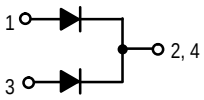
SWITCHMODE™ Power Rectifiers

. . . 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–247 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
- Epoxy Meets UL94, V_O @ 1/8″
- High Temperature Glass Passivated Junction

Mechanical Characteristics

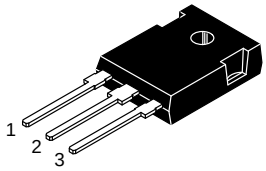
- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 units per plastic tube
- Marking: U3020, U3040, U3060



MUR3020WT
MUR3040WT
MUR3060WT

Motorola Preferred Devices

ULTRAFAST RECTIFIERS
30 AMPERES
200–400–600 VOLTS



CASE 340K–01
TO–247AE

MAXIMUM RATINGS, PER LEG

Rating	Symbol	MUR3020WT	MUR3040WT	MUR3060WT	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 @ 145°C Total Device	$I_{F(AV)}$	15 30			Amps
Peak Repetitive Surge Current (Rated V_R, Square Wave, 20 kHz, T_C = 145°C)	I_{FM}	30			Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	200	150		Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	– 65 to +175			°C

THERMAL CHARACTERISTICS, PER LEG

Maximum Thermal Resistance — Junction to Case — Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	1.5 40	°C/W

ELECTRICAL CHARACTERISTICS, PER LEG

Maximum Instantaneous Forward Voltage (1) (I_F = 15 Amp, T_C = 150°C) (I_F = 15 Amp, T_C = 25°C)	V_F	 0.85 1.05	 1.12 1.25	 1.4 1.7	Volts
Maximum Instantaneous Reverse Current (1) (Rated DC Voltage, T_J = 150°C) (Rated DC Voltage, T_J = 25°C)	i_R	 500 10		 1000 10	μA
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 Amps/μs)	t_{rr}	35	60		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.

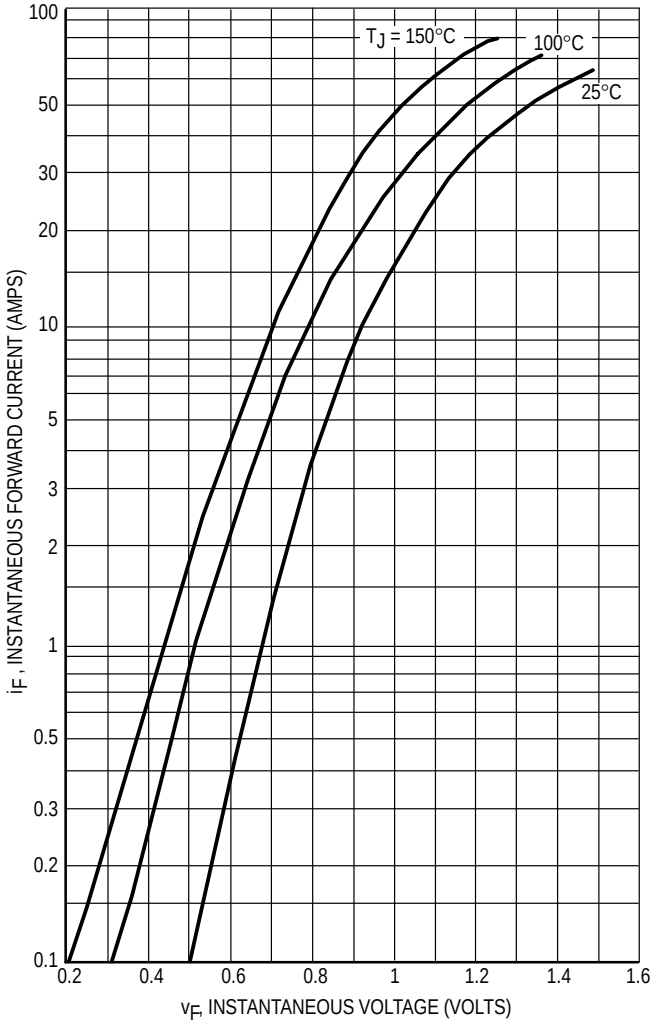
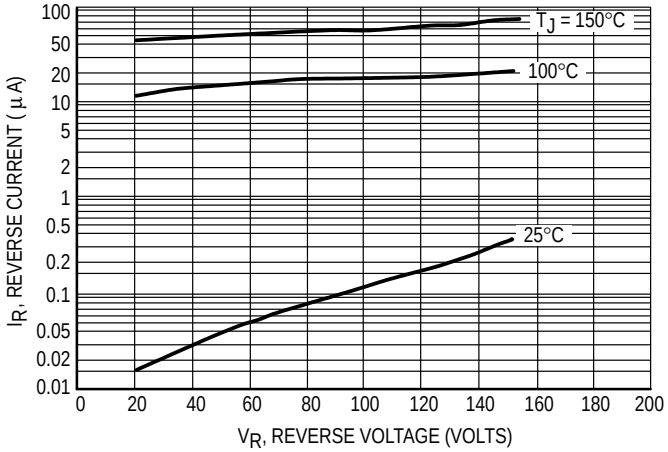


Figure 1. Typical Forward Voltage (Per Leg)



*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 same curves if V_R is sufficiently below rated V_R.

Figure 2. Typical Reverse Current (Per Leg)*

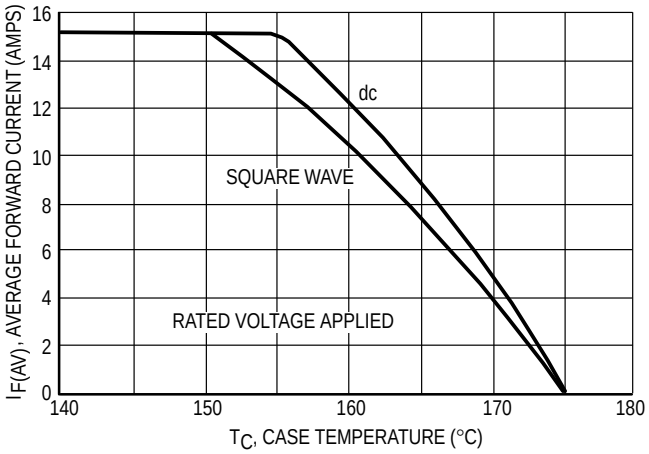


Figure 3. Current Derating, Case (Per Leg)

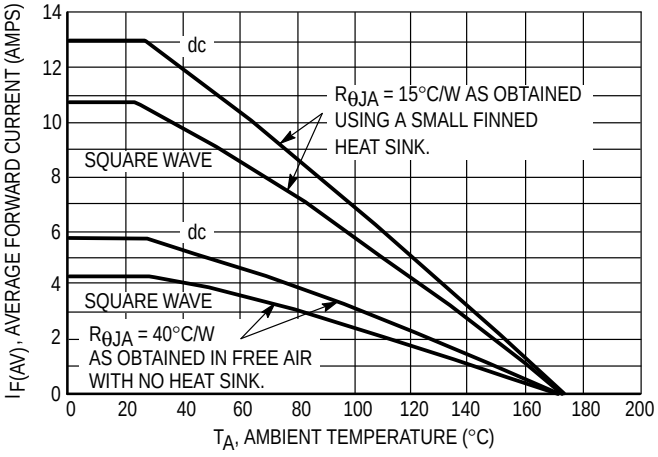


Figure 4. Current Derating, Ambient (Per Leg)

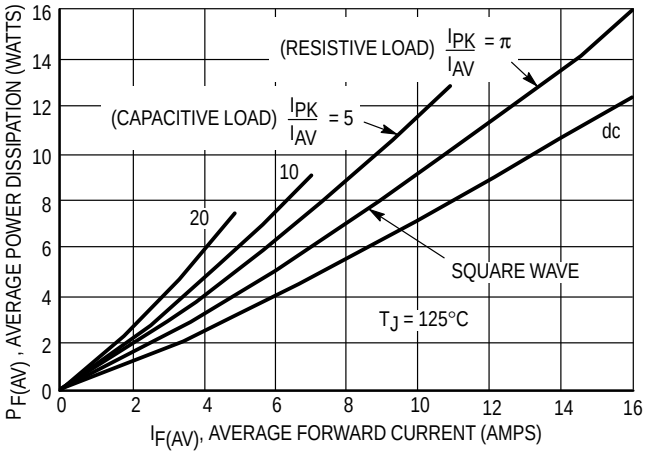


Figure 5. Power Dissipation (Per Leg)

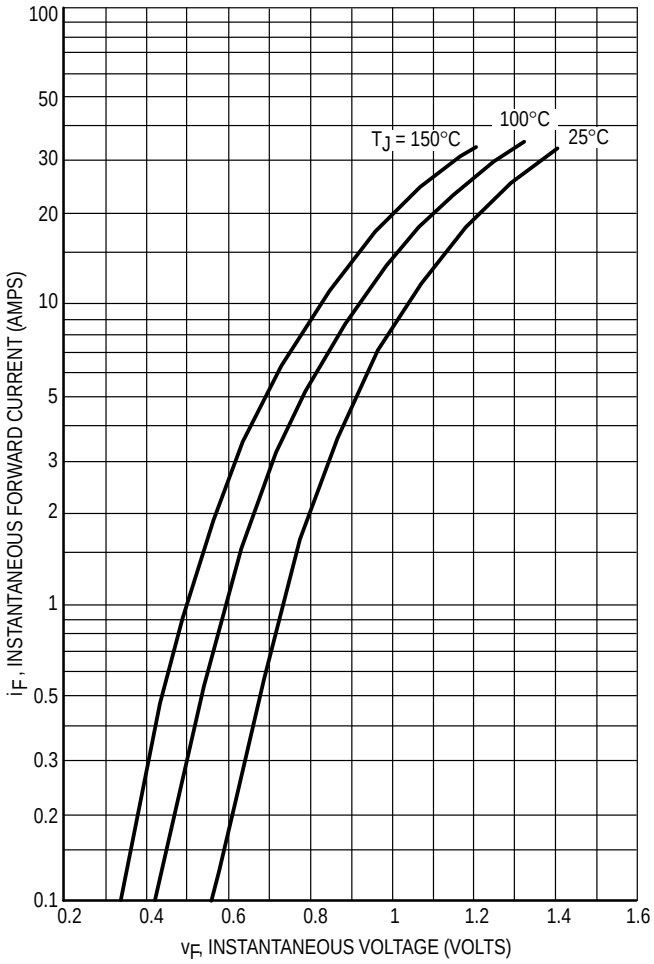
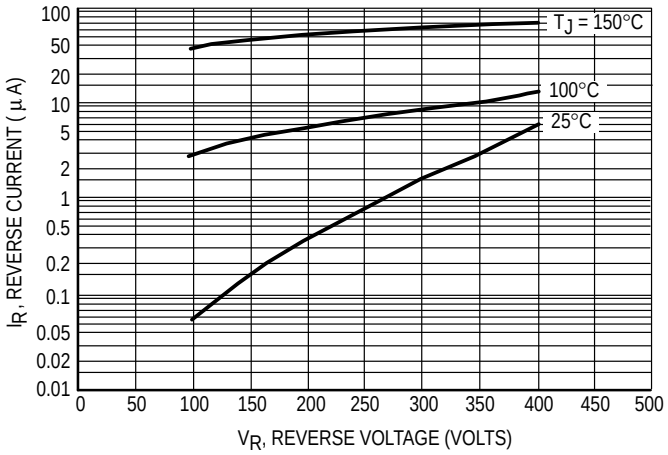


Figure 6. Typical Forward Voltage (Per Leg)



*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 7. Typical Reverse Current (Per Leg)*

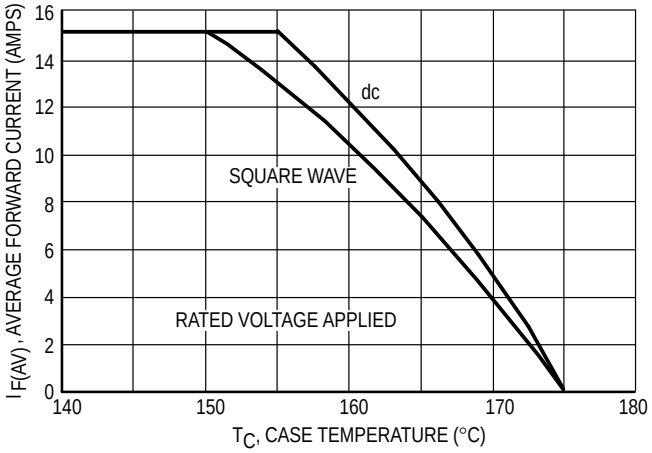


Figure 8. Current Derating, Case (Per Leg)

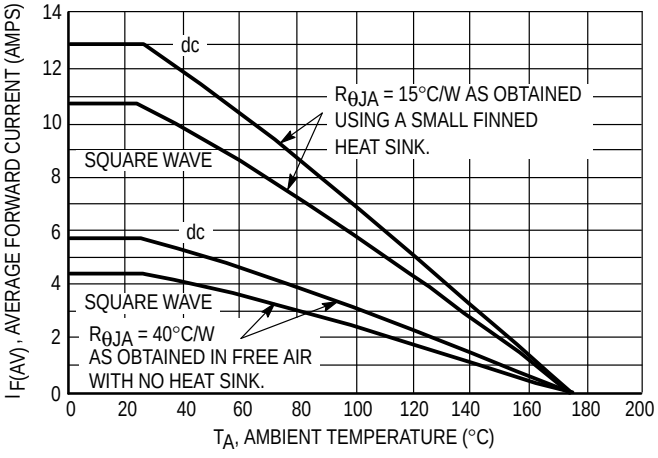


Figure 9. Current Derating, Ambient (Per Leg)

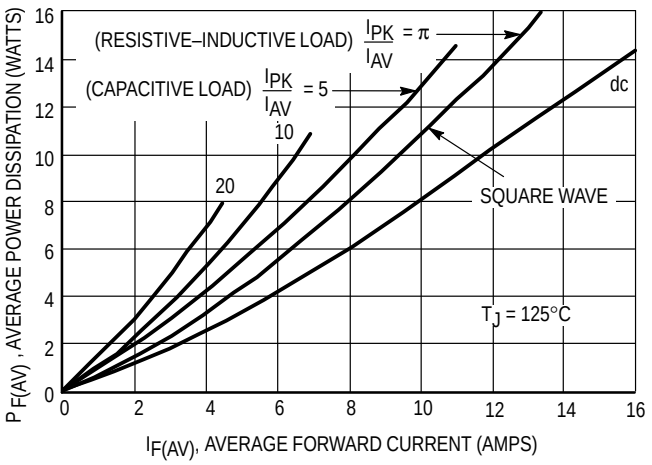


Figure 10. Power Dissipation (Per Leg)

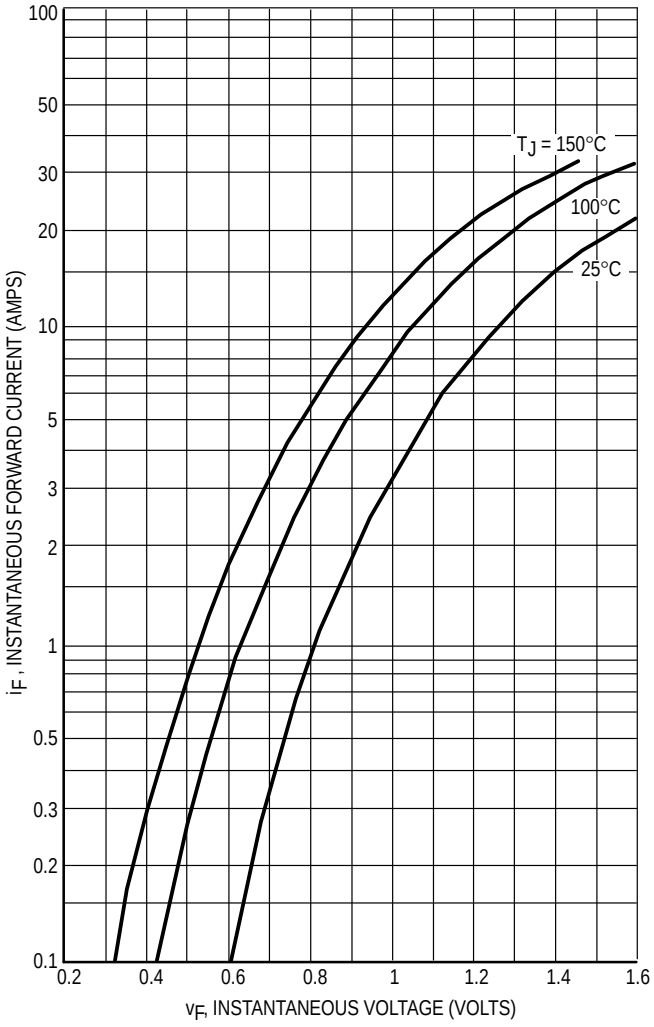


Figure 11. Typical Forward Voltage (Per Leg)

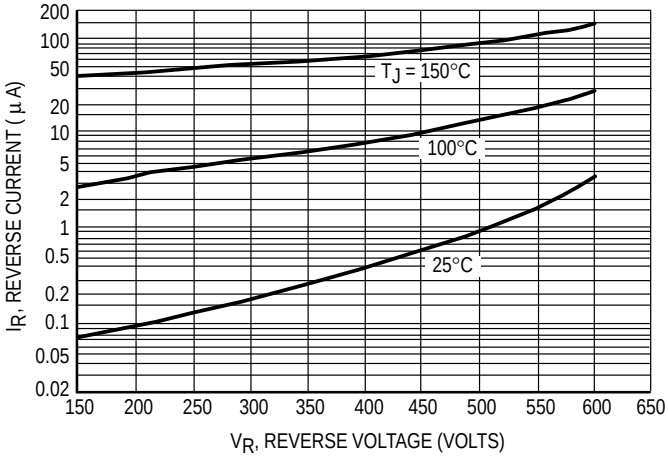


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Figure 12. Typical Reverse Current (Per Leg)*

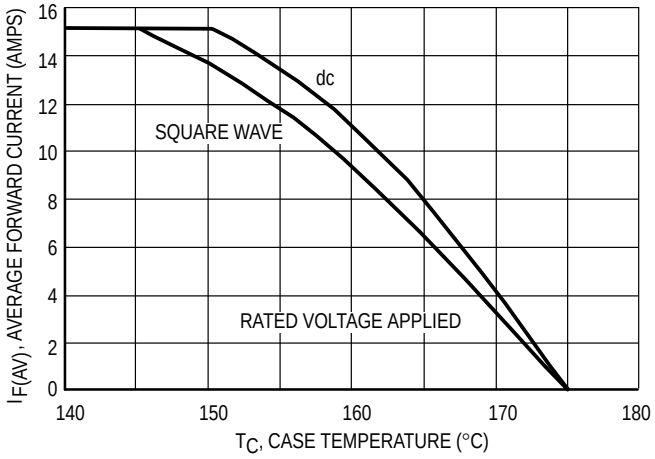


Figure 13. Current Derating, Case (Per Leg)

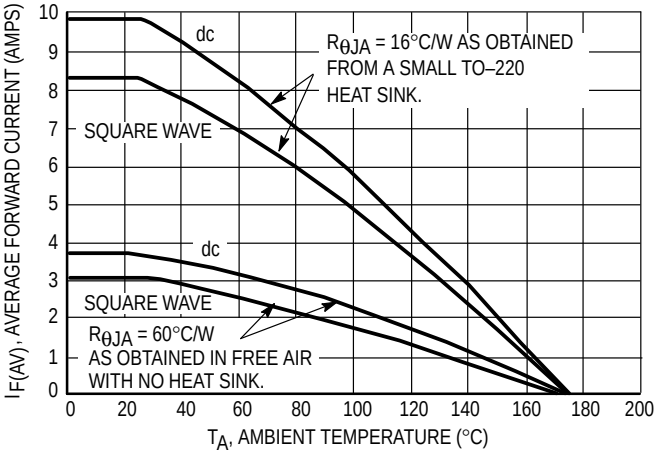


Figure 14. Current Derating, Ambient (Per Leg)

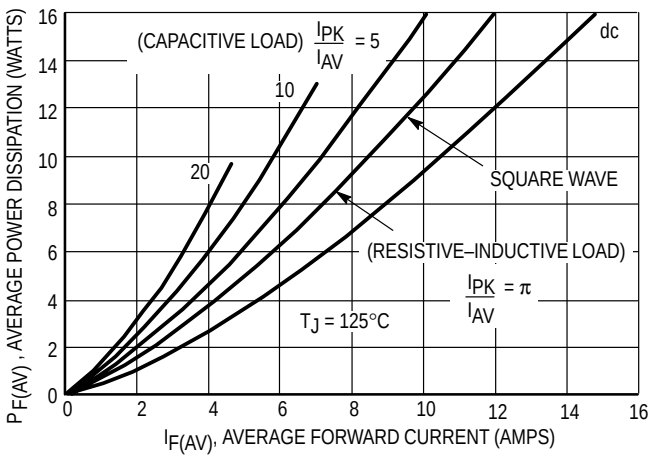


Figure 15. Power Dissipation (Per Leg)

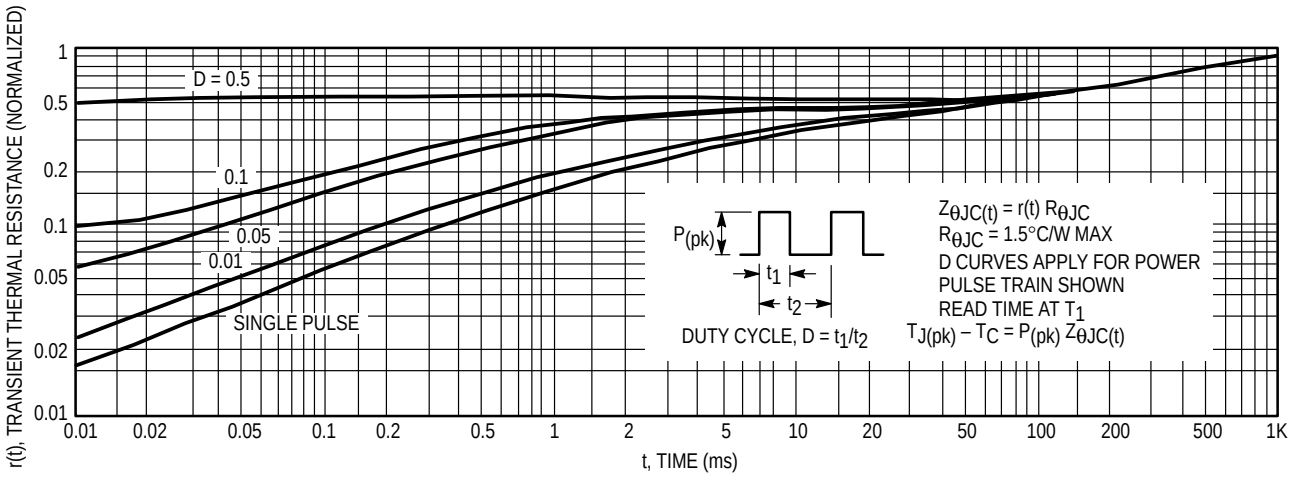


Figure 16. Thermal Response

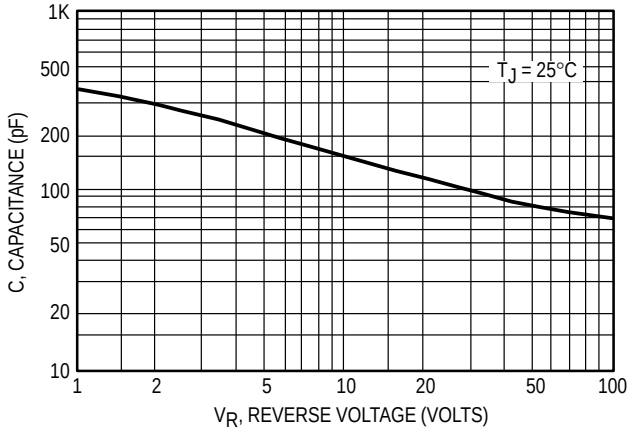
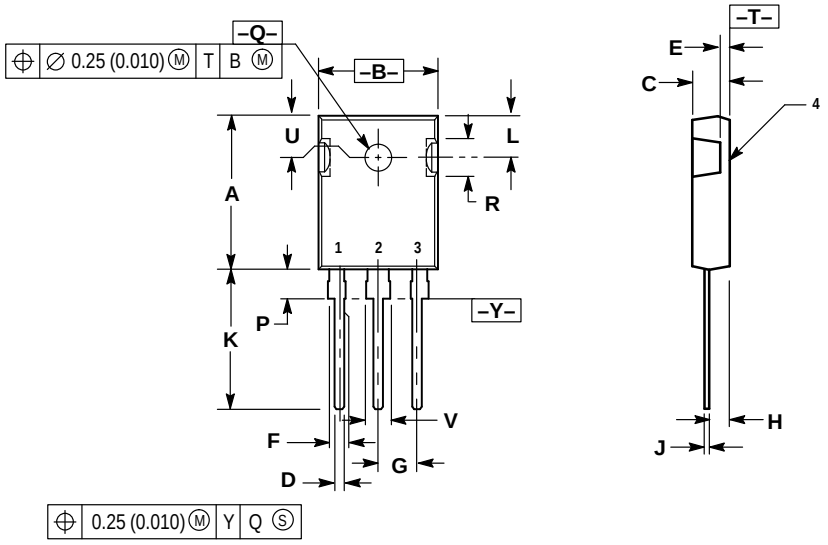


Figure 17. Typical Capacitance (Per Leg)

PACKAGE DIMENSIONS



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

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	19.7	20.3	0.776	0.799
B	15.3	15.9	0.602	0.626
C	4.7	5.3	0.185	0.209
D	1.0	1.4	0.039	0.055
E	1.27 REF		0.050 REF	
F	2.0	2.4	0.079	0.094
G	5.5 BSC		0.216 BSC	
H	2.2	2.6	0.087	0.102
J	0.4	0.8	0.016	0.031
K	14.2	14.8	0.559	0.583
L	5.5 NOM		0.217 NOM	
P	3.7	4.3	0.146	0.169
Q	3.55	3.65	0.140	0.144
R	5.0 NOM		0.197 NOM	
U	5.5 BSC		0.217 BSC	
V	3.0	3.4	0.118	0.134

STYLE 2:
PIN 1. ANODE 1
2. CATHODE(S)
3. ANODE 2
4. CATHODE(S)

CASE 340K–01
ISSUE O

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