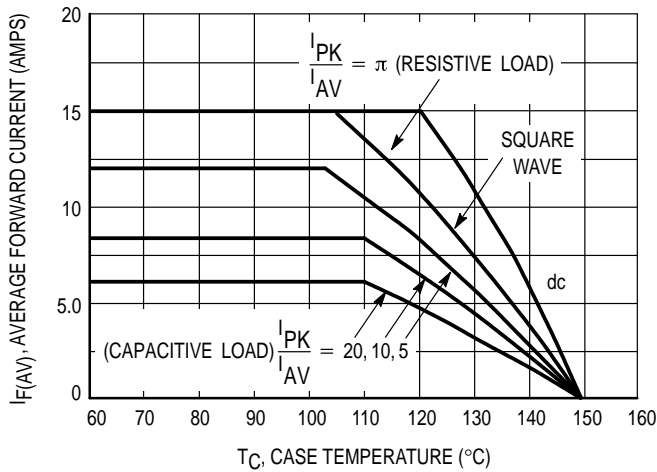


Figure 3. Current Derating (Per Leg)

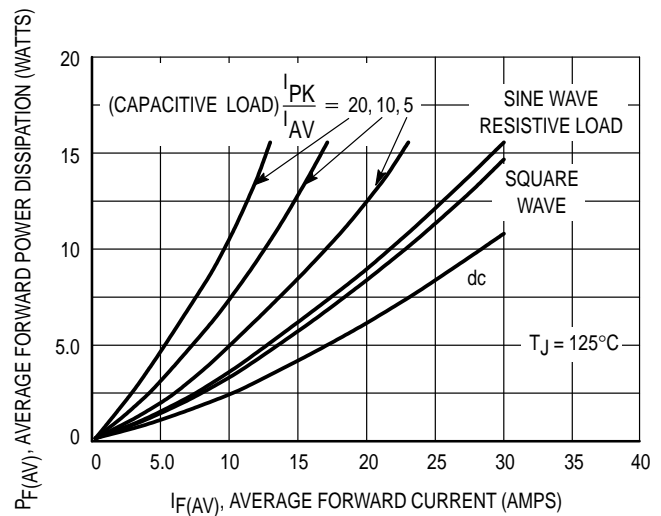


Figure 4. Forward Power Dissipation (Per Leg)

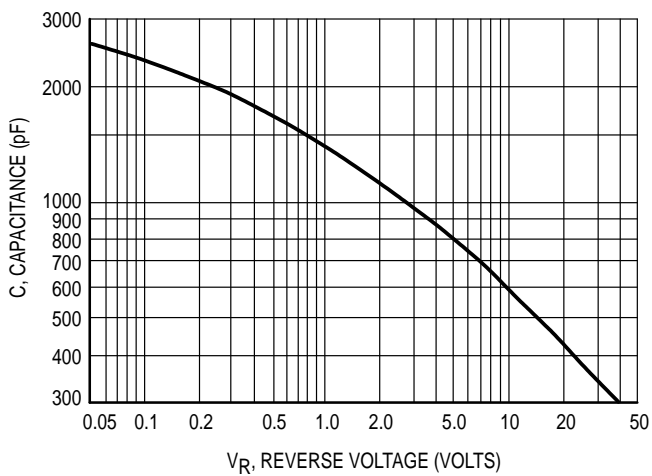


Figure 5. Capacitance

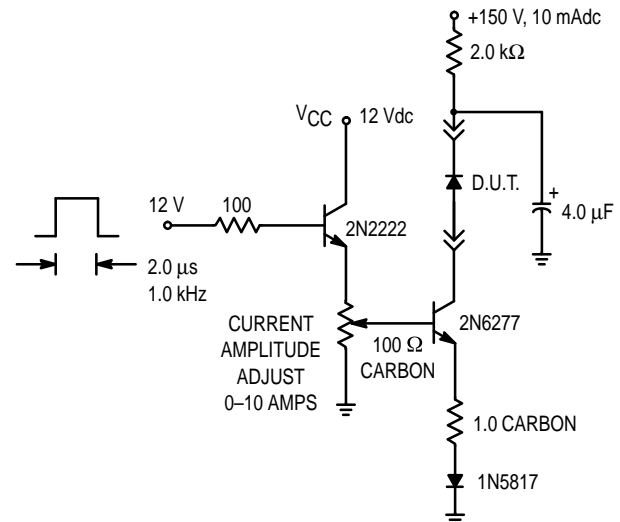
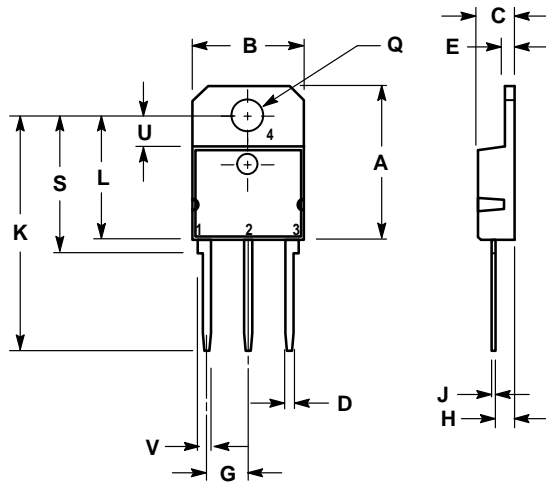


Figure 6. Test Circuit for Repetitive Reverse Current


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	5.40	5.55	0.213	0.219
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	

CASE 340D-02
 ISSUE B

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How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPD, Strategic Planning Office, 141,
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan. 81-3-5487-8488

Customer Focus Center: 1-800-521-6274

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609
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ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre,
2, Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.
852-26668334

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