

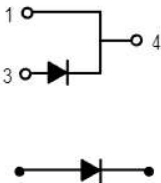
SWITCHMODE™ Power Rectifiers

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

- Ultrafast 25, 50 and 75 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL94, V_O @ 1/8"
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 Volts

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: U820, U840, U860



MUR820
MUR840
MUR860

Motorola Preferred Devices

ULTRAFAST
RECTIFIERS
8 AMPERES
200-400-600 VOLTS

CASE 221B-03
TO-220AC

MAXIMUM RATINGS

Rating	Symbol	MUR			Unit
		820	840	860	
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	I _{F(AV)}	8.0			Amps
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz), T _C = 150°C	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

Maximum Thermal Resistance, Junction to Case	R _{θJC}	3.0	2.0	°C/W
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ELECTRICAL CHARACTERISTICS

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 _J = 150°C) (Rated dc Voltage, T _J = 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 3



MUR820 MUR840 MUR860

MUR820

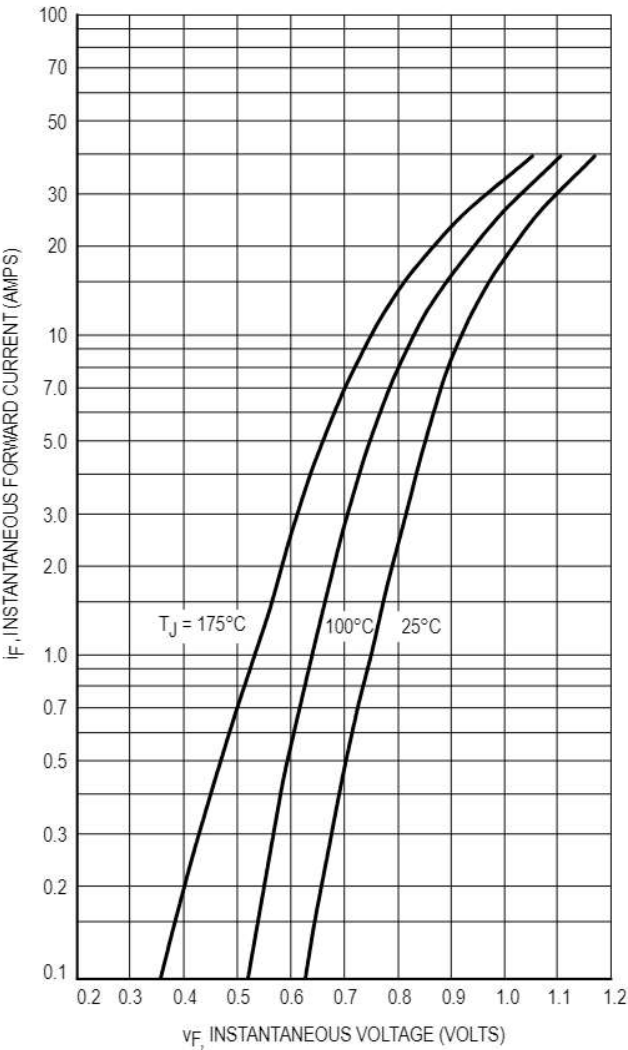


Figure 1. Typical Forward Voltage

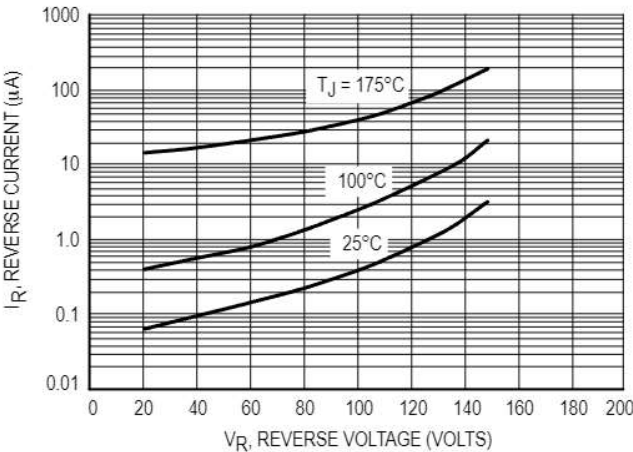


Figure 2. Typical Reverse Current*

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

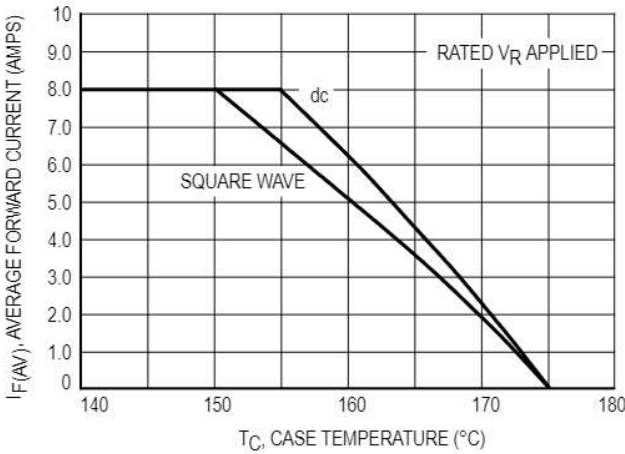


Figure 3. Current Derating, Case

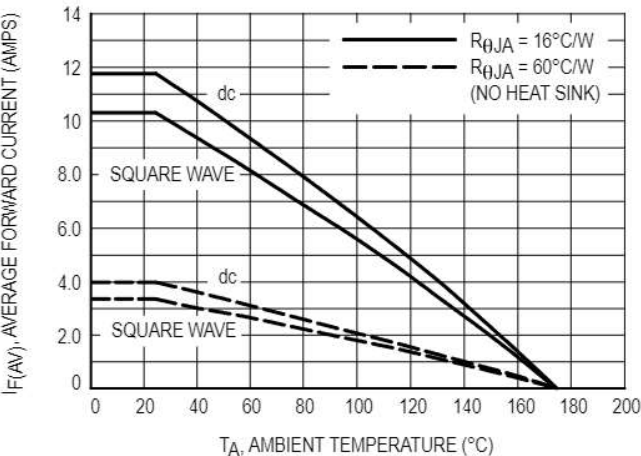


Figure 4. Current Derating, Ambient

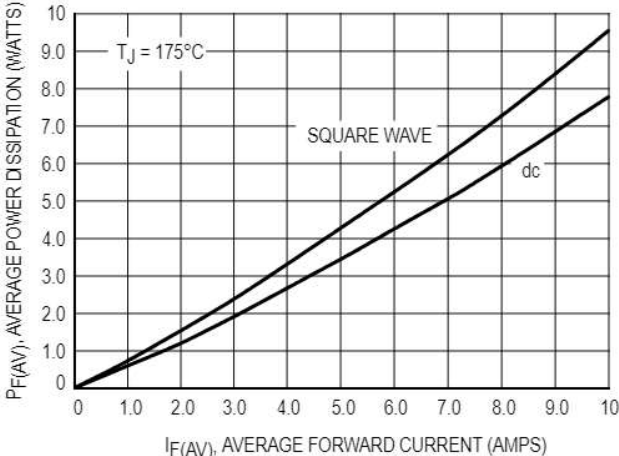
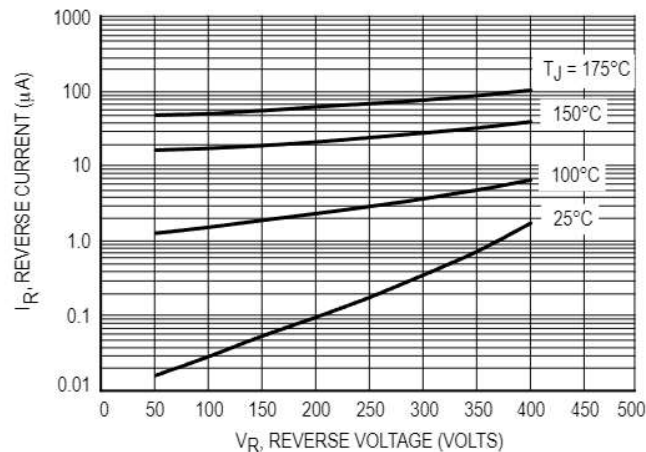
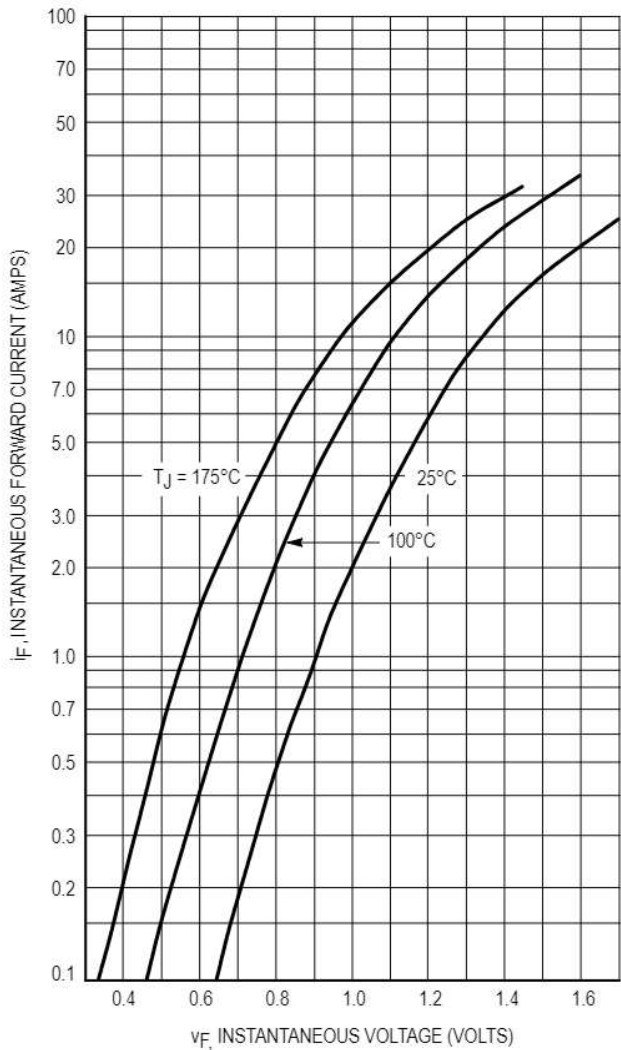


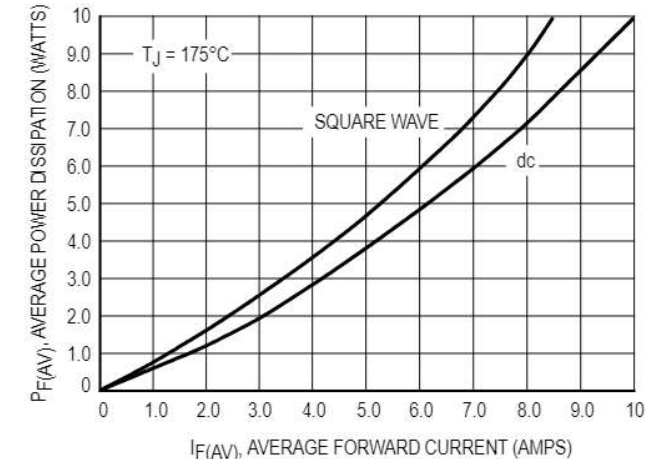
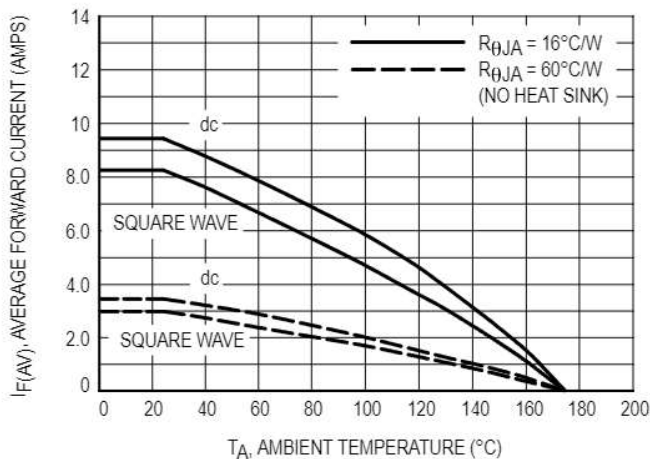
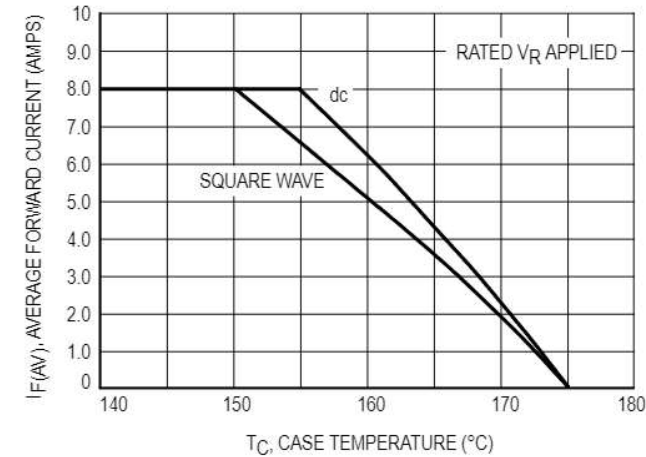
Figure 5. Power Dissipation

MUR820 MUR840 MUR860

MUR840



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



MUR820 MUR840 MUR860

MUR860

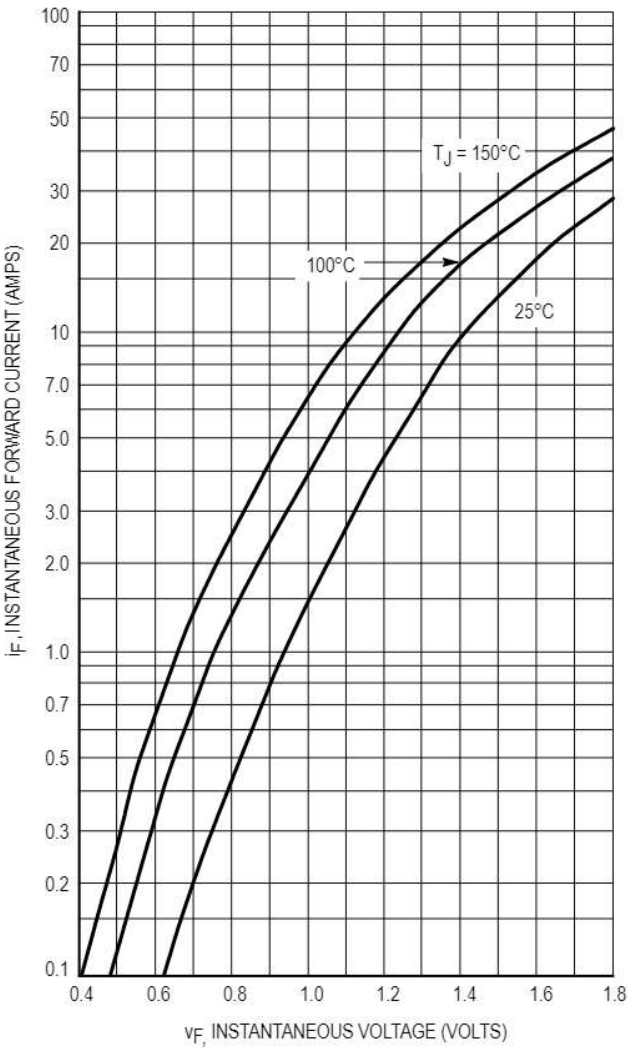


Figure 11. Typical Forward Voltage

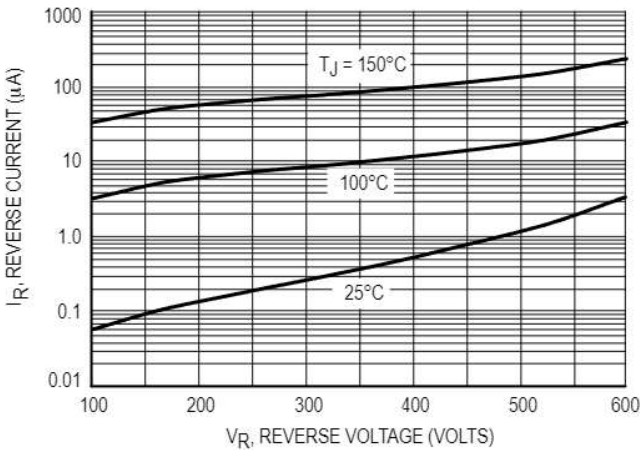


Figure 12. Typical Reverse Current*

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

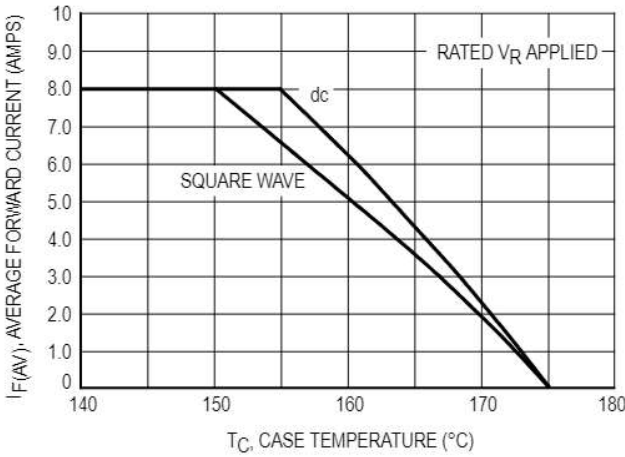


Figure 13. Current Derating, Case

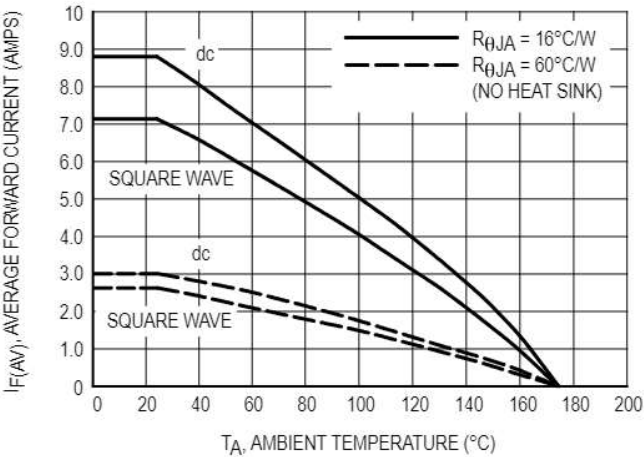


Figure 14. Current Derating, Ambient

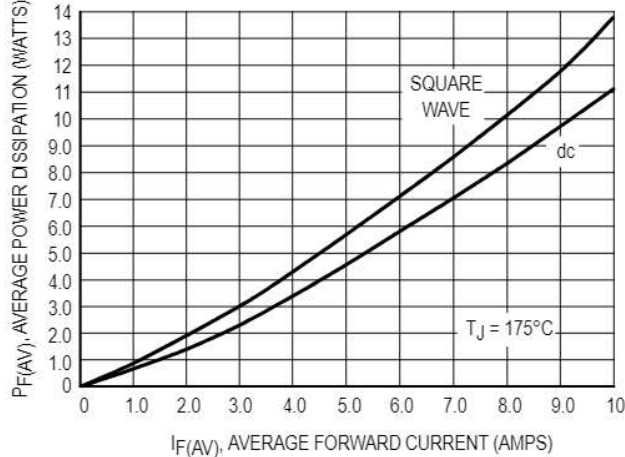


Figure 15. Power Dissipation

MUR820 MUR840 MUR860

MUR820, MUR840, MUR860

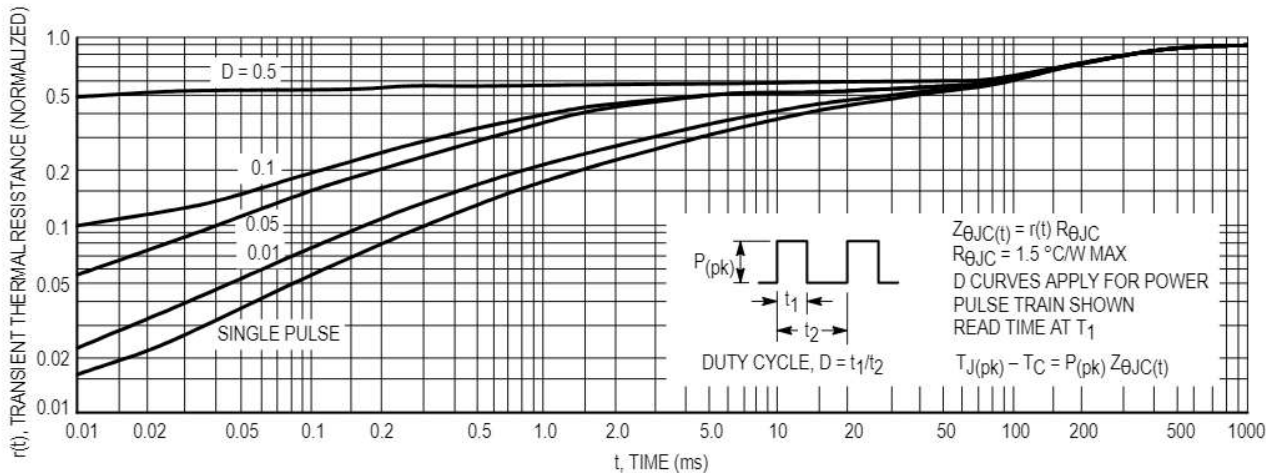


Figure 16. Thermal Response

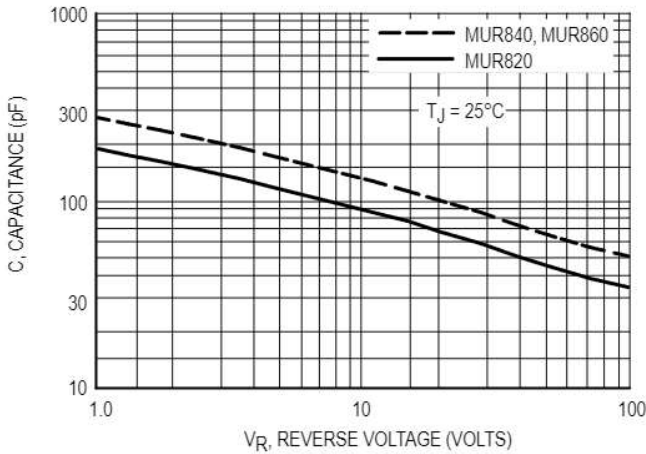
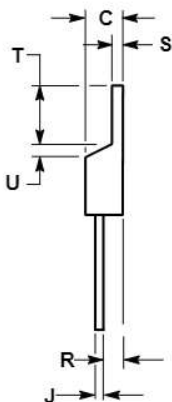
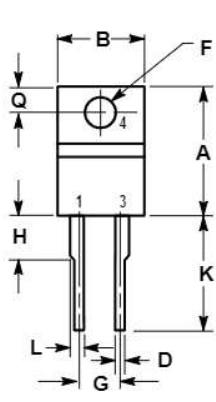


Figure 17. Typical Capacitance

MUR820 MUR840 MUR860


PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.595	0.620	15.11	15.75
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.82
D	0.025	0.035	0.64	0.89
E	0.142	0.147	3.61	3.73
F	0.190	0.210	4.83	5.33
G	0.110	0.130	2.79	3.30
H	0.018	0.025	0.46	0.64
I	0.500	0.562	12.70	14.27
J	0.045	0.060	1.14	1.52
K	0.100	0.120	2.54	3.04
L	0.080	0.110	2.04	2.79
M	0.045	0.055	1.14	1.39
N	0.235	0.255	5.97	6.48
O	0.000	0.050	0.000	1.27

CASE 221B-03
(TO-220AC)
ISSUE B

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MUR820/D