

MOTOROLA
SEMICONDUCTOR
 TECHNICAL DATA

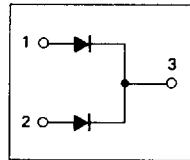
POWERTAP
SWITCHMODE Power Rectifiers

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

- Dual Diode Construction — May Be Paralleled For Higher Current Output
- Guardring For Stress Protection
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Guaranteed Reverse Avalanche

Terminal Penetration: 0.280 max
 Terminal Torque: 25–40 in-lb max
 Mounting Torque —
 Outside Holes:* 30–40 in-lb max

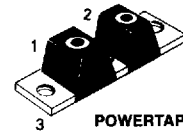
*Center Hole Must be
 Torqued First: 8–10 in-lb max



MBR30035CT
MBR30045CT
MBR30050CT
MBR30060CT

MBR30045CT and MBR30060CT are
 Motorola Preferred Devices

SCHOTTKY BARRIER
RECTIFIERS
300 AMPERES
35 TO 60 VOLTS



MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Peak Repetitive Reverse Voltage	MBR30035CT VRRM	35	Volts
Working Peak Reverse Voltage	MBR30045CT VRWM	45	Volts
DC Blocking Voltage	MBR30050CT VR	50	Volts
	MBR30060CT	60	Volts
Average Rectified Forward Current (Rated VR) TC = 140°C	Per Device IF(AV)	300	Amps
	Per Leg	150	Amps
Peak Repetitive Forward Current, Peg Leg (Rated VR, Square Wave, 20 kHz), TC = 140°C	IFRM	300	Amps
Nonrepetitive Peak Surge Current Per Leg (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	IFSM	2500	Amps
Peak Repetitive Reverse Current, Per Leg (2 μs, 1 kHz) See Figure 6	IRRM	2	Amps
Operating Junction and Storage Temperature	TJ, Tstg	-65 to +175	°C
Voltage Rate of Change (Rated VR)	dv/dt	1000	V/μs

THERMAL CHARACTERISTICS PER LEG

Thermal Resistance, Junction to Case	RθJC	0.4	°C/W
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ELECTRICAL CHARACTERISTICS PER LEG

Instantaneous Forward Voltage (1) (IF = 150 Amps, TC = 175°C)	VF	0.57	Volts
(IF = 150 Amps, TC = 125°C)		0.64	
(IF = 150 Amps, TC = 25°C)		0.74	
(IF = 300 Amps, TC = 125°C)		0.78	
(IF = 300 Amps, TC = 25°C)		0.82	
Instantaneous Reverse Current (1) (Rated dc Voltage, TC = 125°C)	IR	75	mA
(Rated dc Voltage, TC = 25°C)		0.8	

(1) Pulse Test Pulse Width = 300 μs, Duty Cycle ≤ 2%

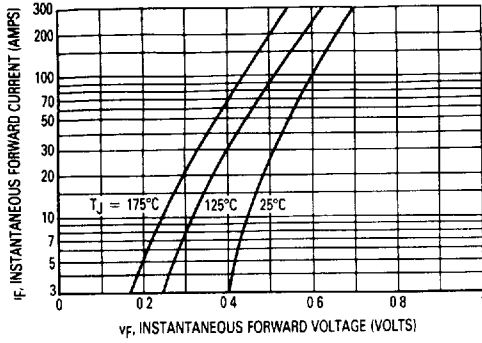


Figure 1. Typical Forward Voltage (Per Leg)

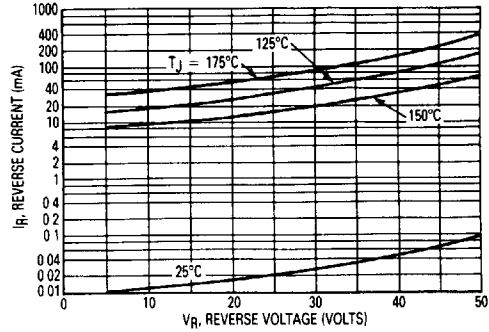


Figure 2. Typical Reverse Current (Per Leg)*

*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if Vr is sufficiently below rated Vr.

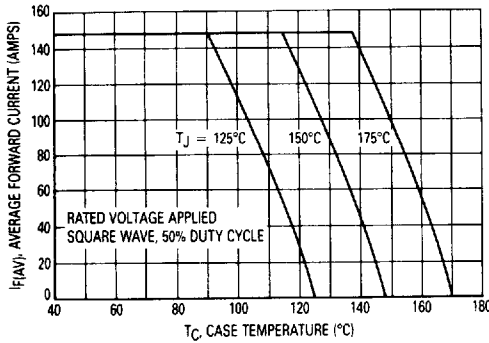


Figure 3. Current Derating (Per Leg)

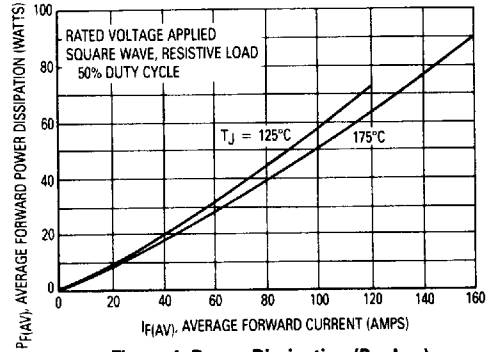


Figure 4. Power Dissipation (Per Leg)

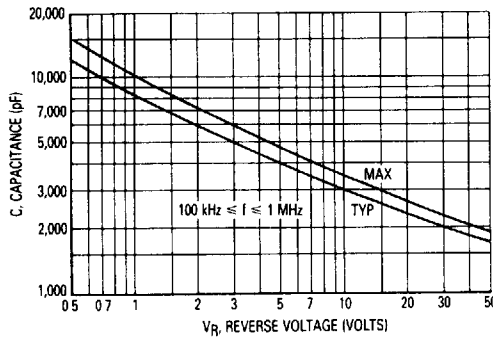


Figure 5. Capacitance (Per Leg)

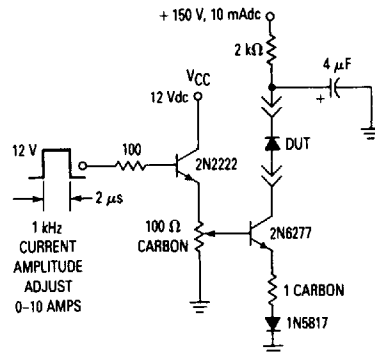


Figure 6. Test Circuit For Repetitive Reverse Current