MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

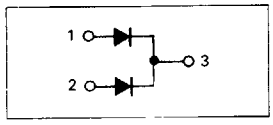
POWERTAP
SWITCHMODE Power Rectifiers

MBR20015CTL
MBR20020CTL
MBR20025CTL
MBR20030CTL

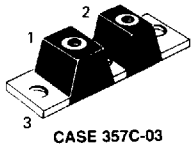
MBR20030CTL is a
Motorola Preferred Device

. . . 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
- 150°C Operating Junction Temperature
- Guaranteed Reverse Avalanche



LOW V_F
SCHOTTKY BARRIER
RECTIFIERS
200 AMPERES
15 to 30 VOLTS



CASE 357C-03
POWERTAP

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

MAXIMUM RATINGS

Rating		Symbol	Max	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	MBR20015CTL MBR20020CTL MBR20025CTL MBR20030CTL	V_{RRM} V_{RWM} V_R	15 20 25 30	Volts
Average Rectified Forward Current (Rated V_R) T_C = 140°C	Per Device Per Leg	$I_{F(AV)}$	200 100	Amps
Peak Repetitive Forward Current, Per Leg (Rated V_R, Square Wave, 20 kHz), T_C 140 C		I_{FRM}	200	Amps
Nonrepetitive Peak Surge Current Per Leg (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I_{FSM}	1500	Amps
Peak Repetitive Reverse Current, Per Leg (2 μs, 1.0 kHz) See Figure 6		I_{RRM}	2	Amps
Storage Temperature		T_{stg}	65 to +175	°C
Operating Junction and Storage Temperature		T_J,T_{stg}	65 to +150	°C
Voltage Rate of Change (Rated V_R)		dv dt	1000	V/μs

THERMAL CHARACTERISTICS PER LEG

Thermal Resistance, Junction to Case	$R_{\theta JC}$	0 4	°C/W

ELECTRICAL CHARACTERISTICS PER LEG

Instantaneous Forward Voltage (1) (i_F = 100 Amp, T_J = 150°C) (i_F = 200 Amp, T_J = 150°C) (i_F = 100 Amp, T_J = 25 C) (i_F = 200 Amp, T_J = 25°C)	v_F	 0.39 0 48 0.46 0 55	Volts
Instantaneous Reverse Current (1) (Rated dc Voltage, T_J = 100°C) (Rated dc Voltage, T_J = 25°C)	i_R	 500 5	mA

(1) Pulse Test Pulse Width 300 μs, Duty Cycle · 2 0%

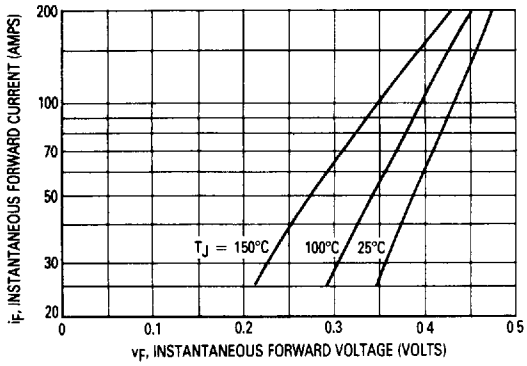
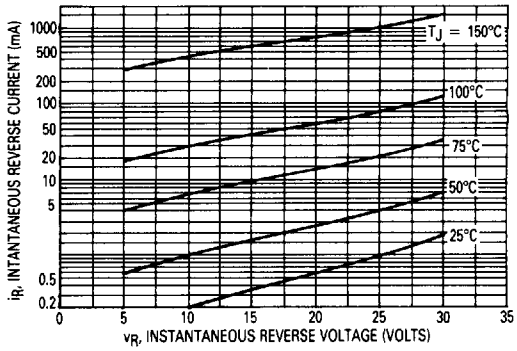


Figure 1. Typical Forward Voltage



*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 V_R is sufficiently below rated V_R.

Figure 2. Typical Instantaneous Reverse Current, Per Leg*

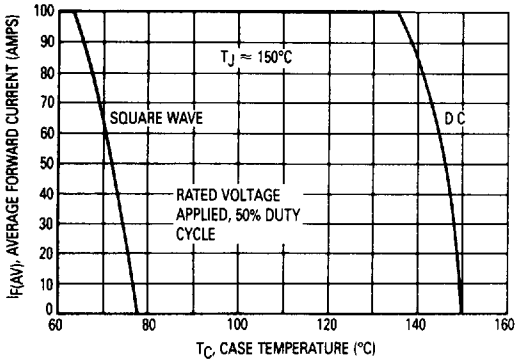


Figure 3. Forward Current Derating, Per Leg

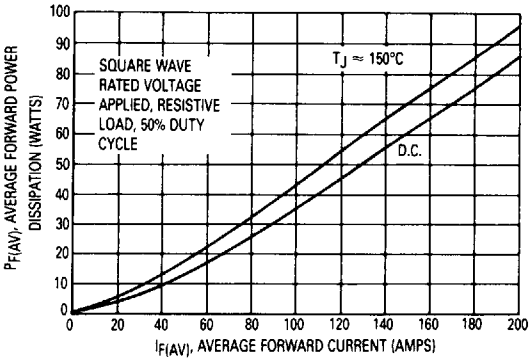


Figure 4. Power Dissipation Per Leg

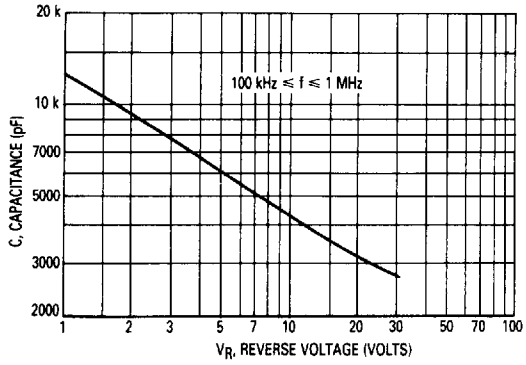


Figure 5. Typical Capacitance, Per Leg

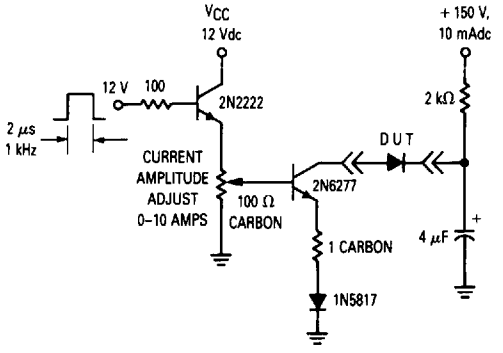


Figure 6. Test Circuit For Repetitive Reverse Current