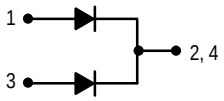
SWITCHMODE™ Power Rectifiers

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

- Ultrafast 35 and 60 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Popular TO–220 Package
- Epoxy Meets UL94, V_O @ 1/8″
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 Volts
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures

Mechanical Characteristics:

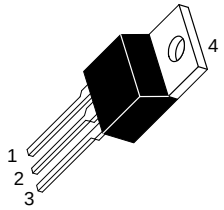
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: U1620, U1640, U1660



MUR1620CT
MUR1640CT
MUR1660CT

Motorola Preferred Devices

ULTRAFAST RECTIFIERS 8 AMPERES 200–400–600 VOLTS



CASE 221A–06
TO–220AB

MAXIMUM RATINGS

Rating		Symbol	MUR 1620CT	MUR 1640CT	MUR 1660CT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	200	400	600	Volts
Average Rectified Forward Current Total Device, (Rated V_R), T_C = 150°C	Per Leg Total Device	$I_{F(AV)}$		8.0 16		Amps
Peak Rectified Forward Current (Rated V_R, Square Wave, 20 kHz), T_C = 150°C	Per Diode Leg	I_{FM}		16		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I_{FSM}		100		Amps
Operating Junction Temperature and Storage Temperature		T_J, T_{stg}		– 65 to +175		°C

THERMAL CHARACTERISTICS, PER DIODE LEG

Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.0	2.0		°C/W

ELECTRICAL CHARACTERISTICS, PER DIODE LEG

Maximum Instantaneous Forward Voltage (1) (i_F = 8.0 Amps, T_C = 150°C) (i_F = 8.0 Amps, T_C = 25°C)	v_F	 0.895 0.975	 1.00 1.30	 1.20 1.50	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T_C = 150°C) (Rated dc Voltage, T_C = 25°C)	i_R	 250 5.0	 500 10		μA
Maximum Reverse Recovery Time (I_F = 1.0 Amp, di/dt = 50 Amps/μs) (I_F = 0.5 Amp, I_R = 1.0 Amp, I_{REC} = 0.25 Amp)	t_{rr}	 35 25	 60 50		ns

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

SWITCHMODE is a trademark of Motorola, Inc.

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

Rev 2

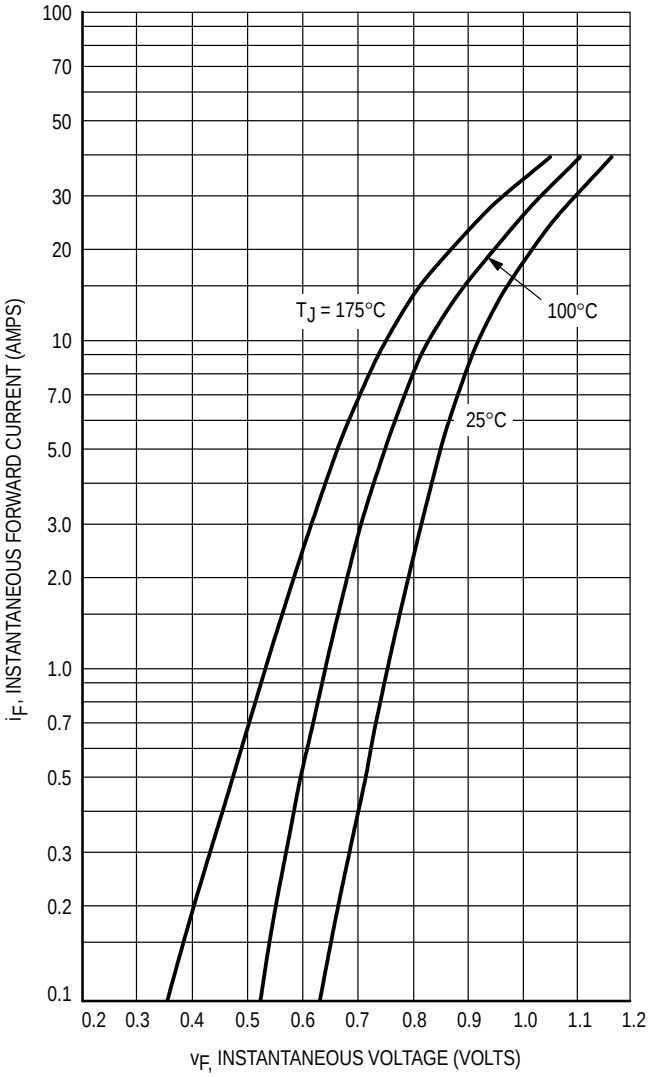


Figure 1. Typical Forward Voltage, Per Leg

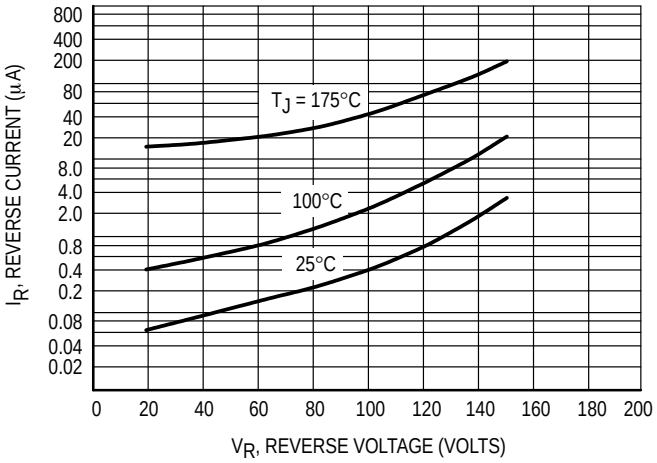


Figure 2. Typical Reverse Current, Per Leg*

* 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 V_R is sufficiently below rated V_R.

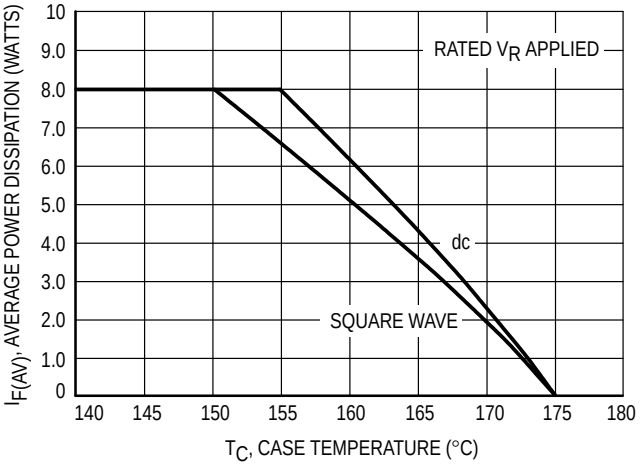


Figure 3. Current Derating, Case, Per Leg

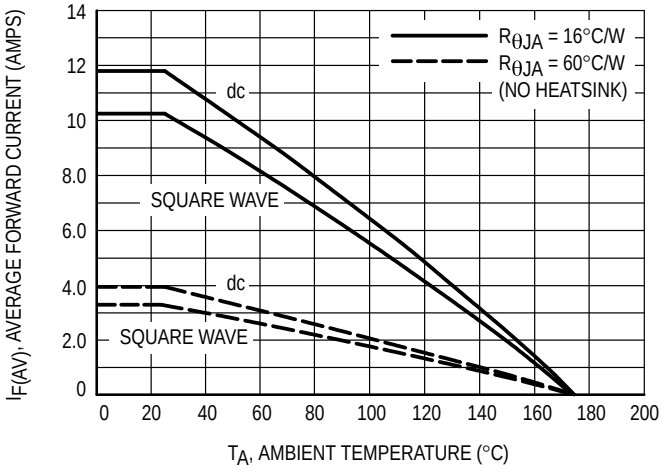


Figure 4. Current Derating, Ambient, Per Leg

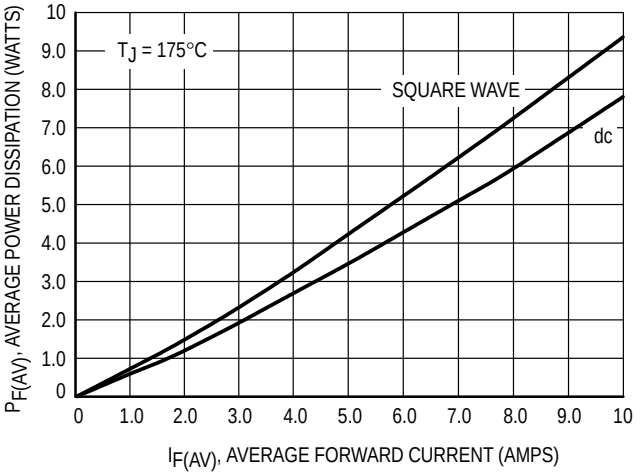


Figure 5. Power Dissipation, Per Leg

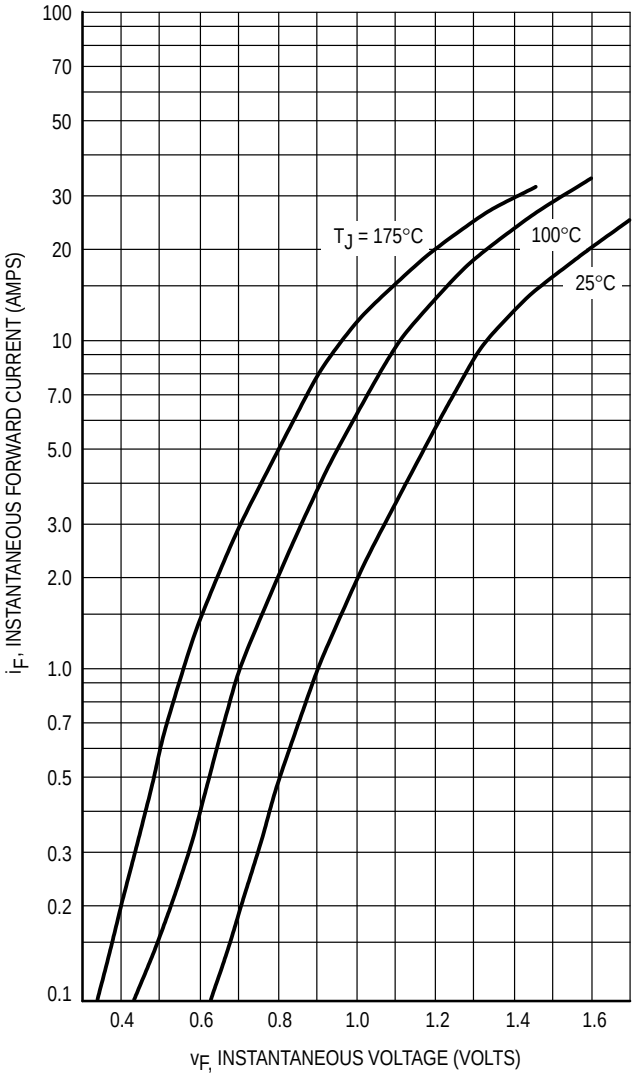


Figure 6. Typical Forward Voltage, Per Leg

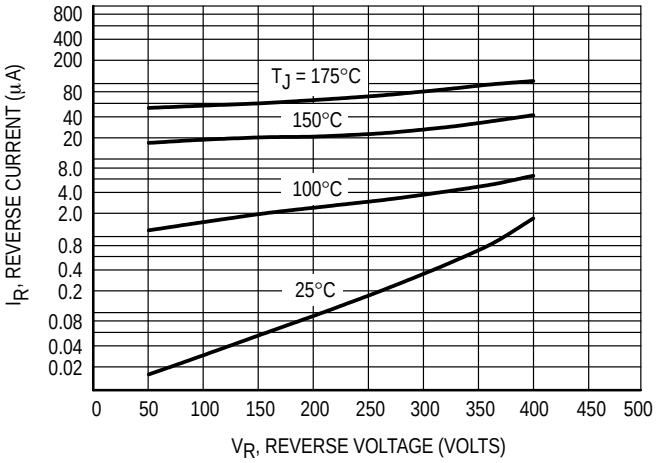


Figure 7. Typical Reverse Current, Per Leg*

* 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 curves if V_R is sufficiently below rated V_R.

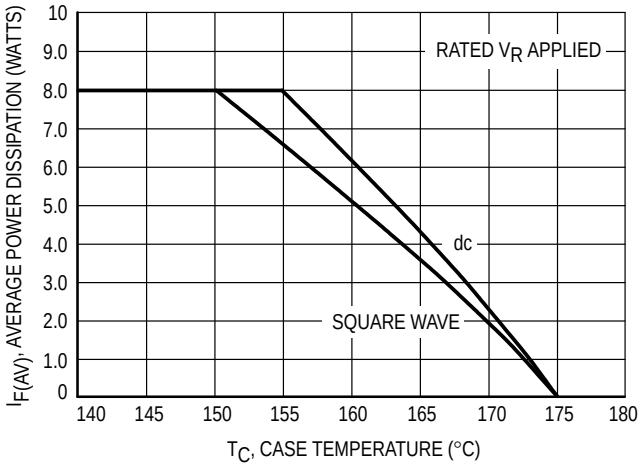


Figure 8. Current Derating, Case, Per Leg

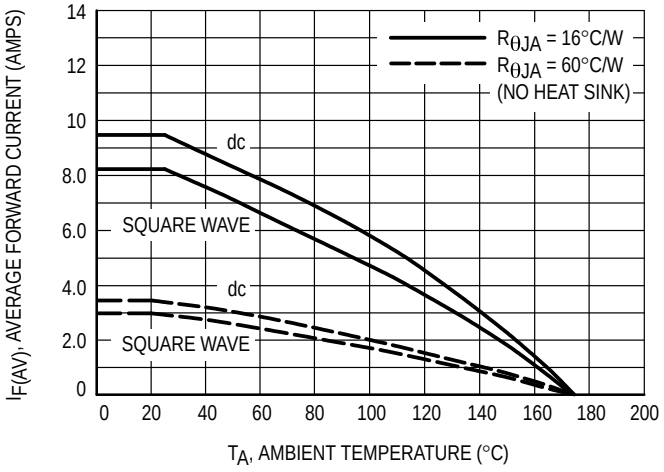


Figure 9. Current Derating, Ambient, Per Leg

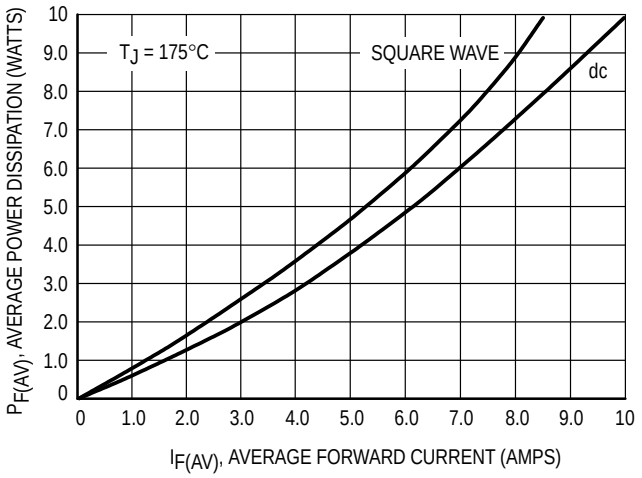


Figure 10. Power Dissipation, Per Leg

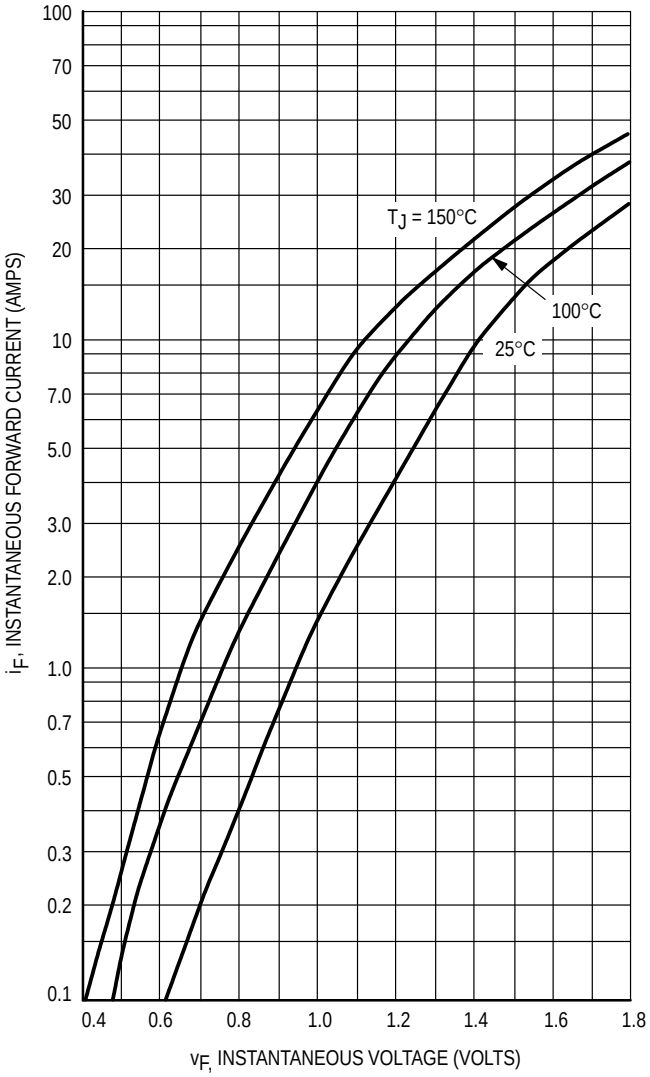


Figure 11. Typical Forward Voltage, Per Leg

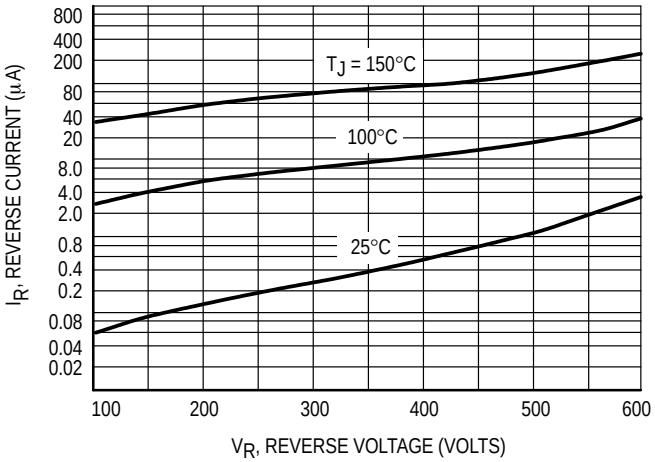


Figure 12. Typical Reverse Current, Per Leg*

* 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 V_R is sufficiently below rated V_R.

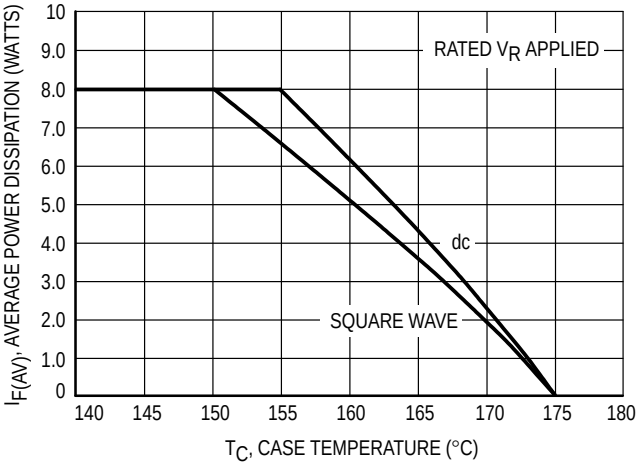


Figure 13. Current Derating, Case, Per Leg

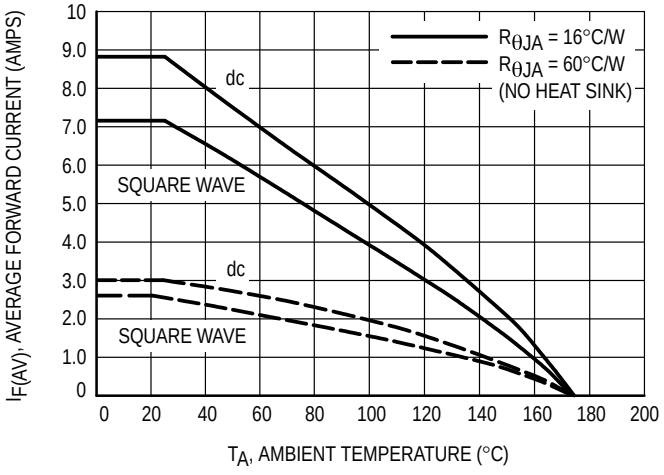


Figure 14. Current Derating, Ambient, Per Leg

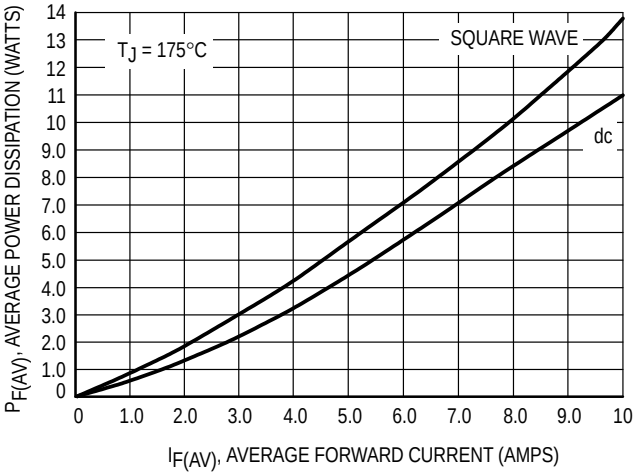


Figure 15. Power Dissipation, Per Leg

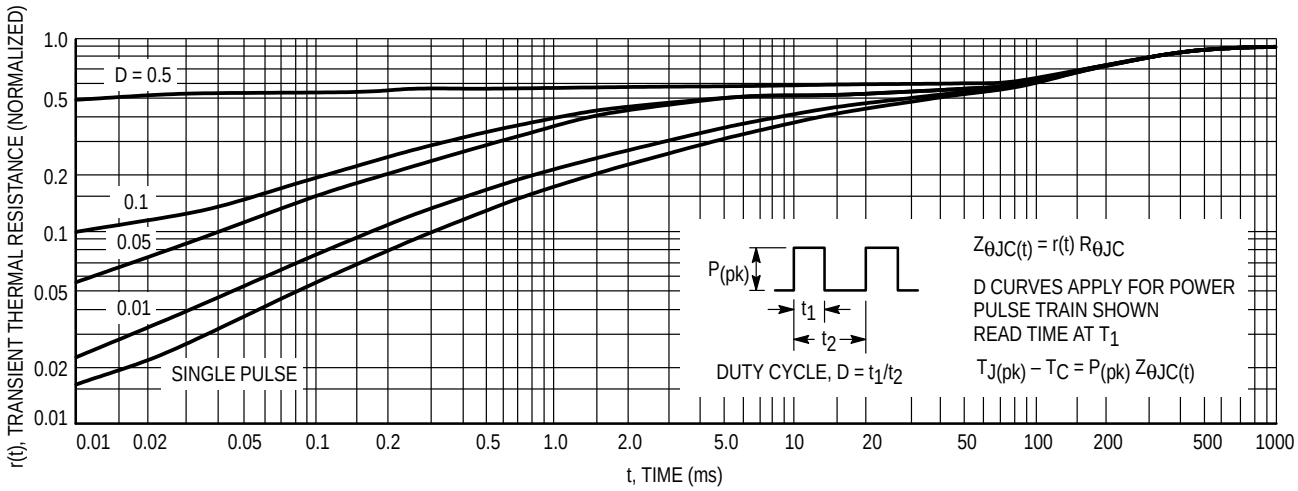


Figure 16. Thermal Response

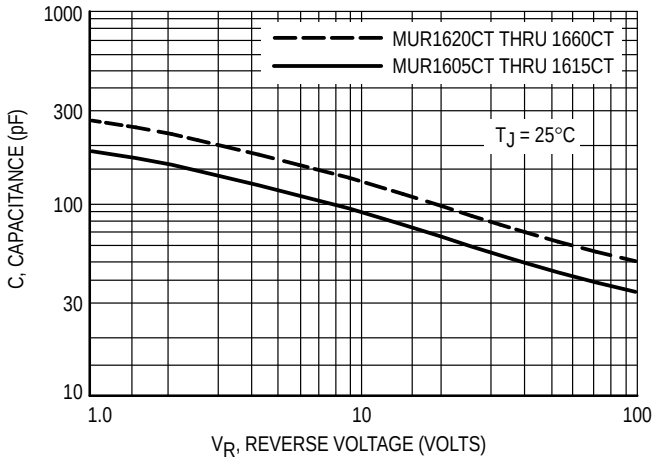
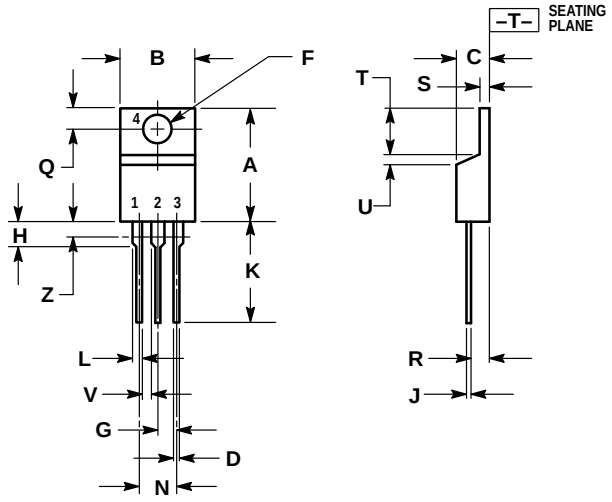


Figure 17. Typical Capacitance, Per Leg

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

CASE 221A–06
(TO–220AB)
ISSUE Y

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