MUR805, MUR810, MUR815, MUR820, MUR840, MUR860

Preferred Devices

SWITCHMODE™ Power Rectifiers

This series are state−of−the−art devices designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Ultrafast 25, 50 and 75 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO−220 Package
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 V
- Pb−Free Packages are Available*

Mechanical Characteristics:

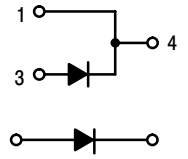
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max for 10 Seconds

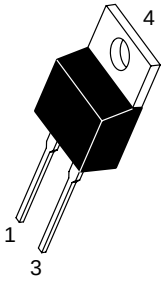
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

http://onsemi.com

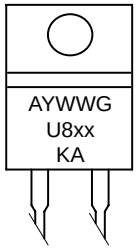
ULTRAFAST RECTIFIERS 8.0 AMPERES, 50−600 VOLTS





TO−220AC
CASE 221B
PLASTIC

MARKING DIAGRAM



A	= Assembly Location
Y	= Year
WW	= Work Week
U8xx	= Device Code
	xx = 05, 10, 15, 20, 40 or 60
G	= Pb−Free Package
KA	= Diode Polarity

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

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

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MAXIMUM RATINGS

Rating	Symbol	MUR 805	MUR 810	MUR 815	MUR 820	MUR 840	MUR 860	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	400	600	V
Average Rectified Forward Current Total Device, (Rated V_R), T_C = 150°C	$I_{F(AV)}$	8.0						A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz), T_C = 150°C	I_{FM}	16						A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	100						A
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	−65 to +175						°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Rating	Symbol	MUR 805	MUR 810	MUR 815	MUR 820	MUR 840	MUR 860	Unit
Maximum Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	3.0				2.0		°C/W

ELECTRICAL CHARACTERISTICS

Rating	Symbol	MUR 805	MUR 810	MUR 815	MUR 820	MUR 840	MUR 860	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 8.0 A, T_C = 150°C) (i_F = 8.0 A, T_C = 25°C)	v_F	0.895 0.975				1.00 1.30	1.20 1.50	V
Maximum Instantaneous Reverse Current (Note 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 A, di/dt = 50 A/μs) (I_F = 0.5 A, i_R = 1.0 A, I_{REC} = 0.25 A)	t_{rr}	35 25				60 50		ns

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

MUR805, MUR810, MUR815, MUR820

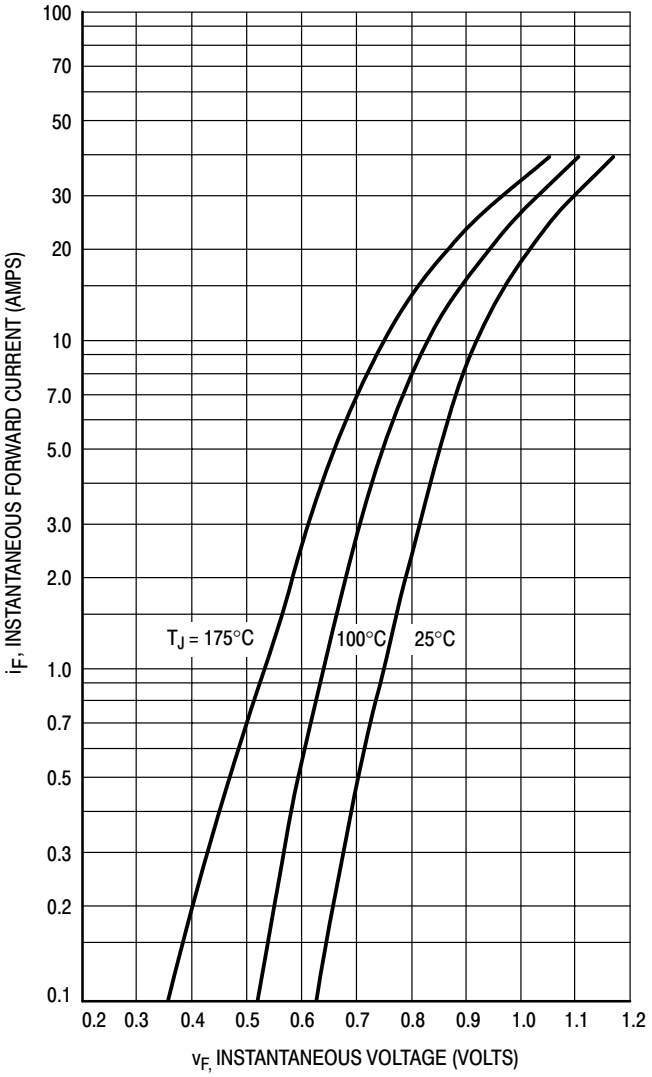


Figure 1. Typical Forward Voltage

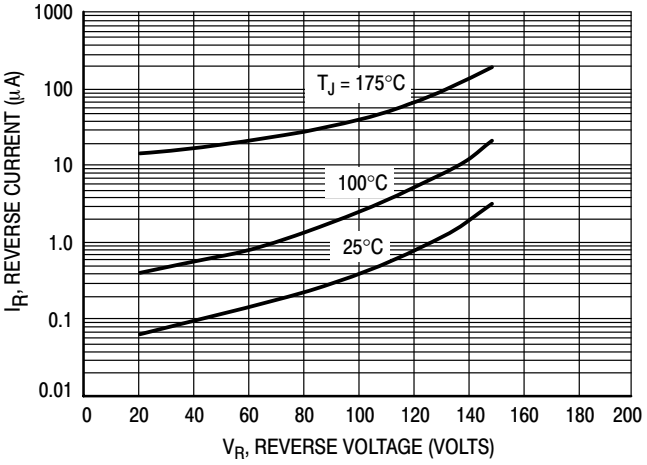


Figure 2. Typical Reverse Current*

* 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.

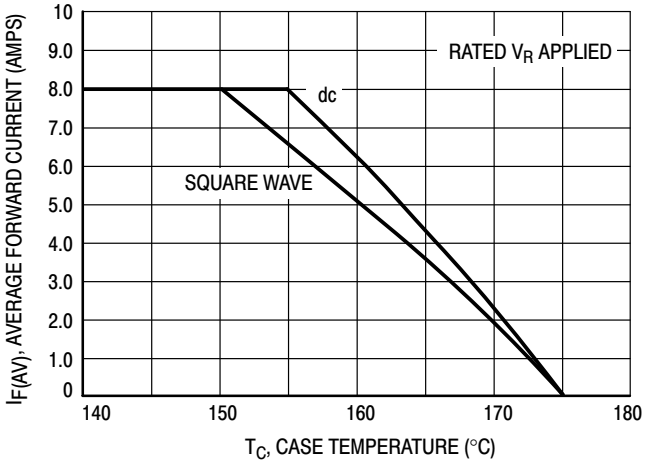


Figure 3. Current Derating, Case

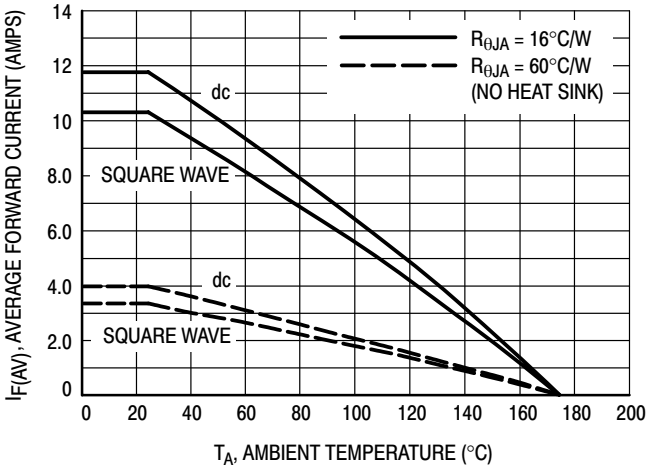


Figure 4. Current Derating, Ambient

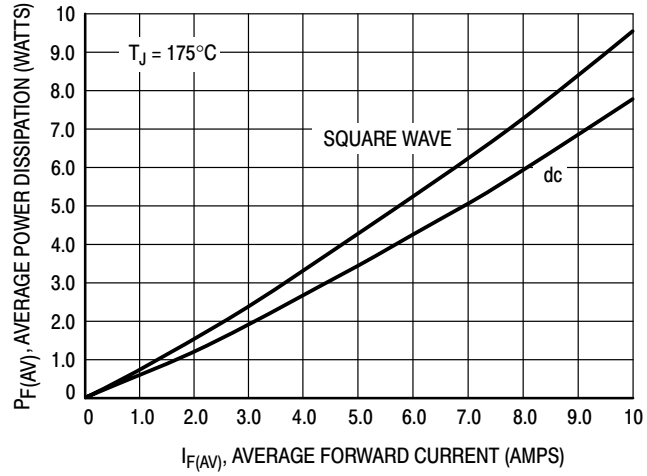


Figure 5. Power Dissipation

MUR840

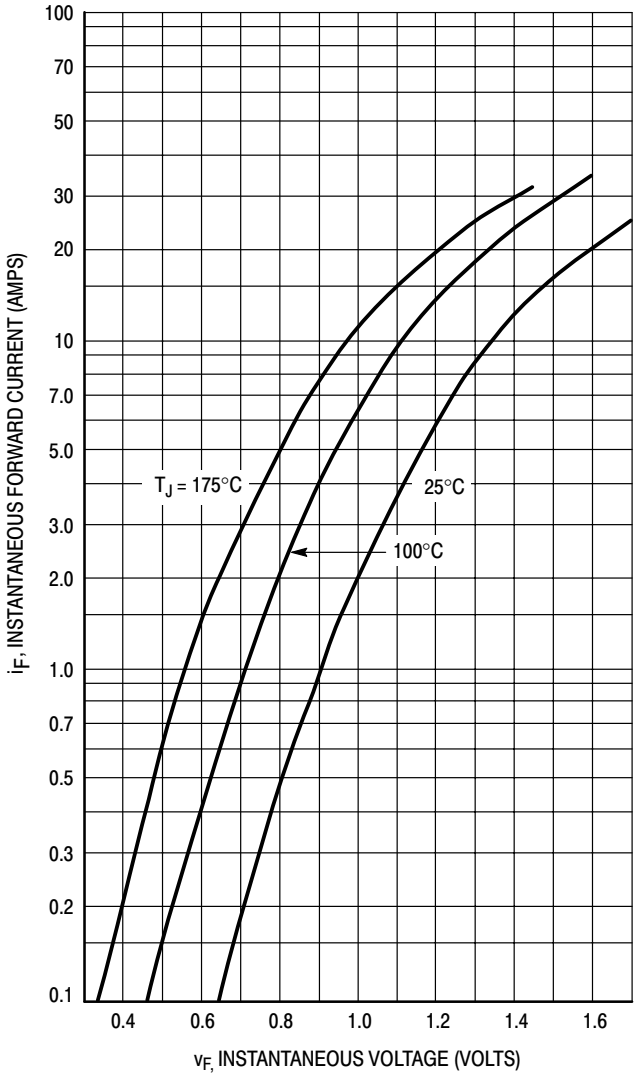


Figure 6. Typical Forward Voltage

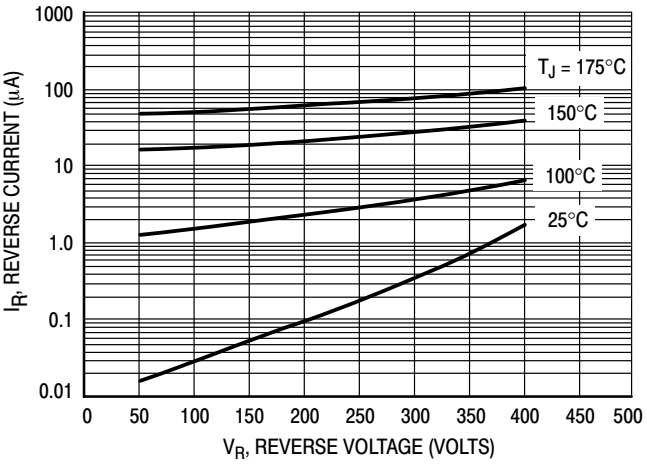


Figure 7. Typical Reverse Current*

* 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.

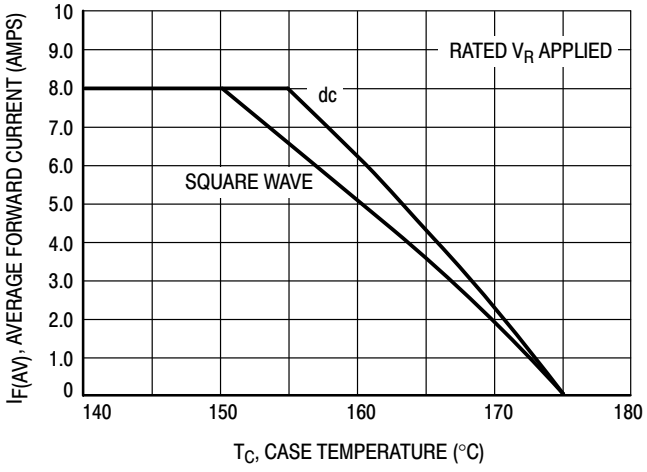


Figure 8. Current Derating, Case

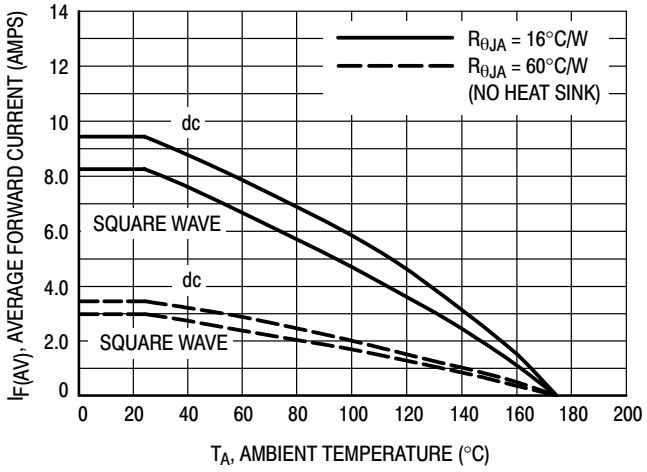


Figure 9. Current Derating, Ambient

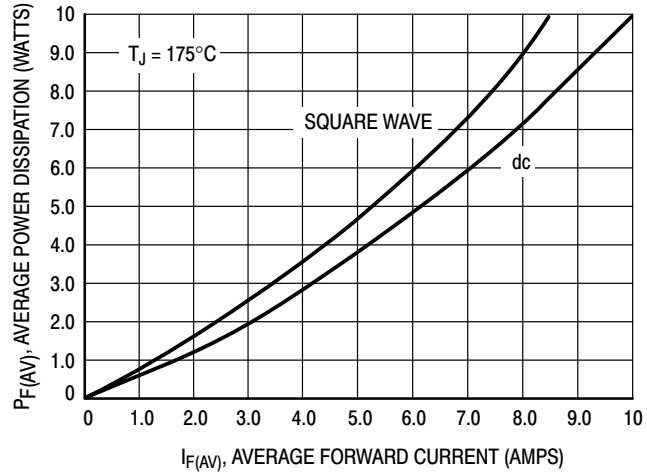


Figure 10. Power Dissipation

MUR860

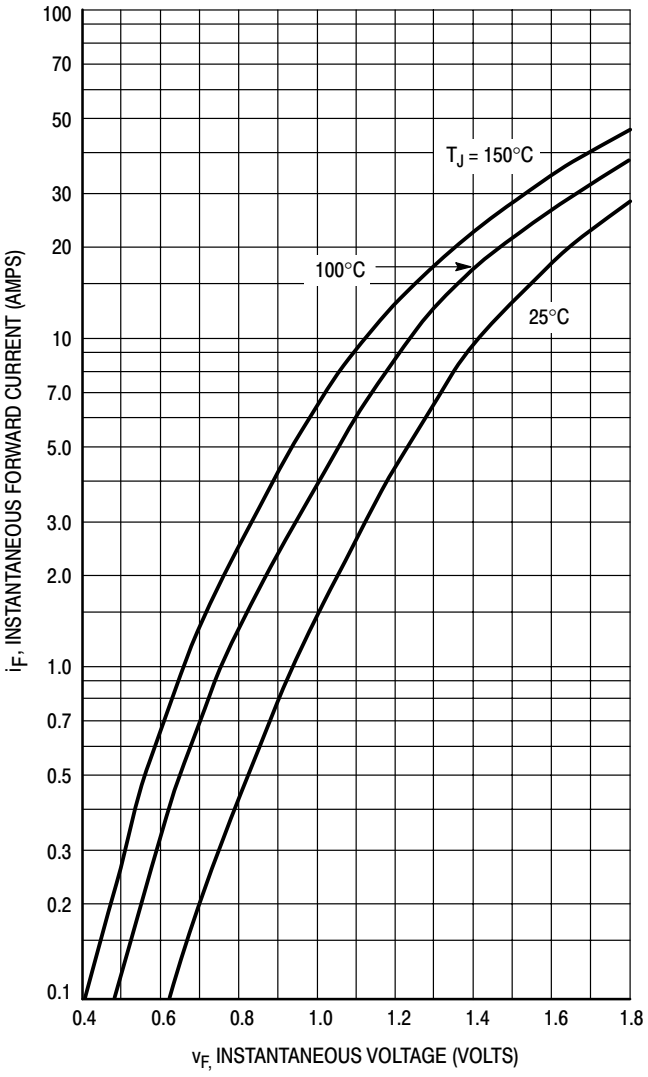


Figure 11. Typical Forward Voltage

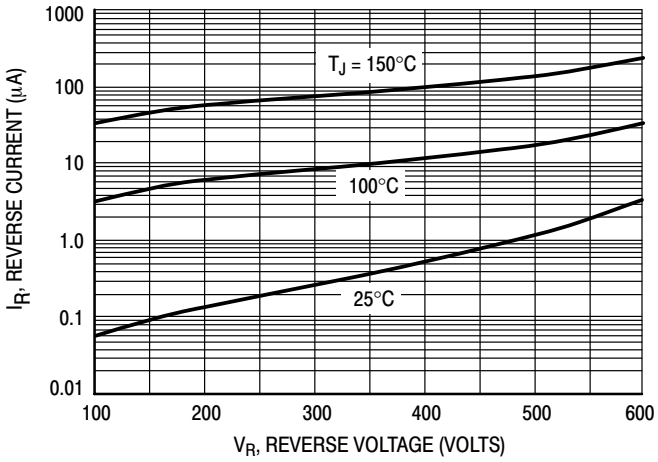


Figure 12. Typical Reverse Current*

* 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.

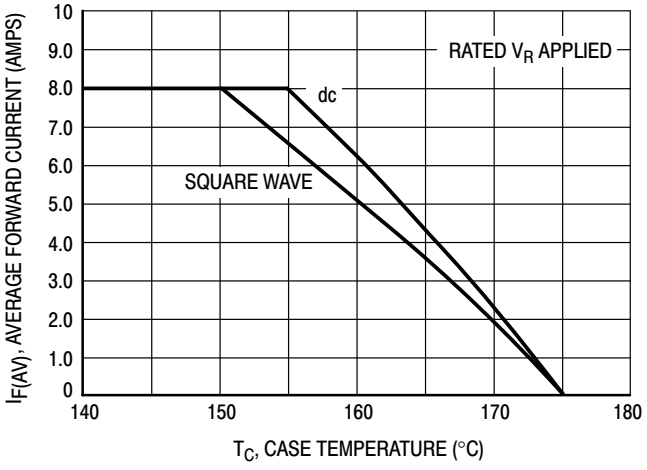


Figure 13. Current Derating, Case

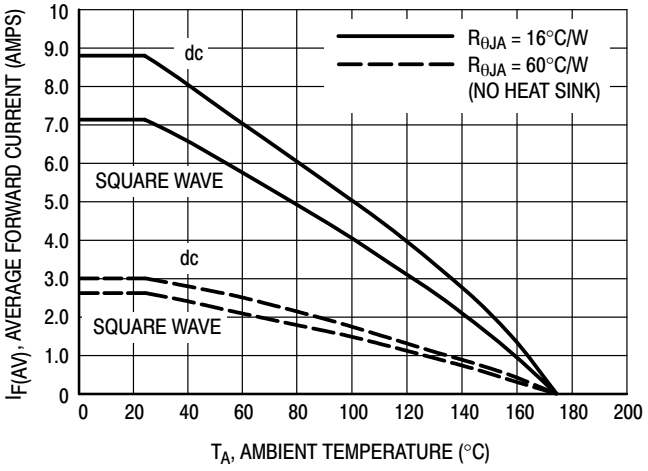


Figure 14. Current Derating, Ambient

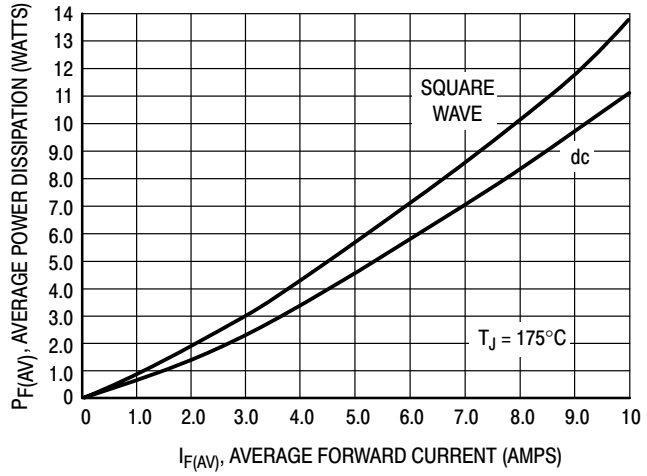


Figure 15. Power Dissipation

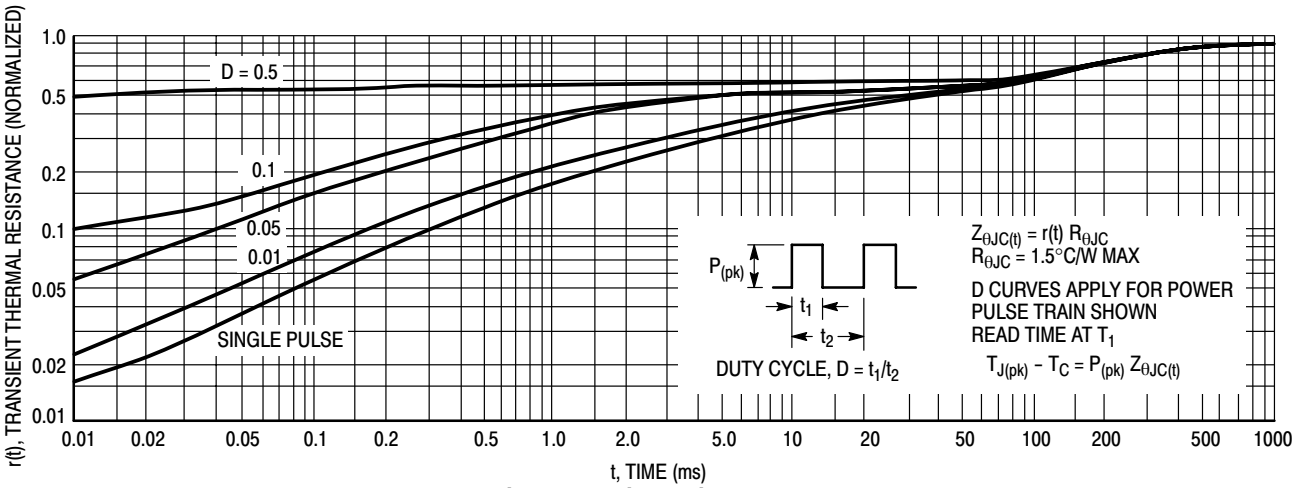


Figure 16. Thermal Response

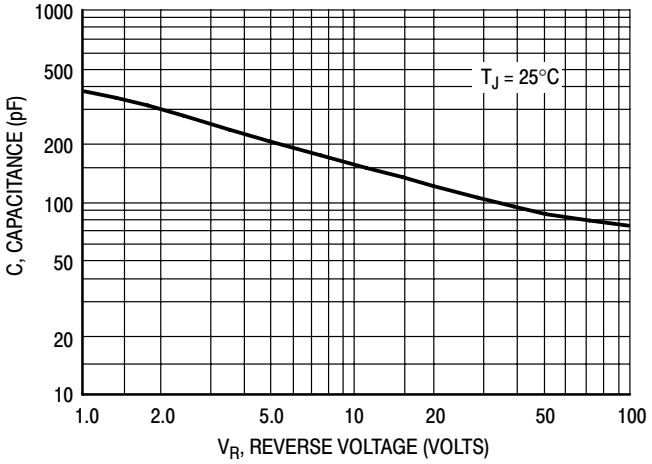


Figure 17. Typical Capacitance

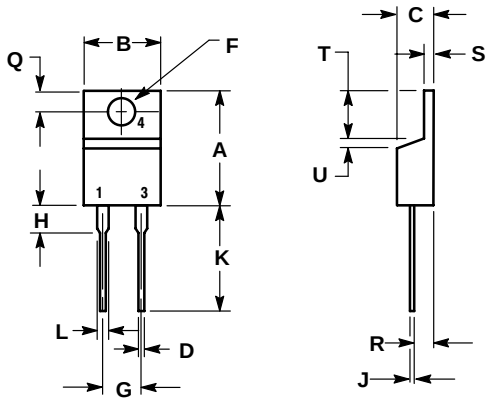
ORDERING INFORMATION

Device	Package	Shipping†
MUR805	TO−220	50 Units / Rail
MUR805G	TO−220 (Pb−Free)	
MUR810	TO−220	
MUR810G	TO−220 (Pb−Free)	
MUR815	TO−220	
MUR815G	TO−220 (Pb−Free)	
MUR820	TO−220	
MUR820G	TO−220 (Pb−Free)	
MUR840	TO−220	
MUR840G	TO−220 (Pb−Free)	
MUR860	TO−220	
MUR860G	TO−220 (Pb−Free)	

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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.

	INCHES		MILLIMETERS	
DIM	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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MUR820/D