

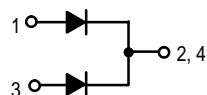
SWITCHMODE™ Power Rectifiers

... 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, V₀ @ 1/8"
- High Temperature Glass Passivated Junction

Mechanical Characteristics

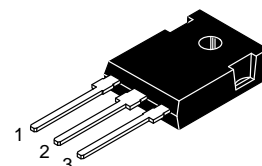
- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 units per plastic tube
- Marking: U3020, U3040, U3060



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 _R RM V _R 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 _θ JC R _θ 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 | | | 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.

MUR3020WT MUR3040WT MUR3060WT

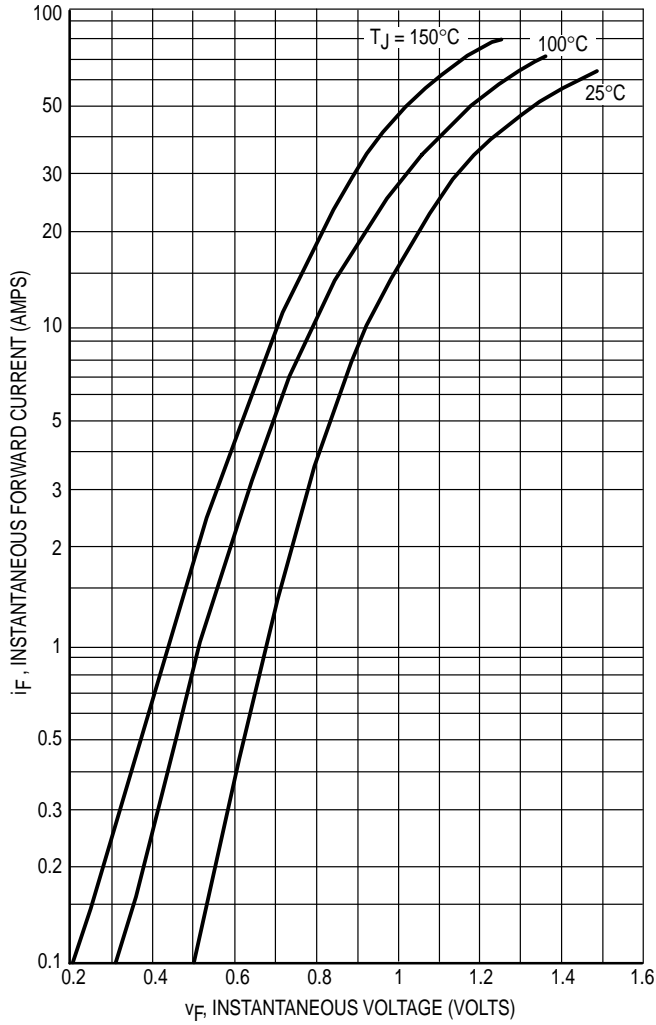
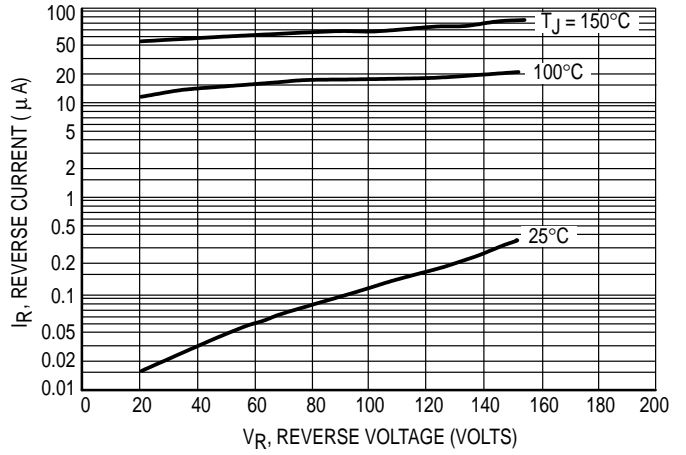


Figure 1. Typical Forward Voltage (Per Leg)



*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)*

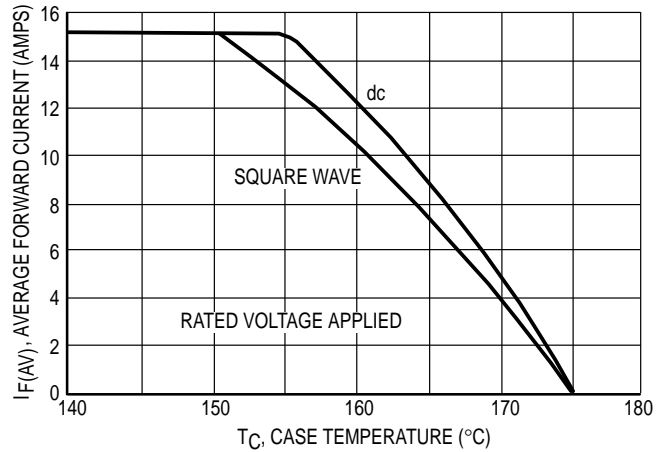


Figure 3. Current Derating, Case (Per Leg)

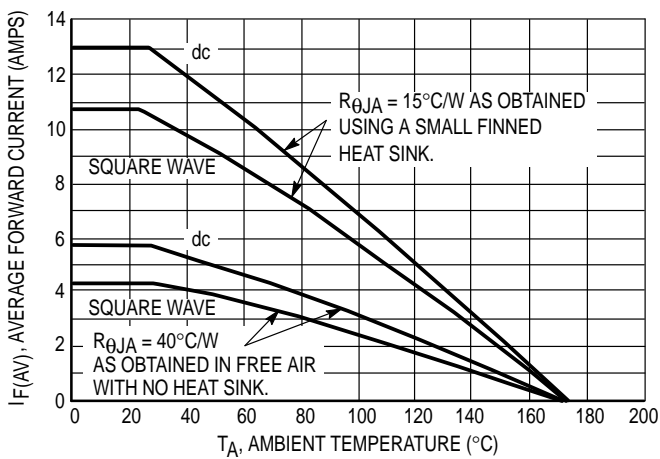


Figure 4. Current Derating, Ambient (Per Leg)

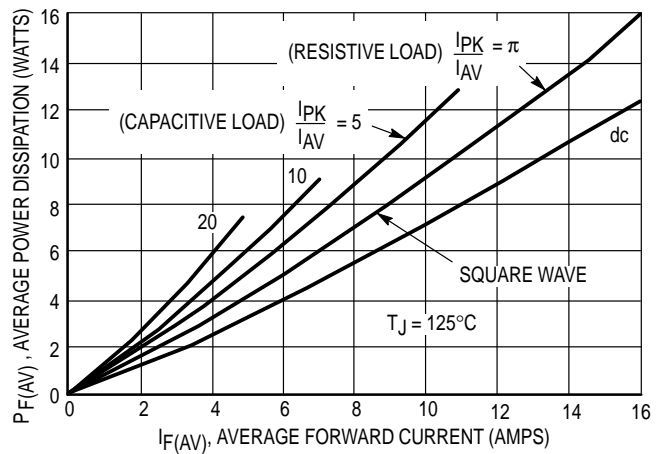


Figure 5. Power Dissipation (Per Leg)

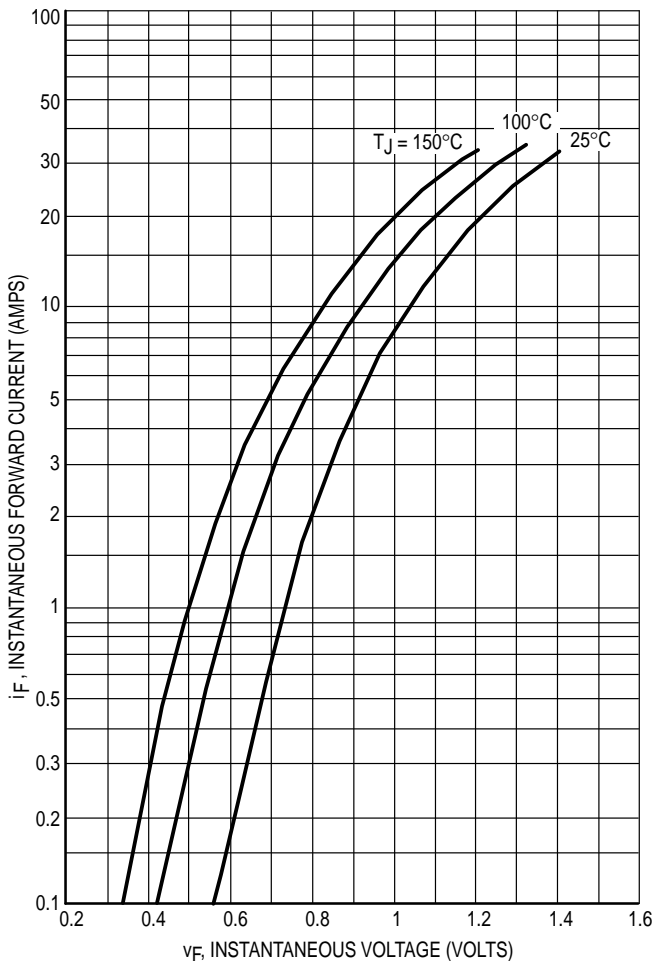
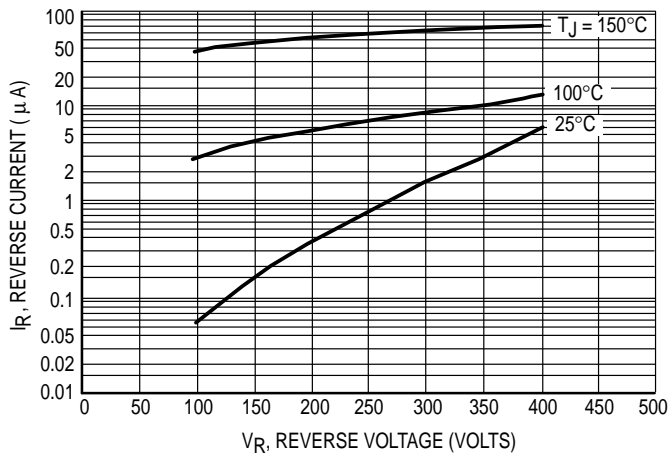


Figure 6. Typical Forward Voltage (Per Leg)



*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)*

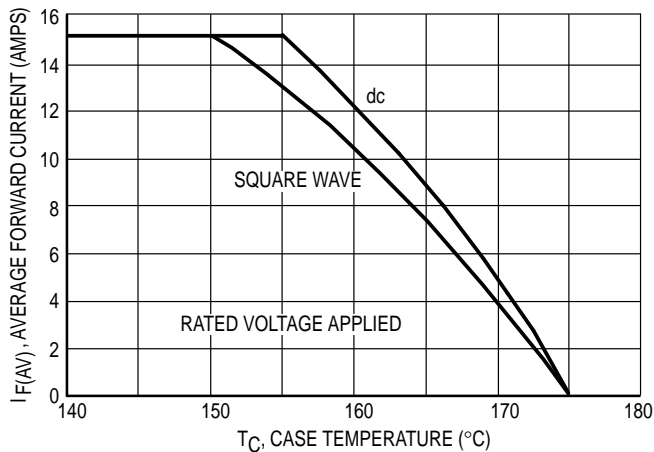


Figure 8. Current Derating, Case (Per Leg)

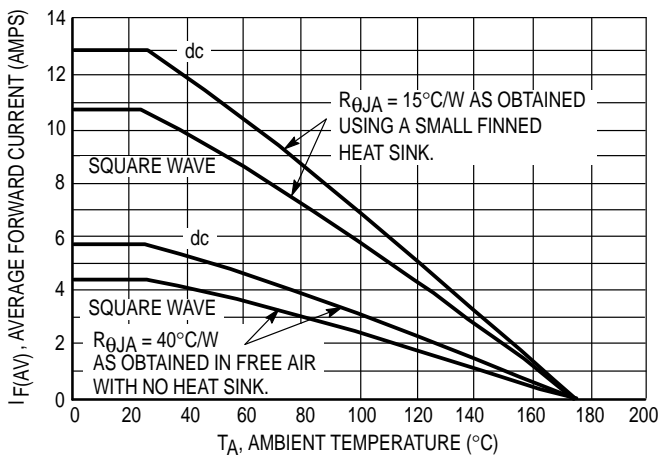


Figure 9. Current Derating, Ambient (Per Leg)

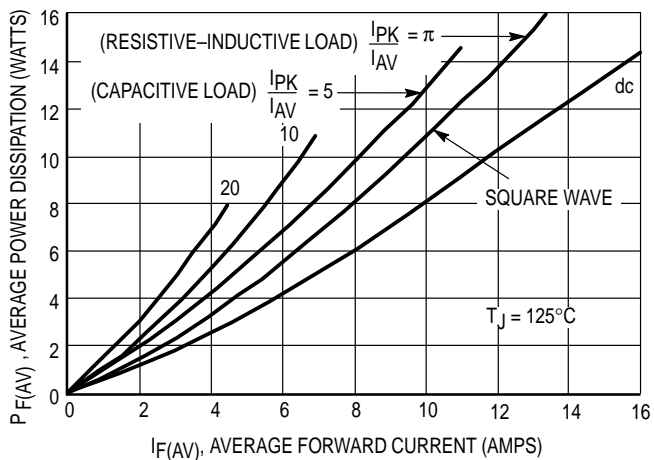


Figure 10. Power Dissipation (Per Leg)

MUR3020WT MUR3040WT MUR3060WT

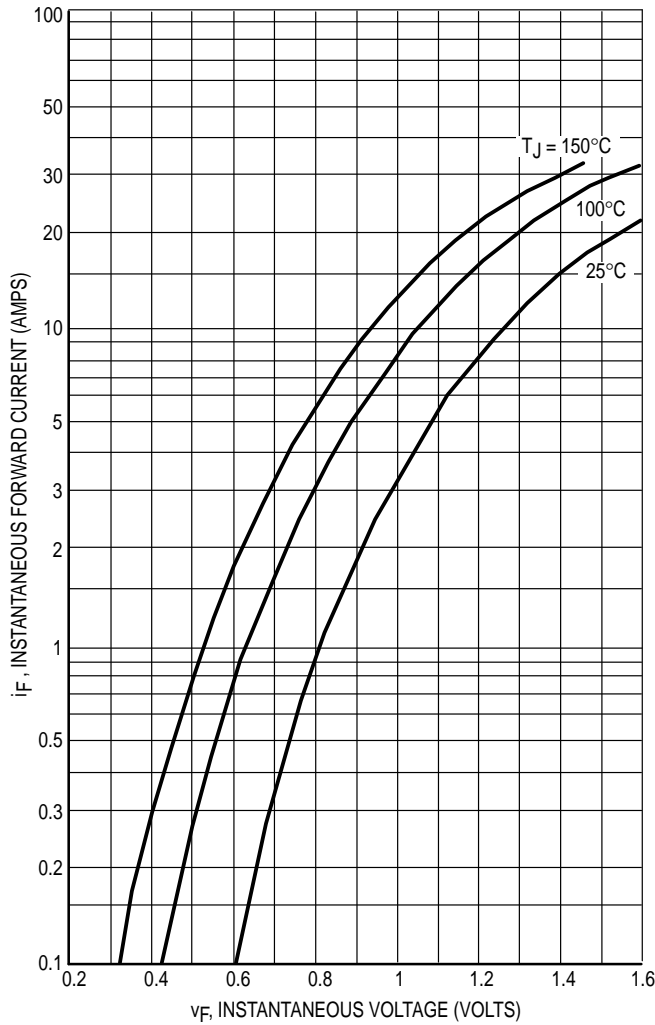
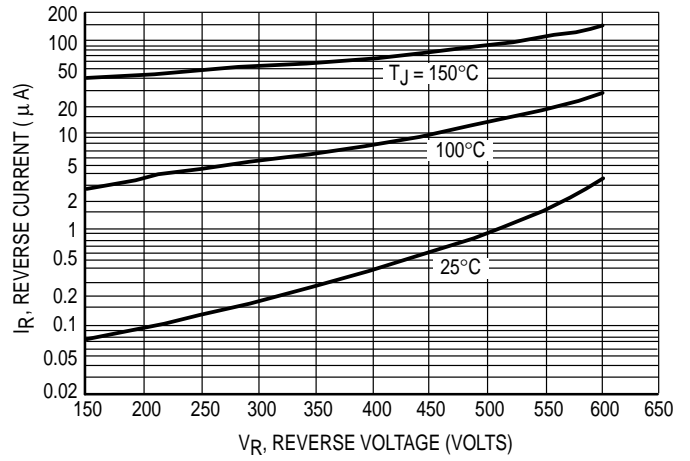


Figure 11. Typical Forward Voltage (Per Leg)



*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 12. Typical Reverse Current (Per Leg)*

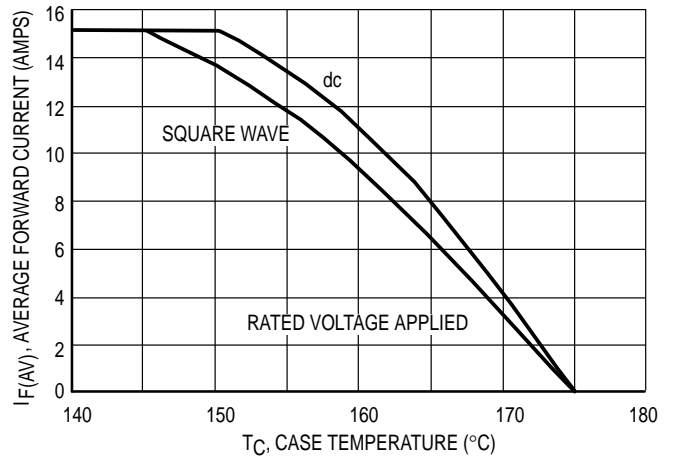


Figure 13. Current Derating, Case (Per Leg)

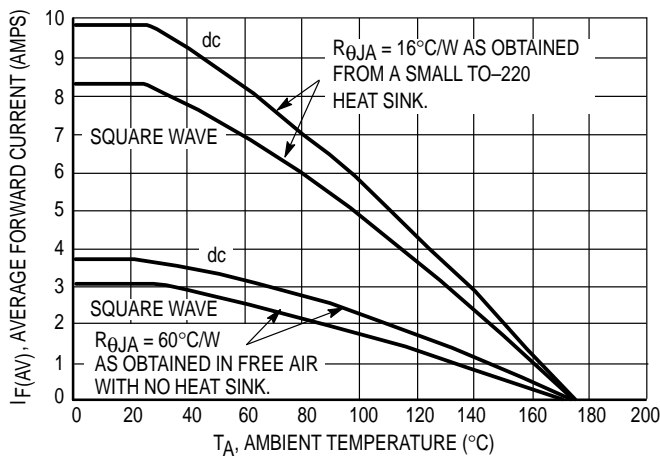


Figure 14. Current Derating, Ambient (Per Leg)

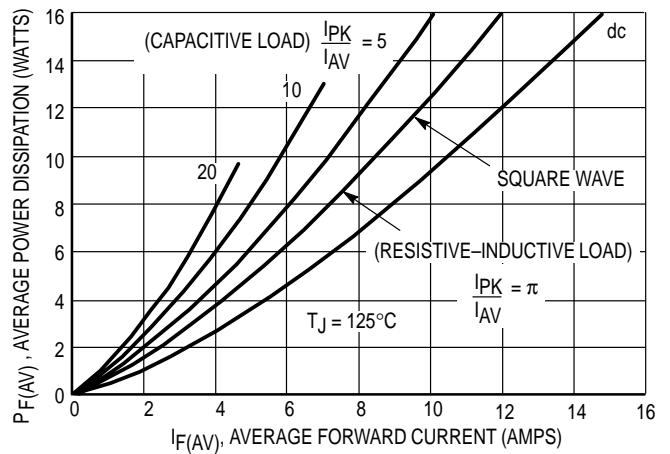


Figure 15. Power Dissipation (Per Leg)

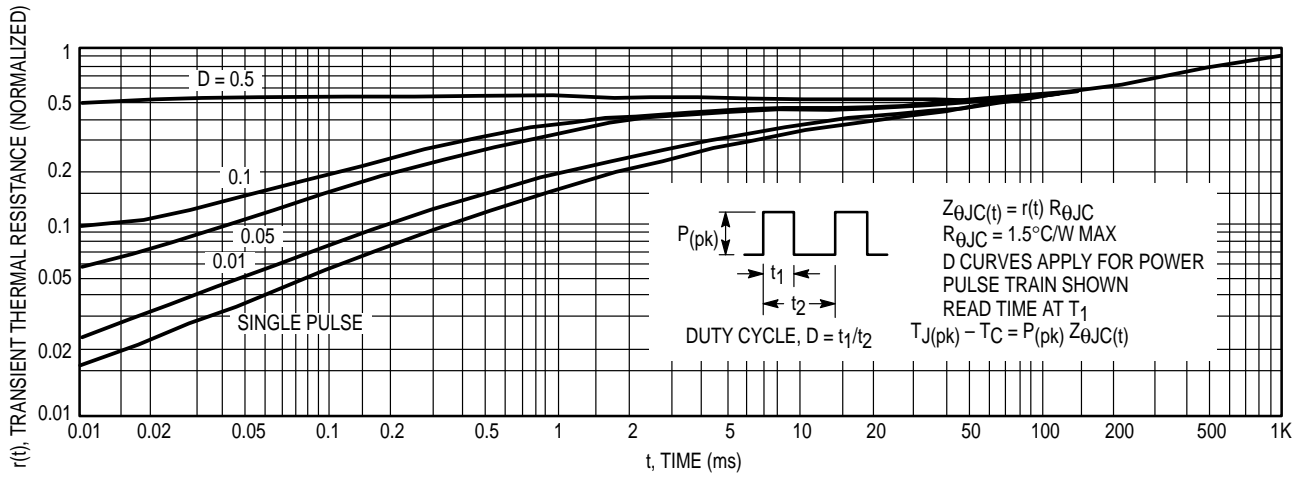


Figure 16. Thermal Response

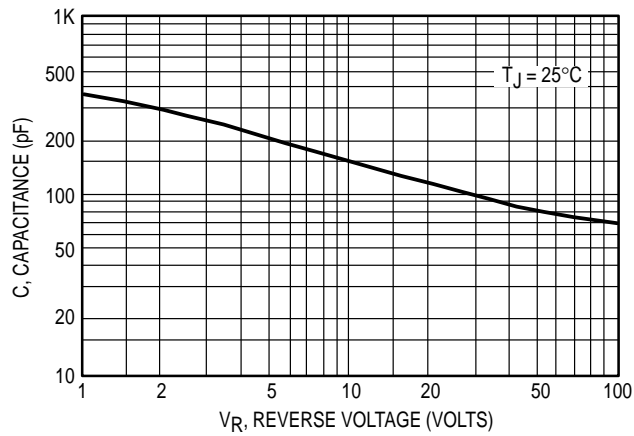
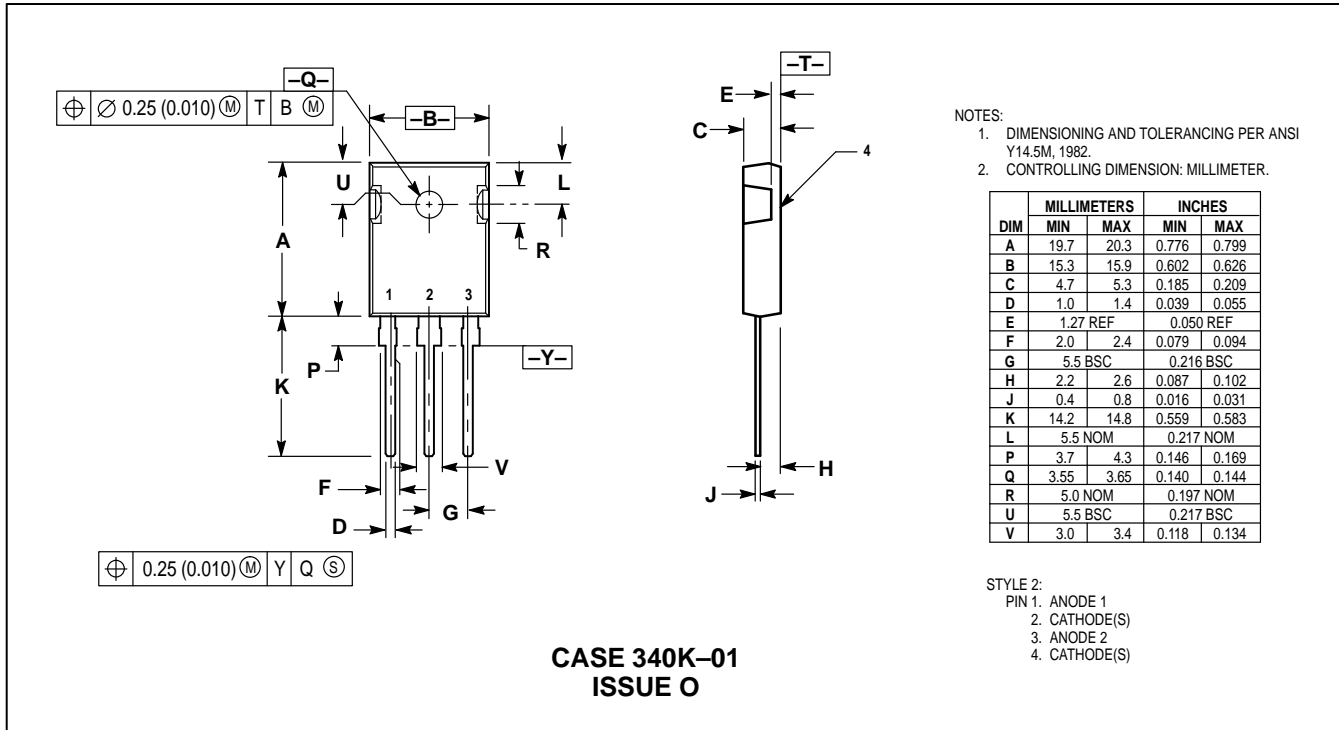


Figure 17. Typical Capacitance (Per Leg)

MUR3020WT MUR3040WT MUR3060WT

PACKAGE DIMENSIONS



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