MOTOROLA

MBR12035CT
MBR12045CT
MBR12050CT
MBR12060CT

POWERTAP

SCHOTTKY BARRIER RECTIFIERS

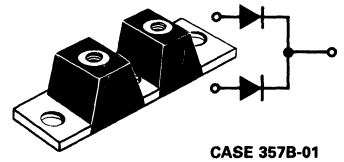
120 AMPERES
35 to 60 VOLTS

3

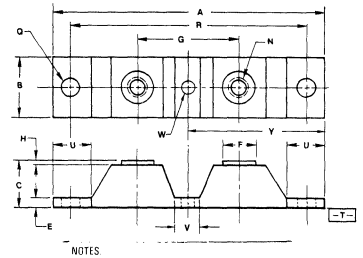
SWITCHMODE POWER RECTIFIERS

. . . 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



CASE 357B-01
POWERTAP



NOTES:
1. DIMENSIONS A AND B ARE DATUMS AND -T- IS A DATUM SURFACE AND SEATING PLANE.
2. POSITIONAL TOLERANCE FOR N HOLES: ⌖ | ⌀ 0.13 (0.005) Ⓜ | T | A Ⓜ | B Ⓜ
3. POSITIONAL TOLERANCE FOR Q AND W HOLES: ⌖ | ⌀ 0.25 (0.010) Ⓜ | T | A Ⓜ | B Ⓜ
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5, 1973.

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	–	92.20	–	3.630
B	17.78	20.32	0.700	0.800
C	–	15.87	–	0.625
E	3.05	3.30	0.120	0.130
F	12.45	12.95	0.490	0.510
G	34.92 BSC		1.375 BSC	
H	–	1.27	–	0.050
N	—		1/4-20 UNC	
Q	6.86	7.11	0.270	0.280
R	80.01 BSC		3.150 BSC	
U	15.24	–	0.600	–
V	8.38	8.89	0.330	0.350
W	4.32	4.82	0.170	0.190
Y	46.10 BSC		1.815 BSC	

CASE 357B-01

Terminal Penetration	0.280 Max.
Terminal Torque	25–50 lb.-in.
Mounting Base Torque	30–40 lb.-in.

MAXIMUM RATINGS

Rating		Symbol	Max	Unit
Peak Repetitive Reverse Voltage	MBR12035CT	V_{RRM}	35	Volts
	MBR12045CT		45	
Working Peak Reverse Voltage	MBR12050CT	V_{RWM}	50	
DC Blocking Voltage	MBR12060CT	V_R	60	
Average Rectified Forward Current (Rated V_R) T_C = 140°C	Per Device	$I_{F(AV)}$	120	Amps
	Per Leg		60	
Peak Repetitive Forward Current, Per Leg (Rated V_R, Square Wave, 20 kHz), T_C = 140°C		I_{FRM}	120	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I_{FSM}	800	Amps
Peak Repetitive Reverse Current, Per Leg (2.0 μs, 1.0 kHz) See Figure 6		I_{RRM}	2.0	Amps
Operating Junction and Storage Temperature		T_J,T_{stg}	−65 to +175	°C
Voltage Rate of Change (Rated V_R)		dv/dt	1000	V/μs

THERMAL CHARACTERISTICS PER LEG

Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.85	°C/W

ELECTRICAL CHARACTERISTICS PER LEG

Instantaneous Forward Voltage (1)	v_F		Volts
(i_F = 60 Amp, T_J = 125°C)		0.590	
(i_F = 120 Amp, T_J = 175°C)		0.620	
(i_F = 120 Amp, T_J = 125°C)		0.680	
(i_F = 120 Amp, T_J = 25°C)		0.830	
Instantaneous Reverse Current (1)	i_R		mA
(Rated dc Voltage, T_J = 125°C)		25	
(Rated dc Voltage, T_J = 25°C)		0.25	

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

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FIGURE 1 — TYPICAL FORWARD VOLTAGE PER LEG

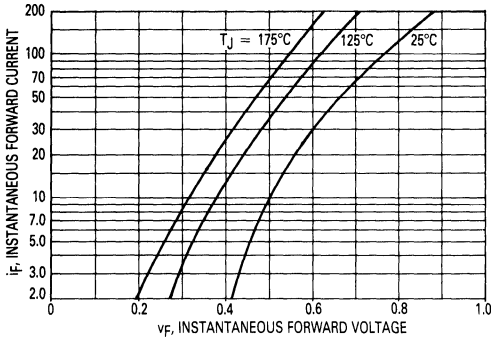

FIGURE 2 — TYPICAL REVERSE CURRENT, PER LEG*

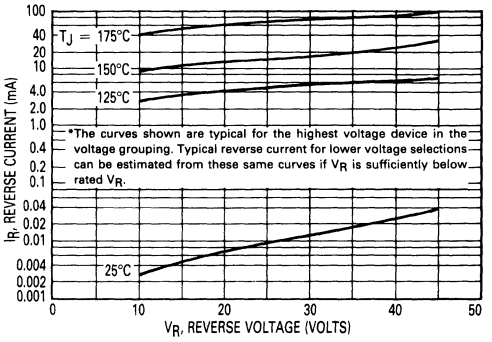

FIGURE 3 — FORWARD CURRENT DERATING, PER LEG

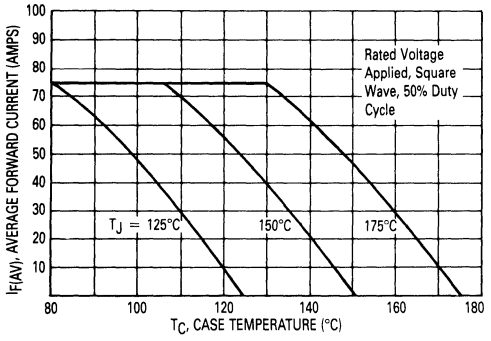

FIGURE 4 — POWER DISSIPATION PER LEG

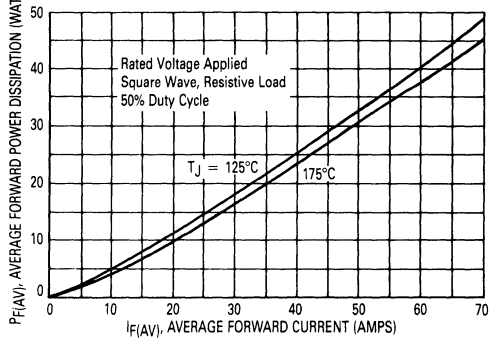

FIGURE 5 — TYPICAL CAPACITANCE, PER LEG

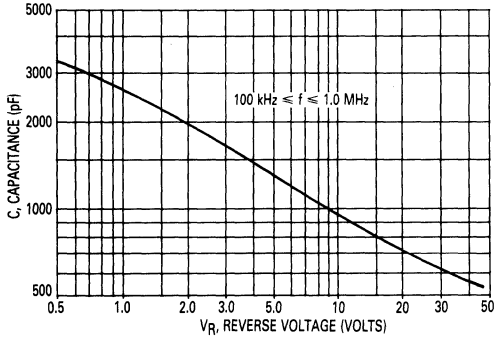

FIGURE 6 — TEST CIRCUIT FOR REPETITIVE REVERSE CURRENT