

MUR1510, MUR1515, MUR1520, MUR1540, MUR1560

Preferred Devices

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 Time
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- High Voltage Capability to 600 Volts
- Low Forward Drop
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating Specified @ 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: U1510, U1515, U1520, U1540, U1560

MAXIMUM RATINGS

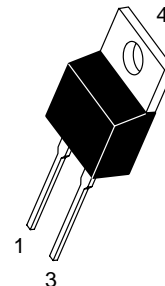
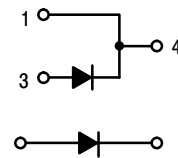
Please See the Table on the Following Page



ON Semiconductor™

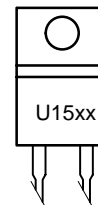
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**ULTRAFAST
RECTIFIERS
15 AMPERES
100-600 VOLTS**



**TO-220AC
CASE 221B
PLASTIC**

MARKING DIAGRAM



U15xx = Device Code
xx = 10, 15, 20,
40 or 60

ORDERING INFORMATION

Device	Package	Shipping
MUR1510	TO-220	50 Units/Rail
MUR1515	TO-220	50 Units/Rail
MUR1520	TO-220	50 Units/Rail
MUR1540	TO-220	50 Units/Rail
MUR1560	TO-220	50 Units/Rail

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

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MAXIMUM RATINGS

Rating	Symbol	MUR					Unit
		1510	1515	1520	1540	1560	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	150	200	400	600	Volts
Average Rectified Forward Current (Rated V_R)	$I_{F(AV)}$	15 @ $T_C = 150^\circ\text{C}$			15 @ $T_C = 145^\circ\text{C}$		Amps
Peak Rectified Forward Current (Rated V_R , Square Wave, 20 kHz)	I_{FRM}	30 @ $T_C = 150^\circ\text{C}$			30 @ $T_C = 145^\circ\text{C}$		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	200			150		Amps
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	-65 to +175					$^\circ\text{C}$

THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1.) ($i_F = 15$ Amps, $T_C = 150^\circ\text{C}$) ($i_F = 15$ Amps, $T_C = 25^\circ\text{C}$)	V_F	0.85 1.05	1.12 1.25	1.20 1.50	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_C = 150^\circ\text{C}$) (Rated dc Voltage, $T_C = 25^\circ\text{C}$)	i_R	500 10	500 10	1000 10	μA
Maximum Reverse Recovery Time ($I_F = 1.0$ Amp, $di/dt = 50$ Amps/ μs)	t_{rr}	35	60		ns

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

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MUR1510, MUR1515, MUR1520

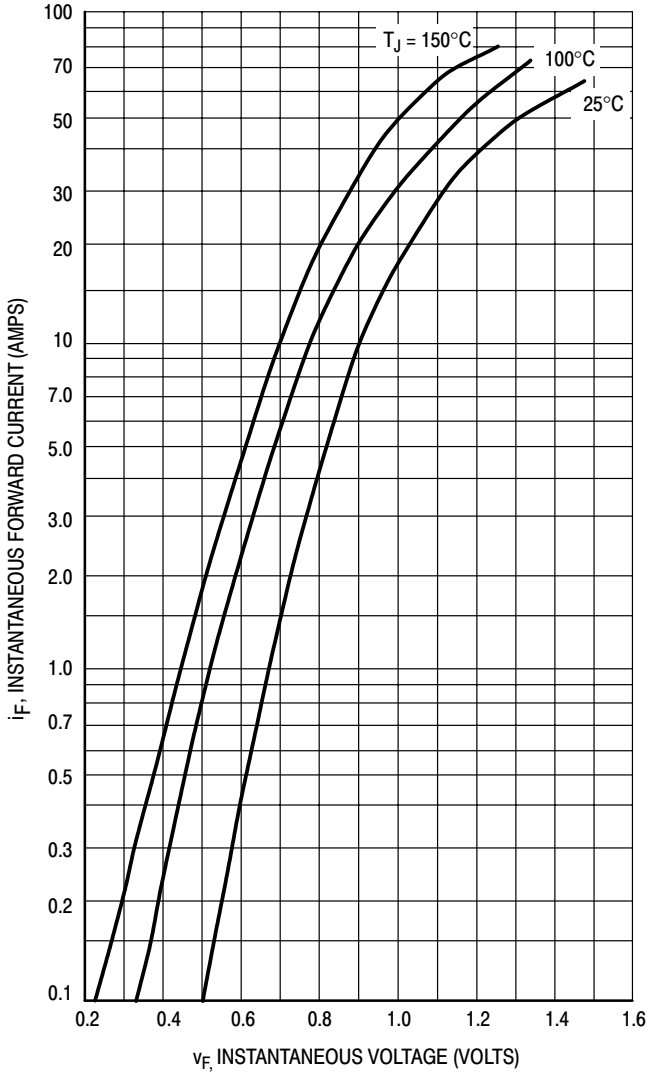


Figure 1. Typical Forward Voltage

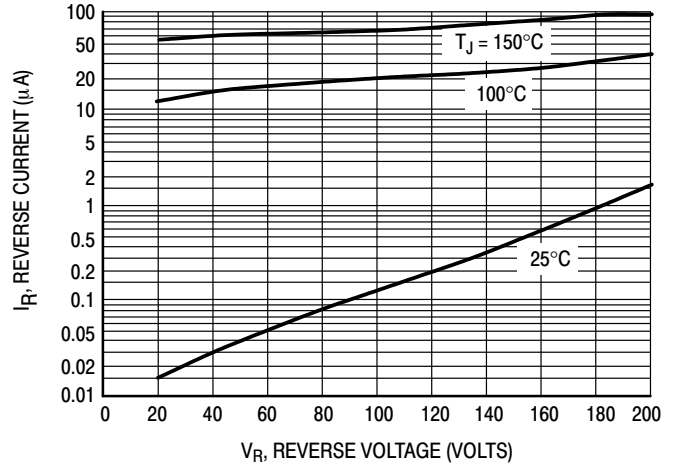


Figure 2. Typical Reverse Current

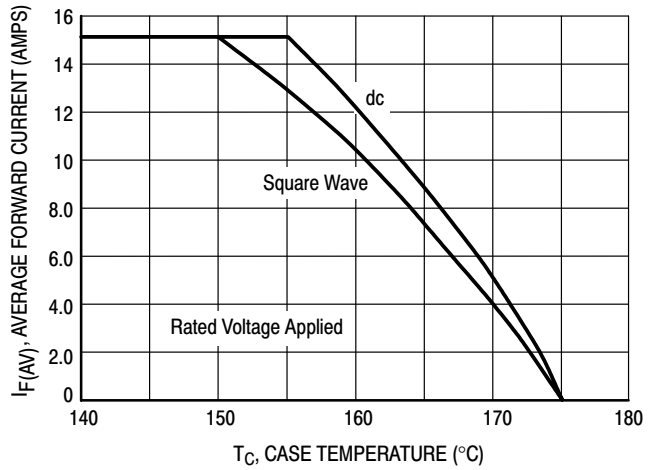


Figure 3. Current Derating, Case

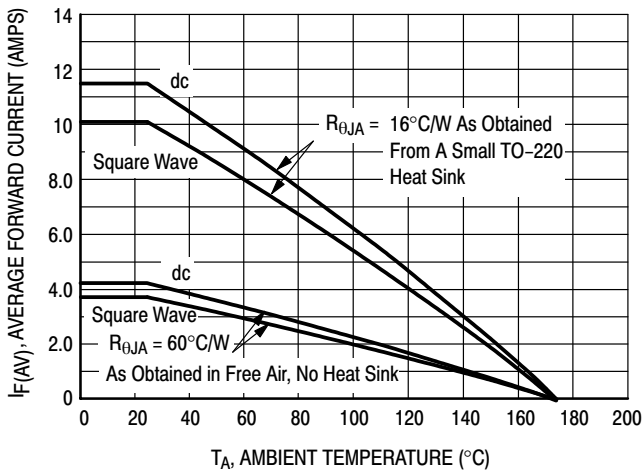


Figure 4. Current Derating, Ambient

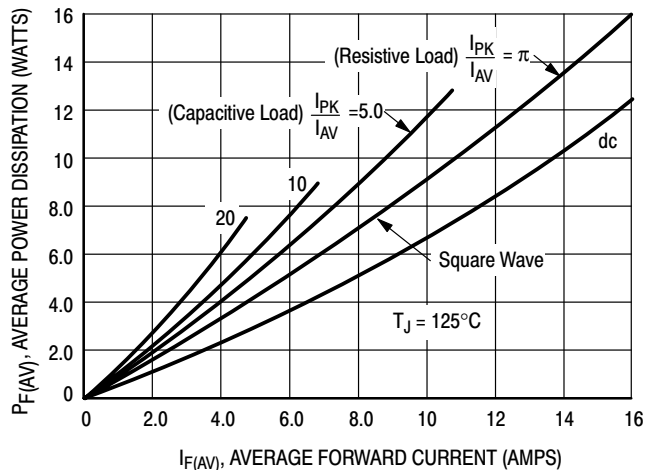


Figure 5. Power Dissipation

MUR1510, MUR1515, MUR1520, MUR1540, MUR1560

MUR1540

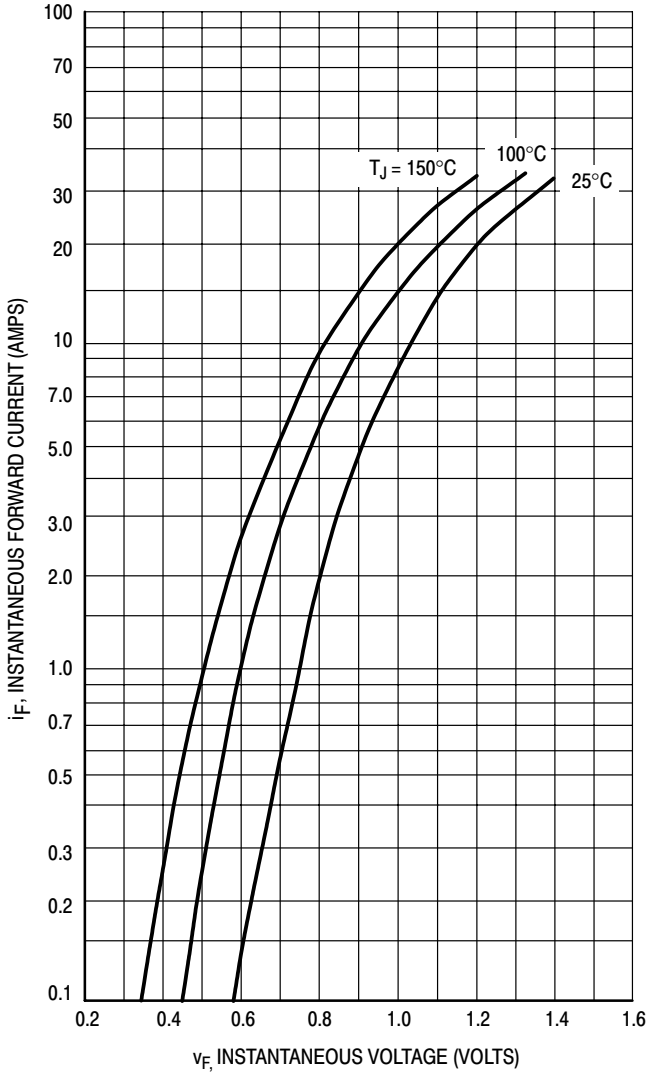


Figure 6. Typical Forward Voltage

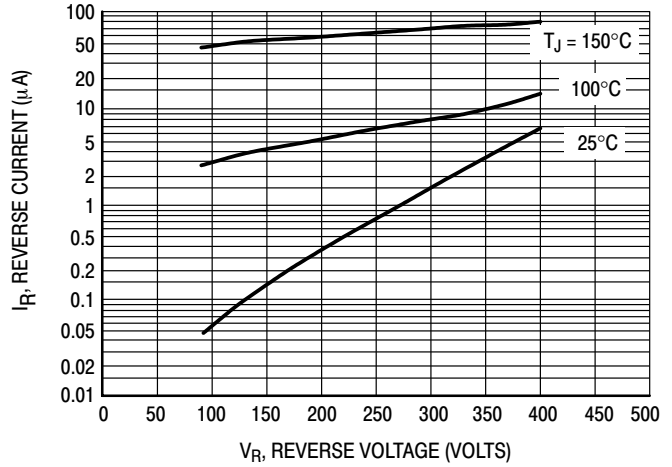


Figure 7. Typical Reverse Current

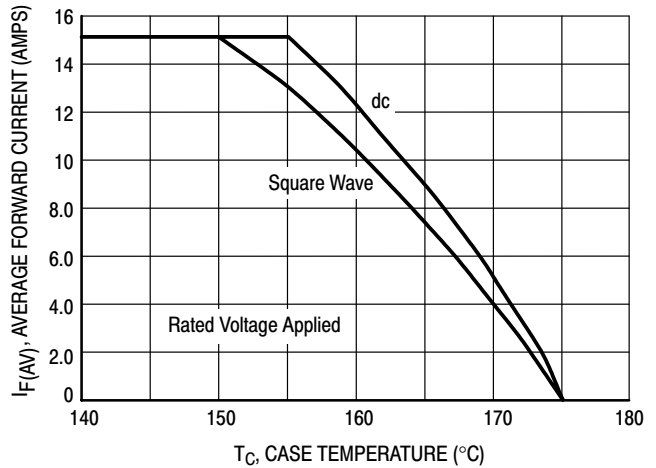


Figure 8. Current Derating, Case

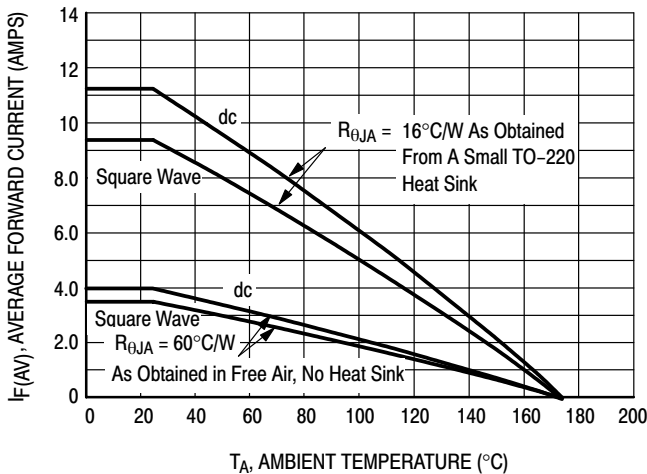


Figure 9. Current Derating, Ambient

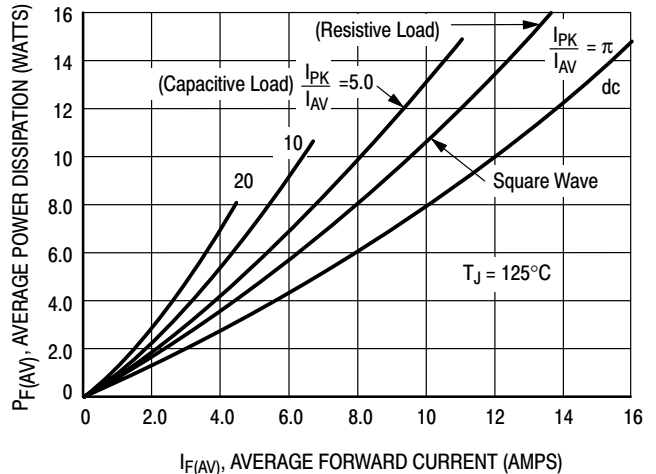


Figure 10. Power Dissipation

MUR1560

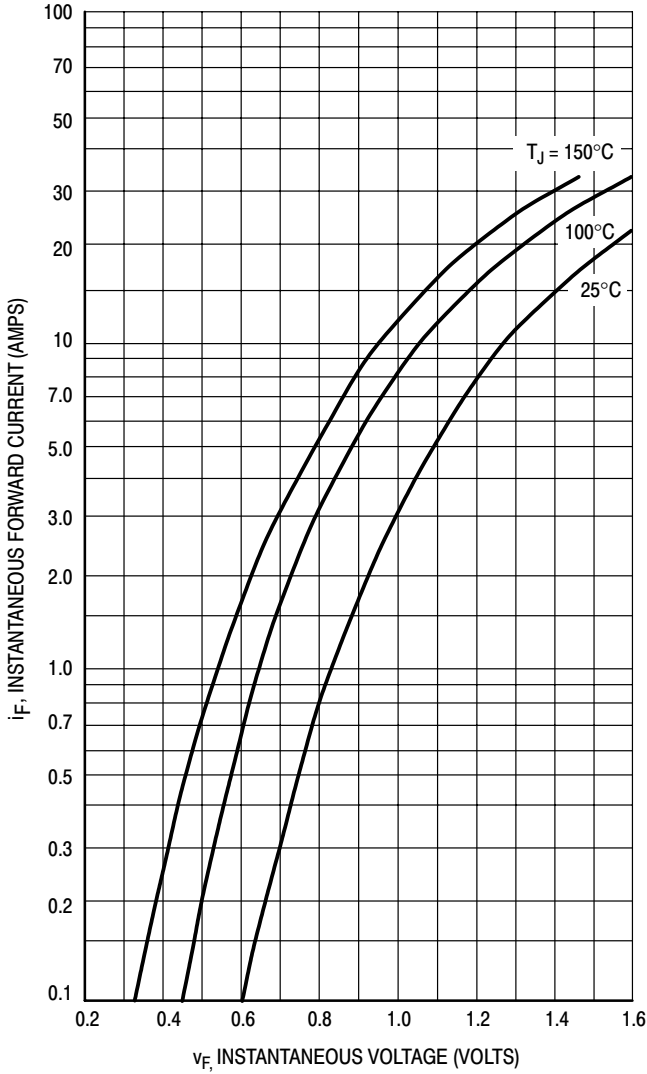


Figure 11. Typical Forward Voltage

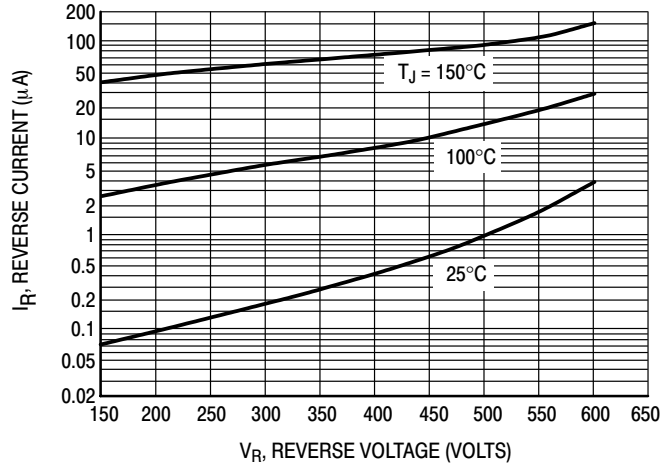


Figure 12. Typical Reverse Current

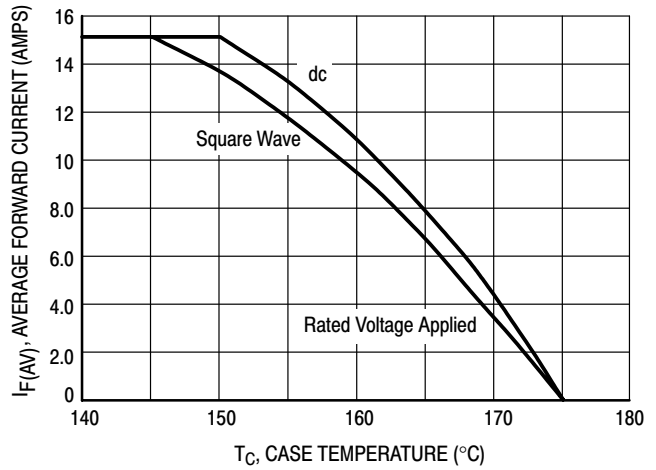


Figure 13. Current Derating, Case

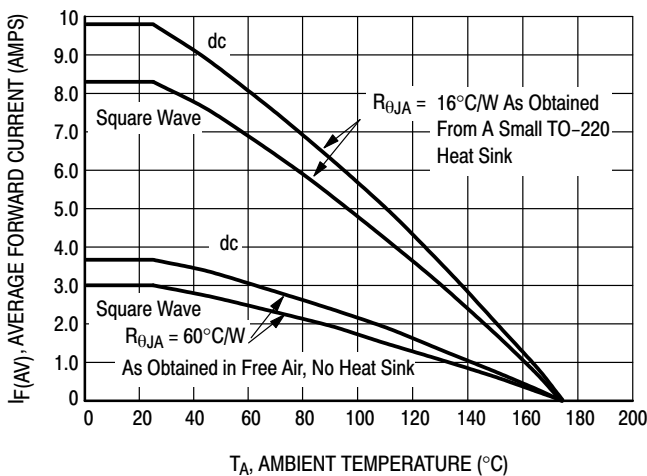


Figure 14. Current Derating, Ambient

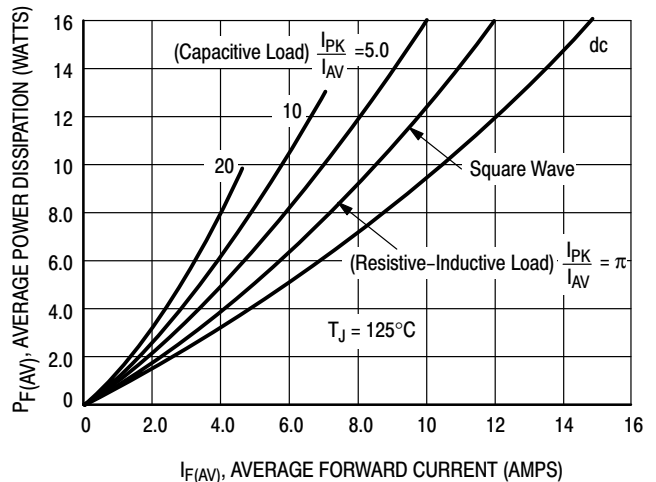


Figure 15. Power Dissipation

MUR1510, MUR1515, MUR1520, MUR1540, MUR1560

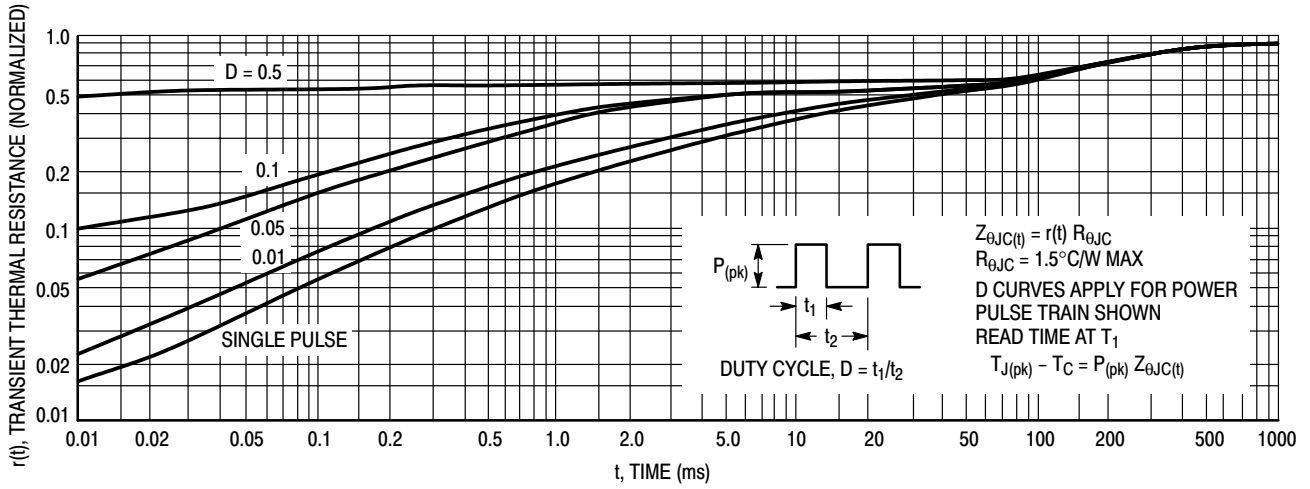


Figure 16. Thermal Response

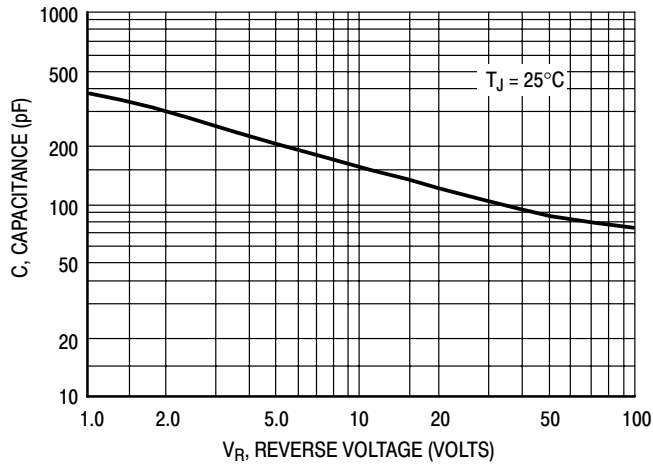
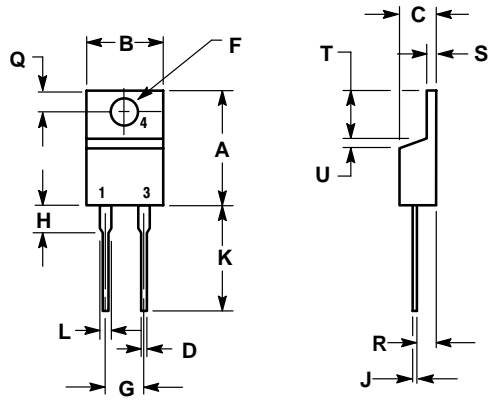


Figure 17. Typical Capacitance

MUR1510, MUR1515, MUR1520, MUR1540, MUR1560

PACKAGE DIMENSIONS

TO-220 TWO-LEAD CASE 221B-04 ISSUE D



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
F	0.142	0.147	3.61	3.73
G	0.190	0.210	4.83	5.33
H	0.110	0.130	2.79	3.30
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.14	1.52
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.14	1.39
T	0.235	0.255	5.97	6.48
U	0.000	0.050	0.000	1.27

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