

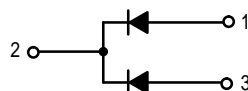
# SWITCHMODE™ Schottky Power Rectifier

The SWITCHMODE Power Rectifier employs the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for use as rectifiers in very low-voltage, high-frequency switching power supplies, free wheeling diodes and polarity protection diodes.

- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop
- Matched Dual Die Construction
- High Junction Temperature Capability
- High dv/dt Capability
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guardring for Stress Protection
- Epoxy Meets UL94, V<sub>O</sub> at 1/8"
- Electrically Isolated. No Isolation Hardware Required.
- UL Recognized File #E69369(1)

## Mechanical Characteristics

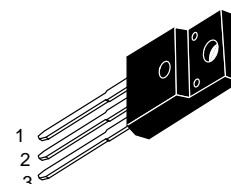
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: B2060



**MBRF2060CT**

Motorola Preferred Device

**SCHOTTKY BARRIER  
RECTIFIER  
20 AMPERES  
60 VOLTS**



**CASE 221D-02  
ISOLATED TO-220**

## MAXIMUM RATINGS, PER LEG

Rating	Symbol	Value	Unit	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	60	Volts	
Average Rectified Forward Current (Rated V <sub>R</sub> ), T <sub>C</sub> = 133°C	I <sub>F(AV)</sub>	10 20	Amps	
Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20 kHz), T <sub>C</sub> = 133°C	I <sub>FRM</sub>	20	Amps	
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I <sub>FSM</sub>	150	Amps	
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I <sub>RSM</sub>	0.5	Amp	
Operating Junction and Storage Temperature	T <sub>J</sub> , T <sub>stg</sub>	- 65 to +150	°C	
Voltage Rate of Change (Rated V <sub>R</sub> )	dv/dt	10000	V/μs	
RMS Isolation Voltage (t = 1.0 second, R.H. ≤ 30%, T <sub>A</sub> = 25°C) <sup>(2)</sup>	Per Figure 3 Per Figure 4 <sup>(1)</sup> Per Figure 5	V <sub>iso1</sub> V <sub>iso2</sub> V <sub>iso3</sub>	4500 3500 1500	Volts

## THERMAL CHARACTERISTICS, PER LEG

Maximum Thermal Resistance, Junction to Case	R <sub>θJC</sub>	4.0	°C/W
Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	T <sub>L</sub>	260	°C

(1) UL Recognized mounting method is per Figure 4.

(2) Proper strike and creepage distance must be provided.

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

# MBRF2060CT

## ELECTRICAL CHARACTERISTICS, PER LEG

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (3) ( $i_F = 10$ Amp, $T_C = 25^\circ\text{C}$ ) ( $i_F = 10$ Amp, $T_C = 125^\circ\text{C}$ ) ( $i_F = 20$ Amp, $T_C = 25^\circ\text{C}$ ) ( $i_F = 20$ Amp, $T_C = 125^\circ\text{C}$ )	$v_F$	0.85 0.75 0.95 0.85	Volts
Maximum Instantaneous Reverse Current (3) (Rated DC Voltage, $T_C = 25^\circ\text{C}$ ) (Rated DC Voltage, $T_C = 125^\circ\text{C}$ )	$i_R$	0.15 150	mA

(3) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

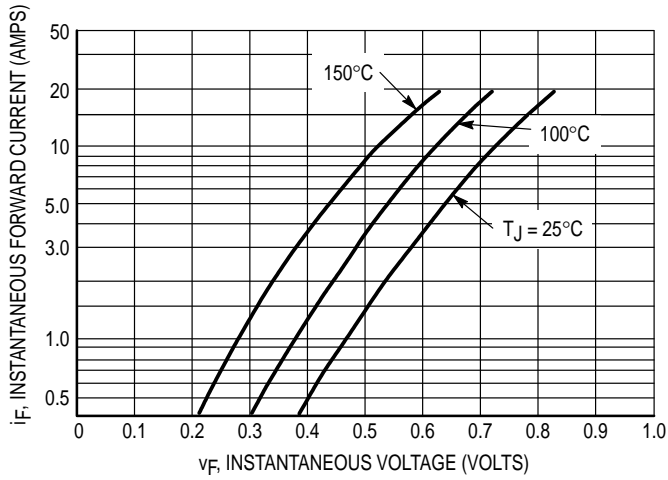


Figure 1. Typical Forward Voltage Per Diode

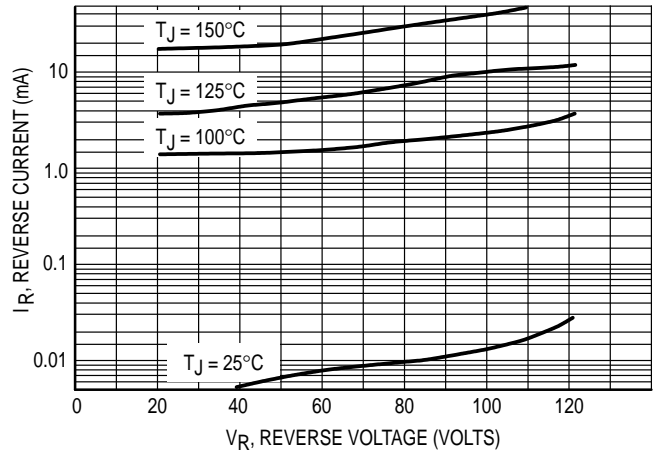
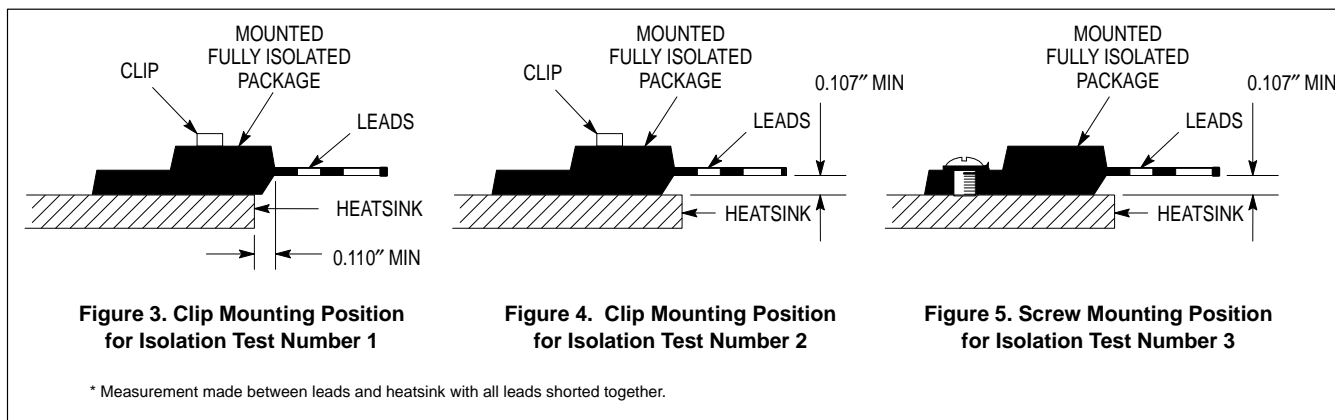
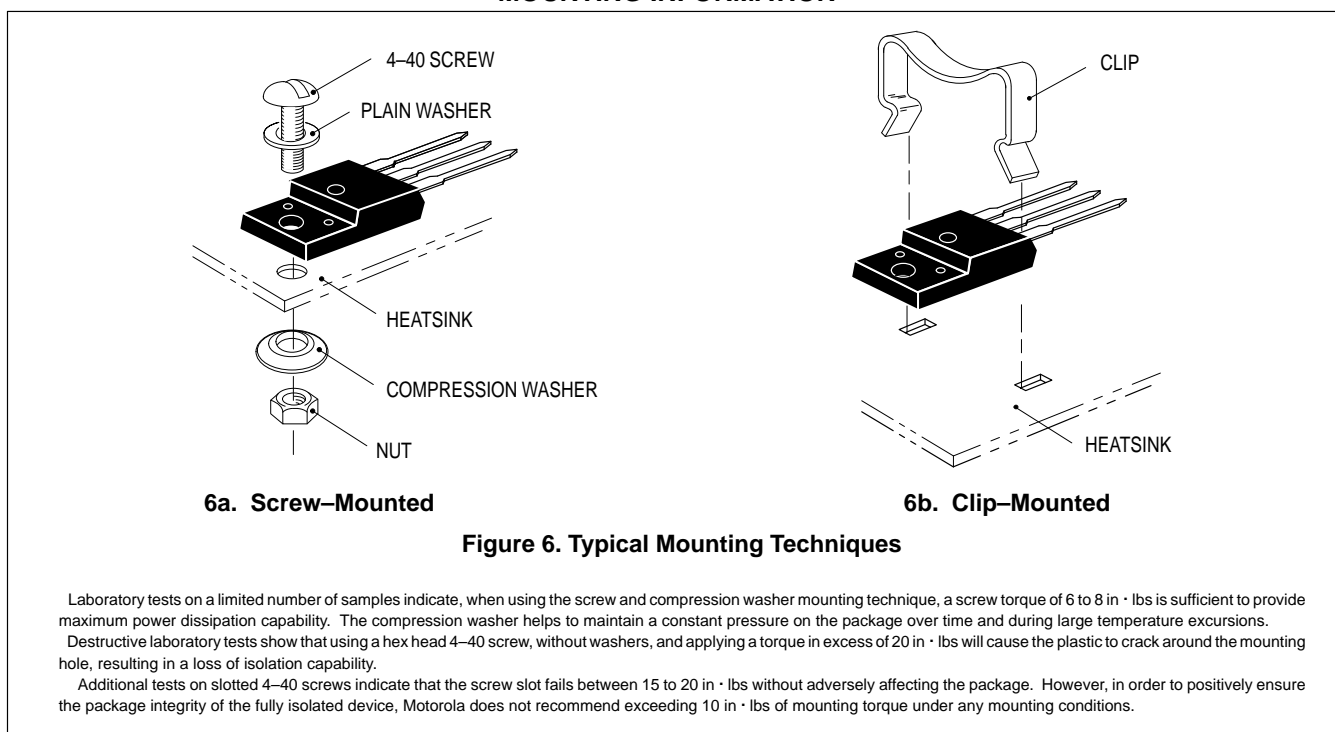


Figure 2. Typical Reverse Current Per Diode

TEST CONDITIONS FOR ISOLATION TESTS\*

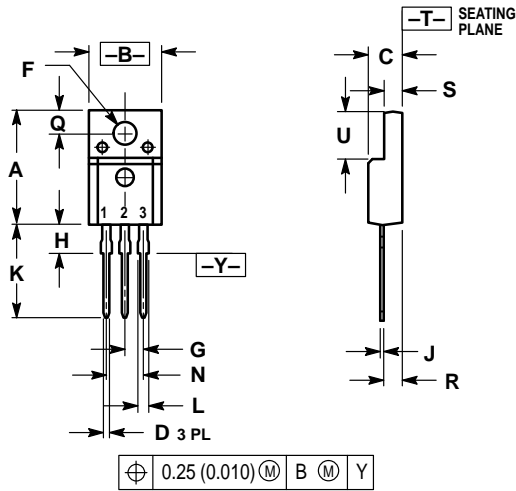


MOUNTING INFORMATION\*\*



\*\*For more information about mounting power semiconductors see Application Note AN1040.

PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.621	0.629	15.78	15.97
B	0.394	0.402	10.01	10.21
C	0.181	0.189	4.60	4.80
D	0.026	0.034	0.67	0.86
F	0.121	0.129	3.08	3.27
G	0.100 BSC		2.54 BSC	
H	0.123	0.129	3.13	3.27
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.14	1.52
N	0.200 BSC		5.08 BSC	
Q	0.126	0.134	3.21	3.40
R	0.107	0.111	2.72	2.81
S	0.096	0.104	2.44	2.64
U	0.259	0.267	6.58	6.78

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

**CASE 221D-02  
 (ISOLATED TO-220)  
 ISSUE D**

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