

SWITCHMODE™ Power Rectifiers

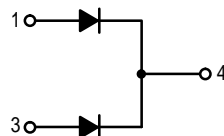
DPAK Surface Mount Package

... in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

- Extremely Fast Switching
- Extremely Low Forward Drop
- Platinum Barrier with Avalanche Guardrings
- Guaranteed Reverse Avalanche

Mechanical Characteristics:

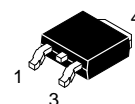
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 units per plastic tube
- Available in 16 mm Tape and Reel, 2500 units per reel, by adding a "T4" suffix to the part number
- Marking: B620T, B630T, B640T, B650T, B660T



MBRD620CT
MBRD630CT
MBRD640CT
MBRD650CT
MBRD660CT

MBRD620CT, MBRD640CT and
MBRD660CT are
Motorola Preferred Devices

**SCHOTTKY BARRIER
RECTIFIERS
6 AMPERES
20 TO 60 VOLTS**



**CASE 369A-13
PLASTIC**

MAXIMUM RATINGS

Rating	Symbol	MBRD					Unit
		620CT	630CT	640CT	650CT	660CT	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	50	60	Volts
Average Rectified Forward Current $T_C = 130^\circ\text{C}$ (Rated V_R)	$I_{F(AV)}$ Per Diode Per Device	3 6					Amps
Peak Repetitive Forward Current, $T_C = 130^\circ\text{C}$ (Rated V_R , Square Wave, 20 kHz) Per Diode	I_{FRM}	6					Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	75					Amps
Peak Repetitive Reverse Surge Current (2 μs , 1 kHz)	I_{RRM}	1					Amp
Operating Junction Temperature	T_J	-65 to +150					$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +175					$^\circ\text{C}$
Voltage Rate of Change (Rated V_R)	dv/dt	10000					$\text{V}/\mu\text{s}$

THERMAL CHARACTERISTICS PER DIODE

Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	6	$^\circ\text{C}/\text{W}$
Maximum Thermal Resistance, Junction to Ambient (1)	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$

(1) Rating applies when surface mounted on the minimum pad size recommended.

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



MBRD620CT MBRD630CT MBRD640CT MBRD650CT MBRD660CT

ELECTRICAL CHARACTERISTICS PER DIODE

Maximum Instantaneous Forward Voltage (2) $i_F = 3$ Amps, $T_C = 25^\circ\text{C}$ $i_F = 3$ Amps, $T_C = 125^\circ\text{C}$ $i_F = 6$ Amps, $T_C = 25^\circ\text{C}$ $i_F = 6$ Amps, $T_C = 125^\circ\text{C}$	V_F	0.7 0.65 0.9 0.85	Volts
Maximum Instantaneous Reverse Current (2) (Rated dc Voltage, $T_C = 25^\circ\text{C}$) (Rated dc Voltage, $T_C = 125^\circ\text{C}$)	i_R	0.1 15	mA

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

TYPICAL CHARACTERISTICS

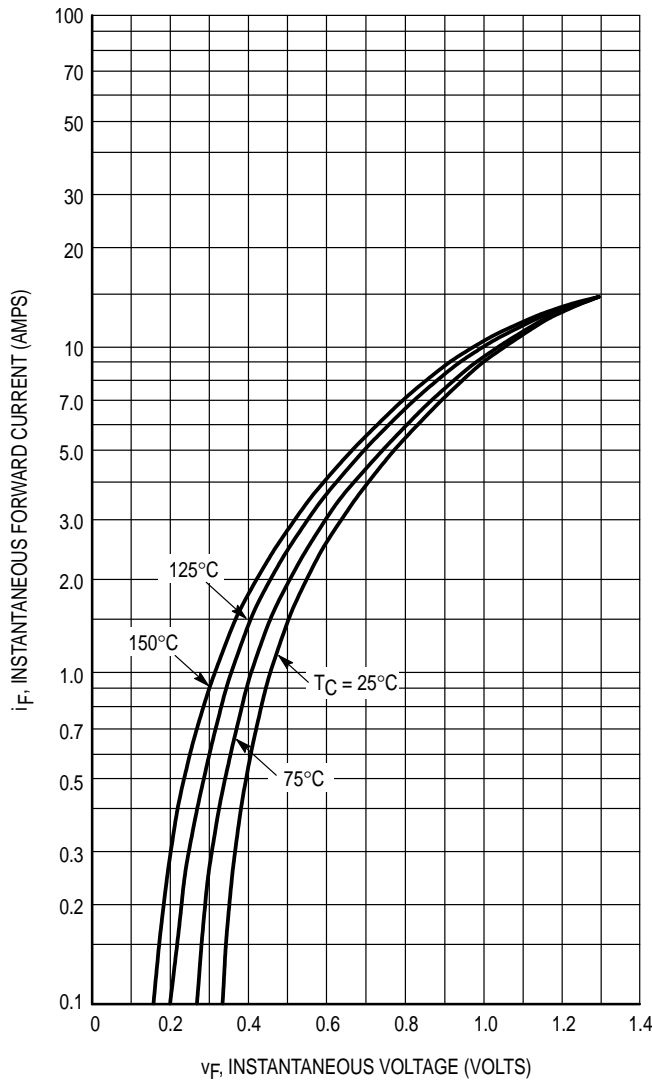
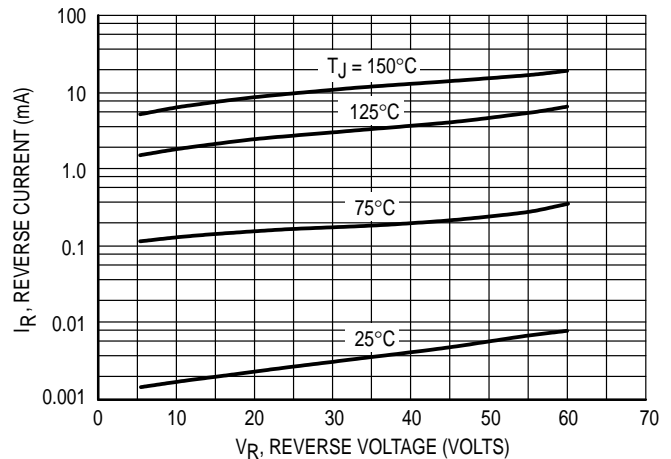


Figure 1. Typical Forward Voltage, Per Leg



*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 curves if V_R is sufficient below rated V_R .

Figure 2. Typical Reverse Current, * Per Leg

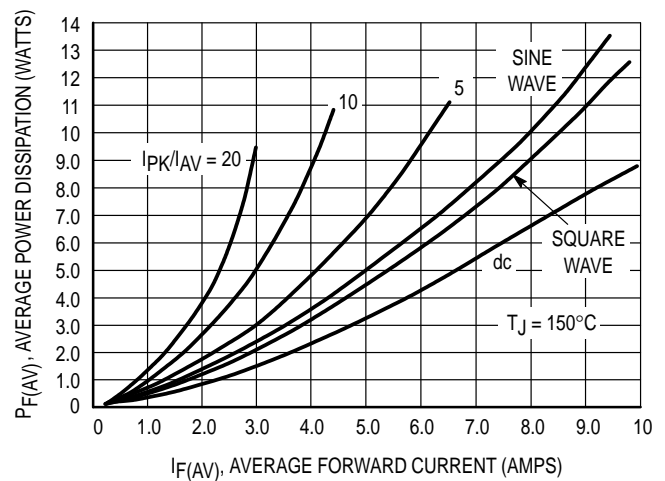


Figure 3. Average Power Dissipation, Per Leg

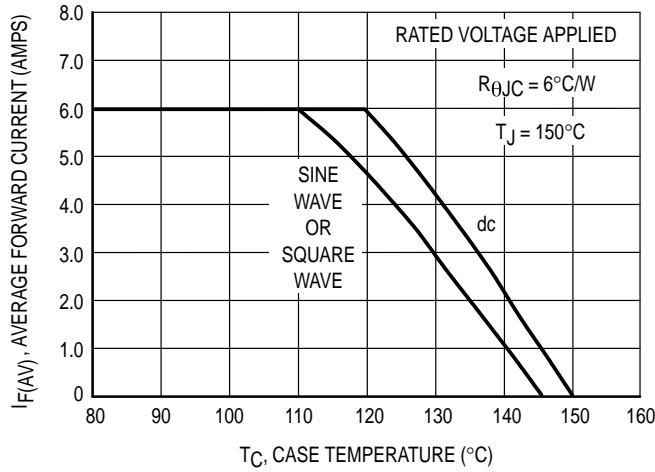


Figure 4. Current Derating, Case, Per Leg

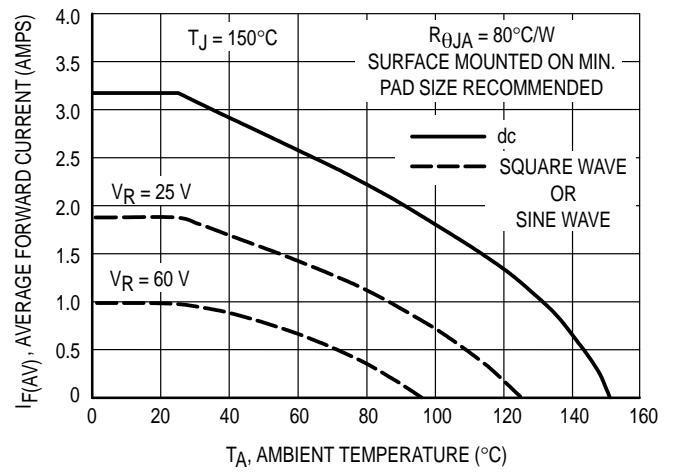


Figure 5. Current Derating, Ambient, Per Leg

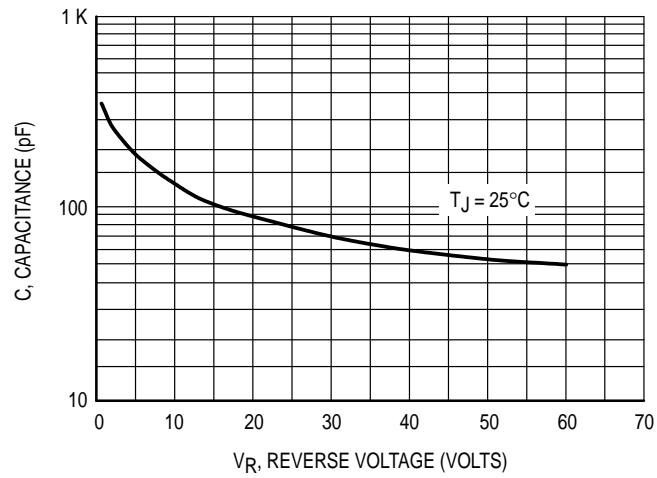
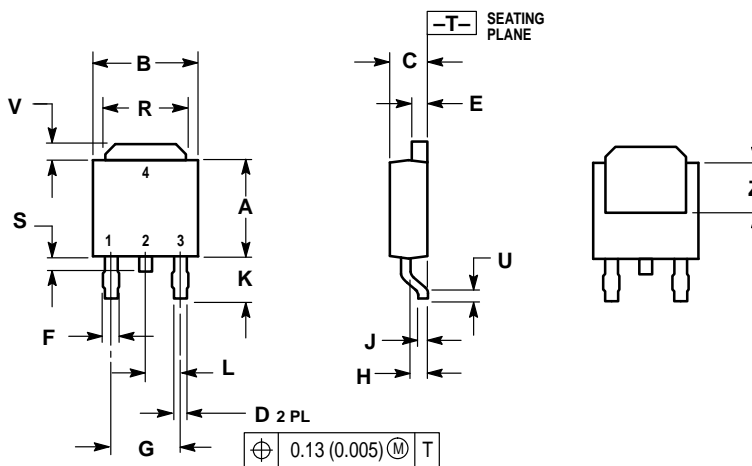


Figure 6. Typical Capacitance, Per Leg

MBRD620CT MBRD630CT MBRD640CT MBRD650CT MBRD660CT

PACKAGE DIMENSIONS




NOTES:

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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.250	5.97	6.35
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.033	0.040	0.84	1.01
F	0.037	0.047	0.94	1.19
G	0.180 BSC		4.58 BSC	
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.175	0.215	4.45	5.46
S	0.020	0.050	0.51	1.27
U	0.020	—	0.51	—
V	0.030	0.050	0.77	1.27
Z	0.138	—	3.51	—

CASE 369A-13
ISSUE Y

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