

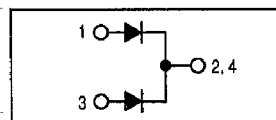
Switchmode Power Rectifiers

... 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 UL94V-O @ 1/8"
- High Temperature Glass Passivated Junction

Mechanical Characteristics

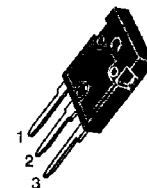
- Case: Epoxy, Molded
- Weight: 4.3 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 30 units per plastic tube
- Marking: U3020, U3040, U3060



**MUR3020WT
MUR3040WT
MUR3060WT**

Motorola preferred devices

**ULTRAFAST RECTIFIERS
30 AMPERES
200-400-600 VOLTS**



CASE 340F-03
TO-247AE
STYLE 2

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, $T_C = 145^{\circ}C$)	I_{FM}	30			Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	I_{FSM}	200	150		
Operating Junction and Storage Temperature	T_J, T_{sta}	- 65 to +175			°C

THERMAL CHARACTERISTICS, PER LEG

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

ELECTRICAL CHARACTERISTICS, PER LEG

Maximum Instantaneous Forward Voltage (1) ($I_F = 15$ Amp, $T_C = 150^\circ\text{C}$) ($I_F = 15$ Amp, $T_C = 25^\circ\text{C}$)	V_F	0.85 1.05	1.12 1.25	1.4 1.7	Volts
Maximum Instantaneous Reverse Current (1) (Rated DC Voltage, $T_J = 150^\circ\text{C}$) (Rated DC Voltage, $T_J = 25^\circ\text{C}$)	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%.

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

Rev 1

MUR3020WT, MUR3040WT, MUR3060WT

MUR3020WT

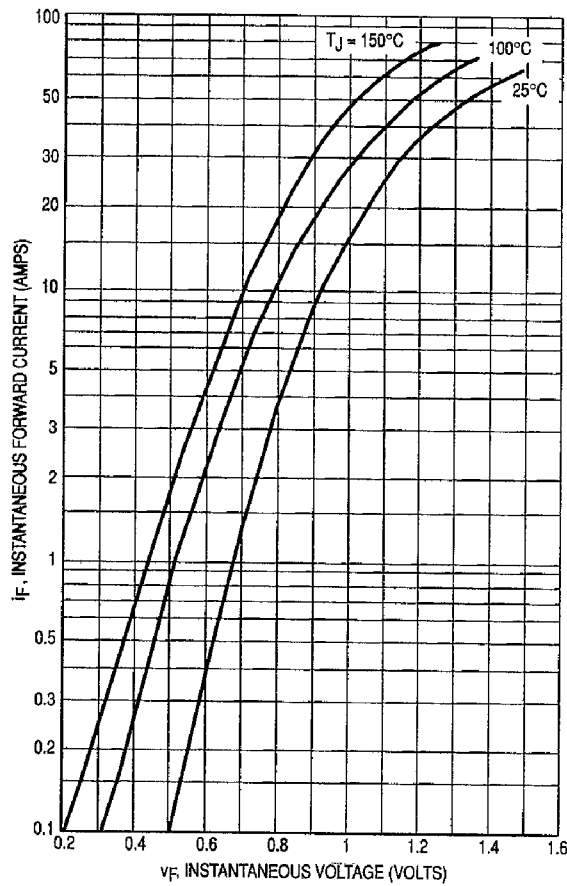


Figure 1. Typical Forward Voltage (Per Leg)

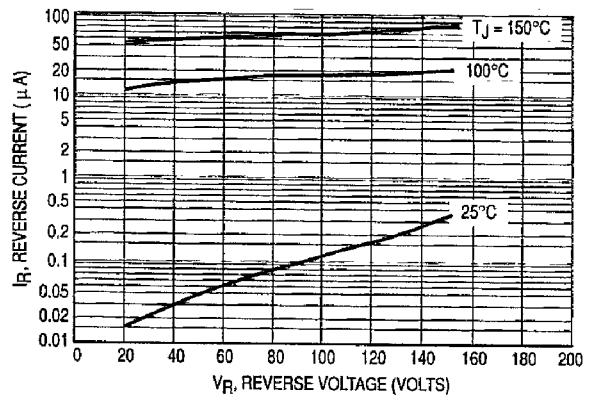


Figure 2. Typical Reverse Current (Per Leg)

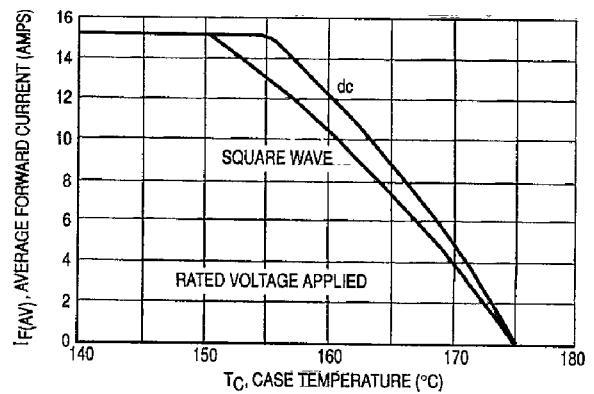


Figure 3. Current Derating, Case (Per Leg)

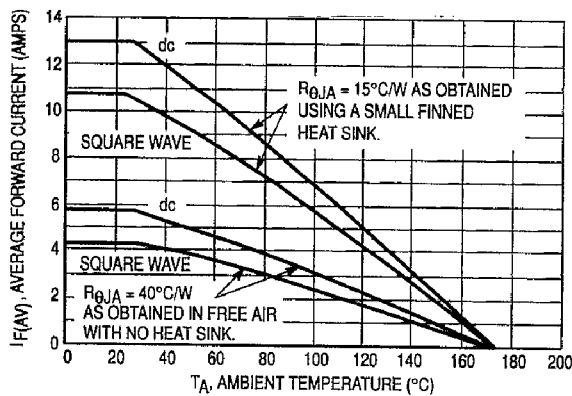


Figure 4. Current Derating, Ambient (Per Leg)

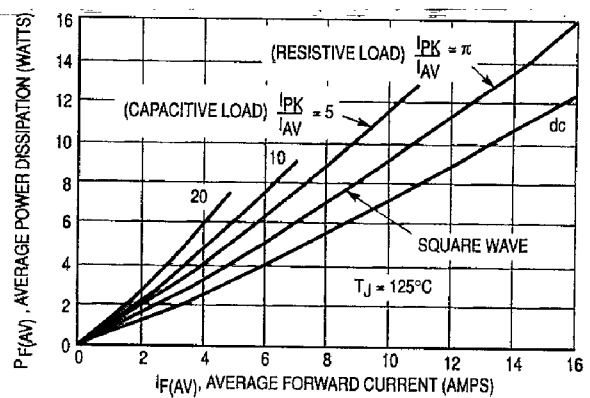


Figure 5. Power Dissipation (Per Leg)

MUR3020WT, MUR3040WT, MUR3060WT

MUR3040WT

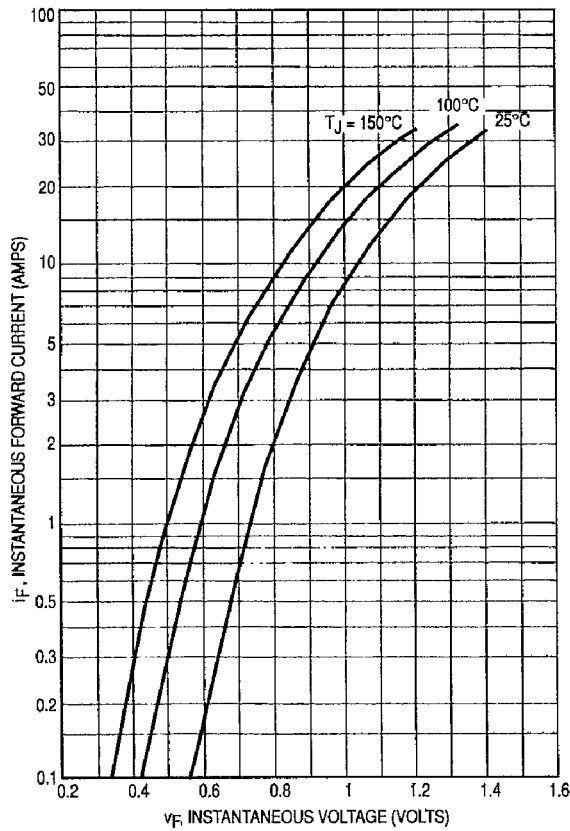


Figure 6. Typical Forward Voltage (Per Leg)

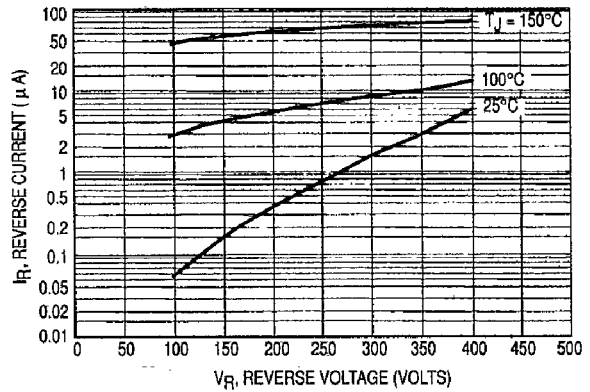


Figure 7. Typical Reverse Current (Per Leg)

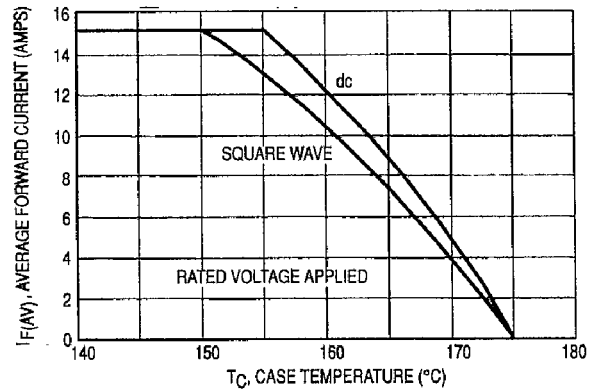


Figure 8. Current Derating, Case (Per Leg)

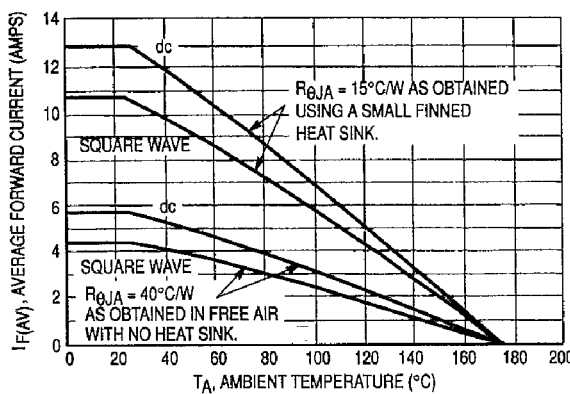


Figure 9. Current Derating, Ambient (Per Leg)

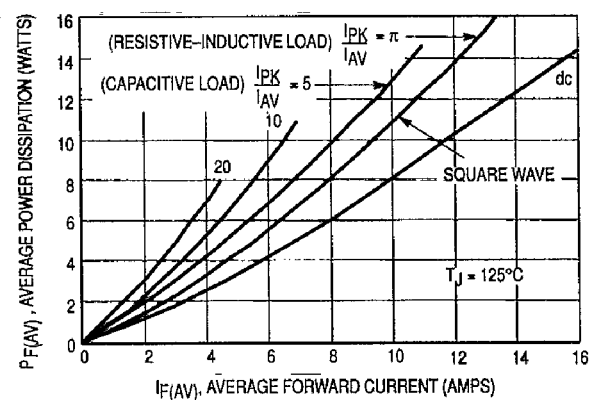


Figure 10. Power Dissipation (Per Leg)

MUR3020WT, MUR3040WT, MUR3060WT

MUR3060WT

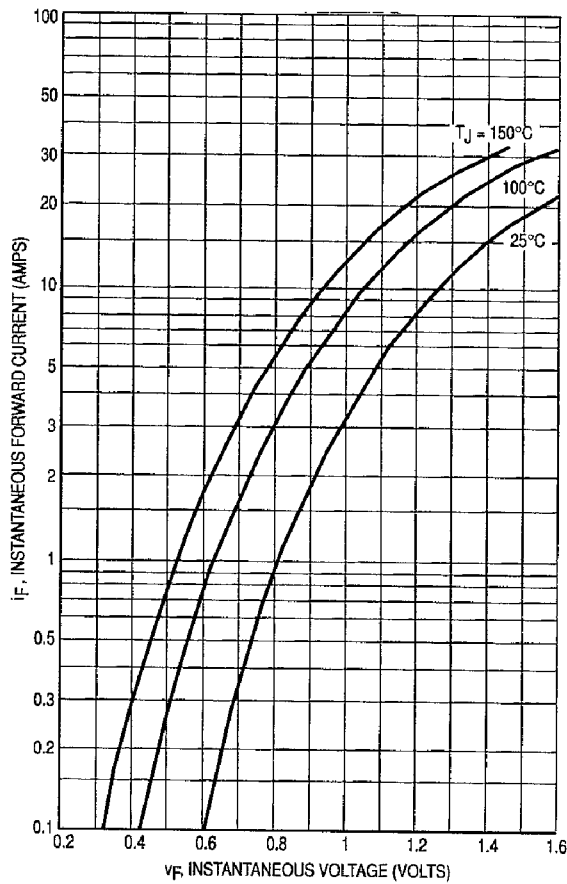


Figure 11. Typical Forward Voltage (Per Leg)

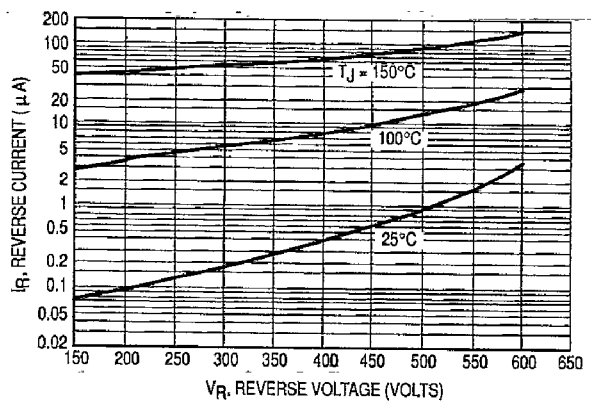


Figure 12. Typical Reverse Current (Per Leg)

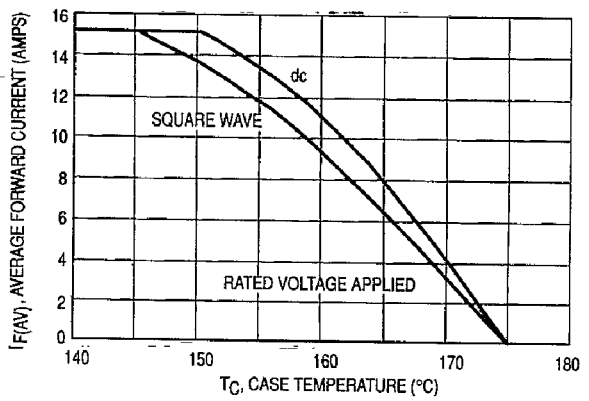


Figure 13. Current Derating, Case (Per Leg)

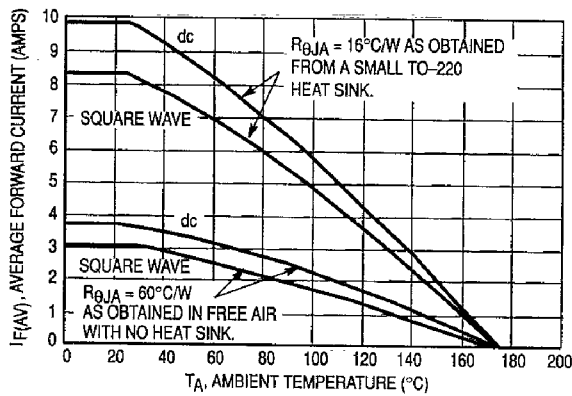


Figure 14. Current Derating, Ambient (Per Leg)

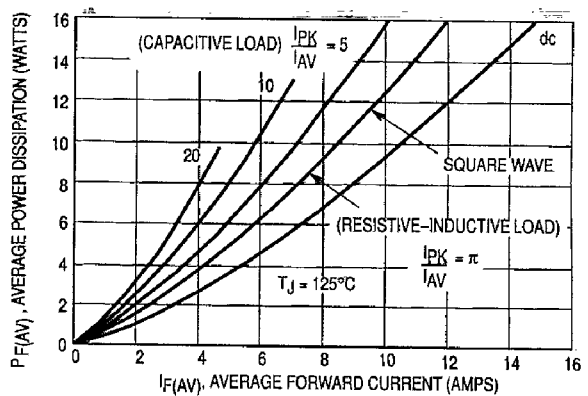


Figure 15. Power Dissipation (Per Leg)

MUR3020WT, MUR3040WT, MUR3060WT

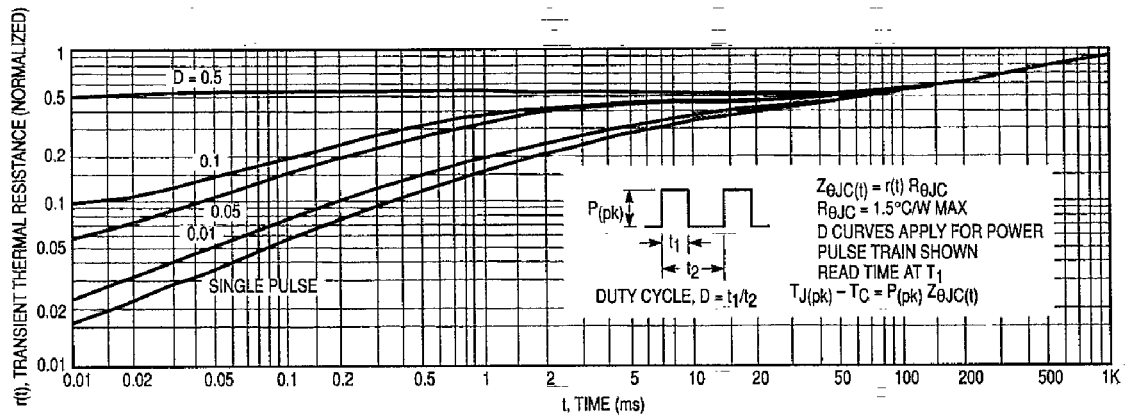


Figure 16. Thermal Response

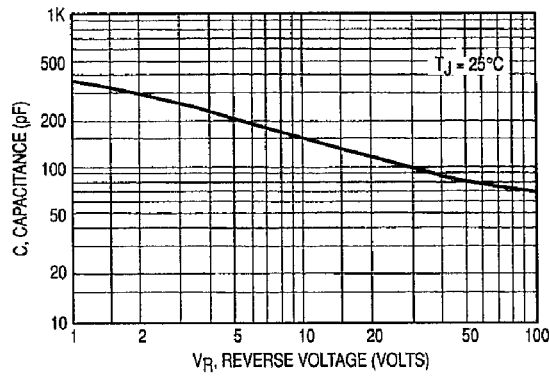


Figure 17. Typical Capacitance (Per Leg)

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
- 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

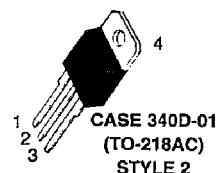
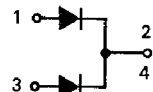
Mechanical Characteristics:

- 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

MUR3020PT
MUR3040PT
MUR3060PT

MUR3020PT and MUR3060PT
are Motorola Preferred Devices

ULTRAFAST RECTIFIERS
30 AMPERES
200-400-600 VOLTS



MAXIMUM RATINGS

Rating	Symbol	MUR			Unit
		3020PT	3040PT	3060PT	
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 (Rated V_R) Per Leg Per Device	$I_F(AV)$	15 30 $T_C = 150^{\circ}C$		15 $T_C =$ 30 $145^{\circ}C$	Amps
Peak Rectified Forward Current, Per Leg (Rated V_R , Square Wave, 20 kHz), $T_C = 150^{\circ}C$	I_{FRM}	30 $\oplus T_C = 150^{\circ}C$		30 $\oplus T_C = 145^{\circ}C$	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz) Per Leg	I_{FSM}	200	150		Amps
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	- 65 to +175			$^{\circ}C$

THERMAL CHARACTERISTICS PER DIODE LEG

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

ELECTRICAL CHARACTERISTICS PER DIODE LEG

Maximum Instantaneous Forward Voltage (1) ($I_F = 15$ Amps, $T_C = 150^\circ C$) ($I_F = 15$ Amps, $T_C = 25^\circ C$)	V_F	0.85 1.05	1.12 1.25	1.2 1.5	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 150^\circ C$) (Rated dc Voltage, $T_C = 25^\circ C$)	I_R	500 10		1000 10	μA
Maximum Reverse Recovery Time ($I_F = 1$ Amp, $di/dt = 50$ Amps/μs)	t_{rr}	35	60		ns

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2%

Rev 3

MUR3020PT, MUR3040PT, MUR3060PT

MUR3020PT

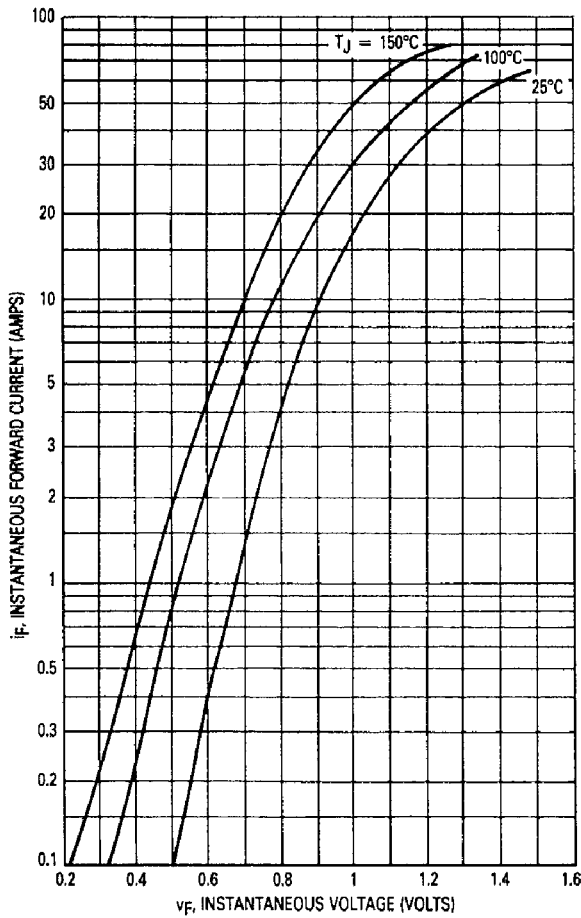


Figure 1. Typical Forward Voltage (Per Leg)

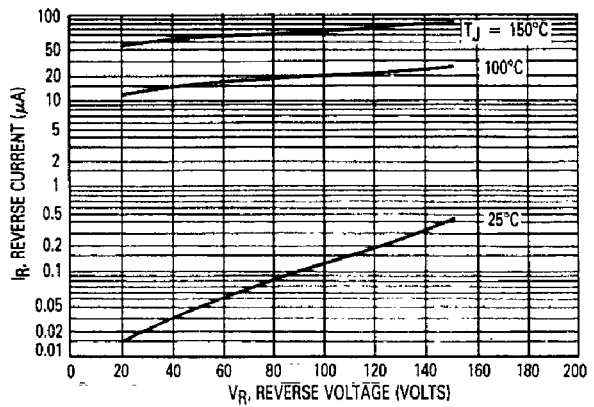


Figure 2. Typical Reverse Current (Per Leg)

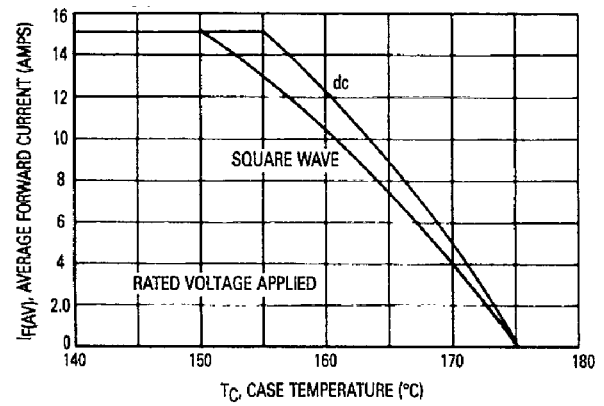


Figure 3. Current Derating, Case (Per Leg)

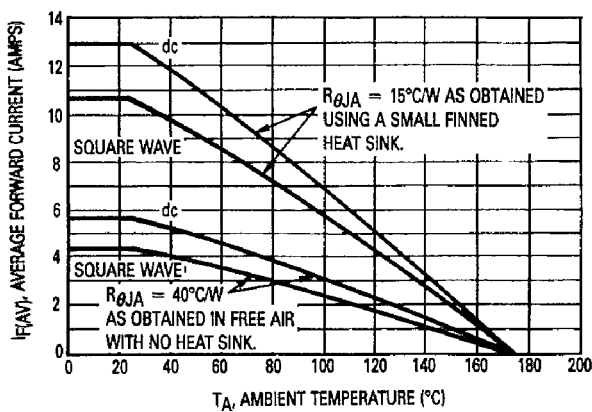


Figure 4. Current Derating, Ambient (Per Leg)

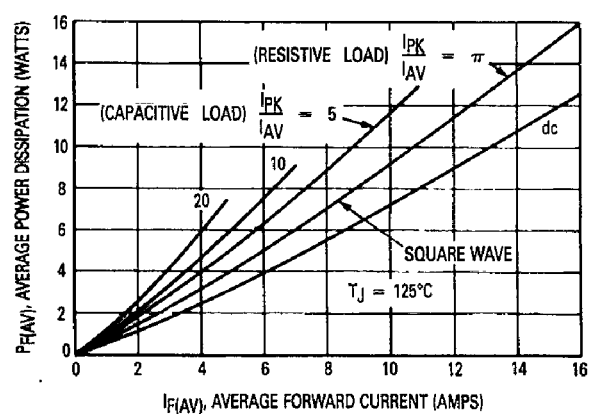


Figure 5. Power Dissipation (Per Leg)

MUR3020PT, MUR3040PT, MUR3060PT

MUR3040PT

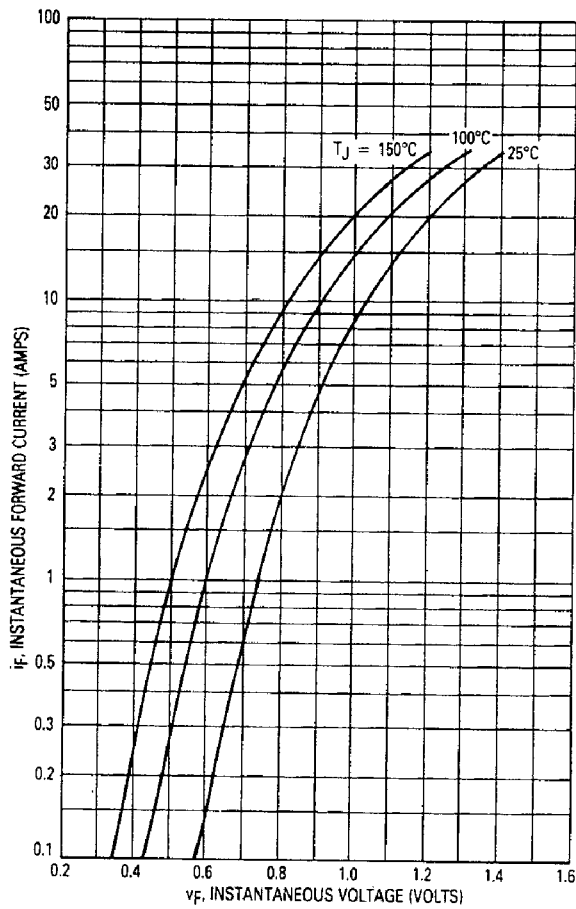


Figure 6. Typical Forward Voltage (Per Leg)

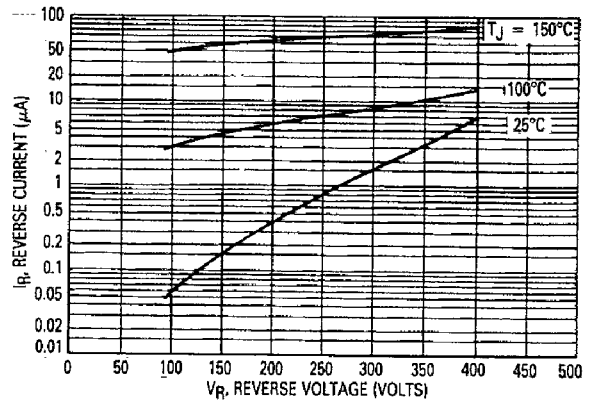


Figure 7. Typical Reverse Current (Per Leg)

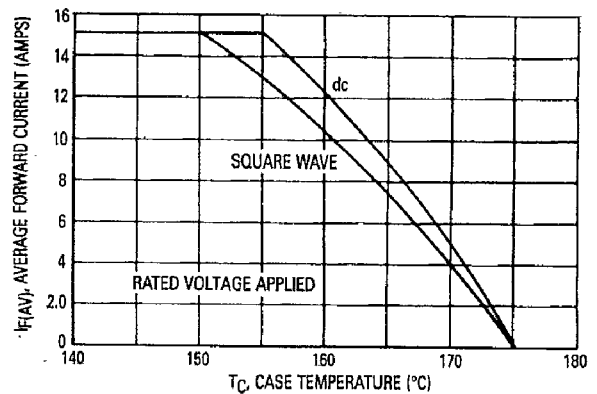


Figure 8. Current Derating, Case (Per Leg)

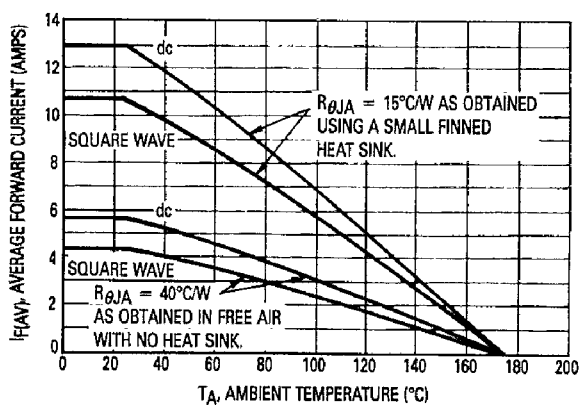


Figure 9. Current Derating, Ambient (Per Leg)

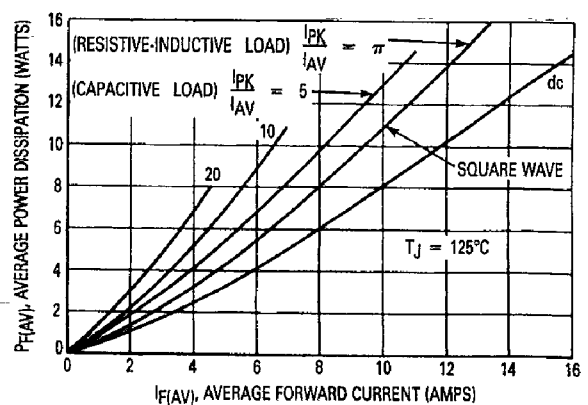


Figure 10. Power Dissipation (Per Leg)

MUR3020PT, MUR3040PT, MUR3060PT

MUR3060PT

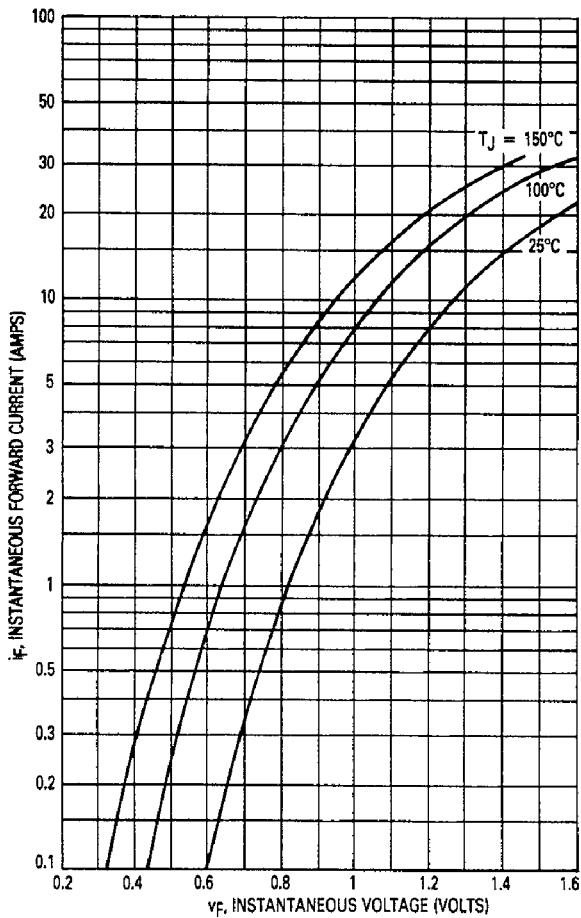


Figure 11. Typical Forward Voltage

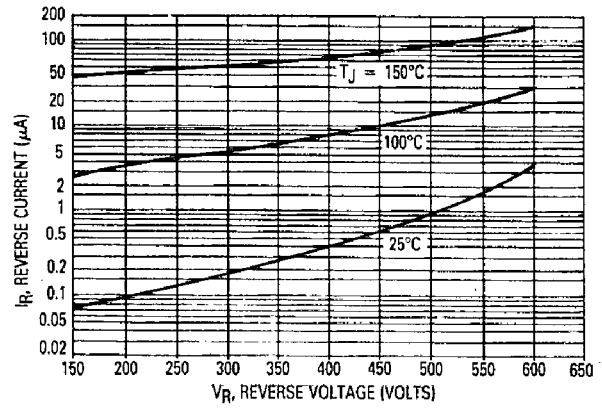


Figure 12. Typical Reverse Current

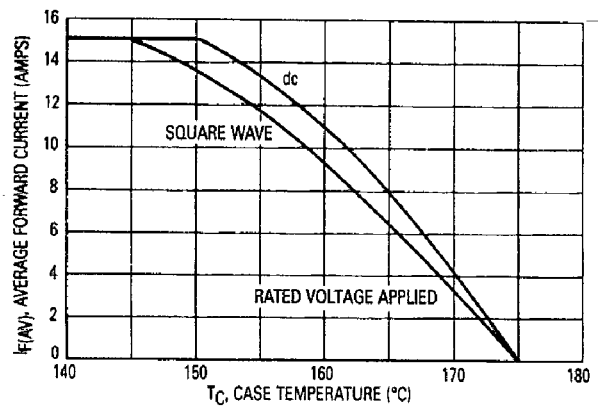


Figure 13. Current Derating, Case

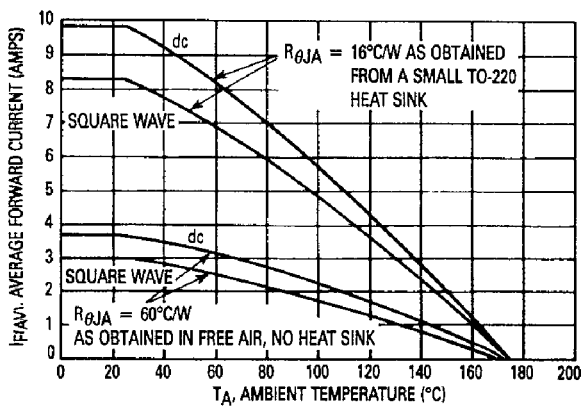


Figure 14. Current Derating, Ambient

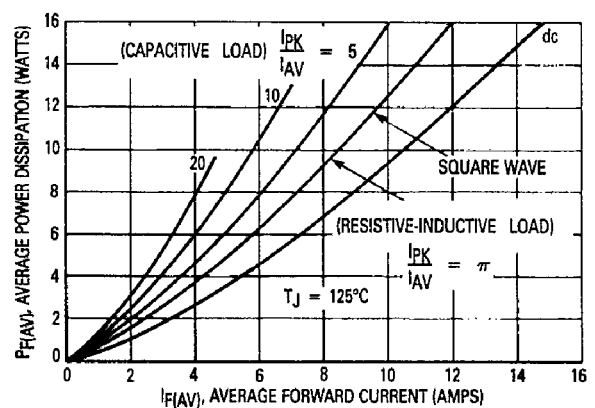


Figure 15. Power Dissipation

MUR3020PT, MUR3040PT, MUR3060PT

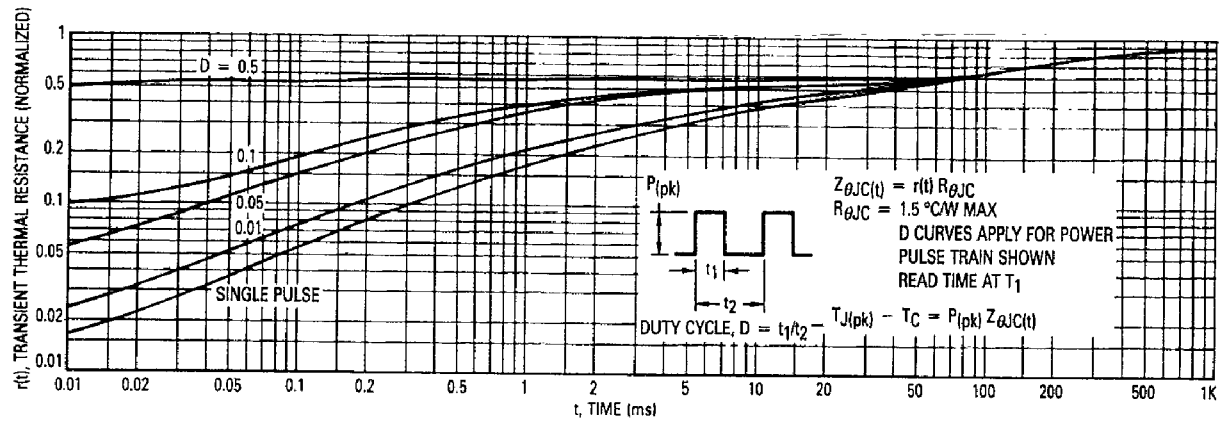


Figure 16. Thermal Response

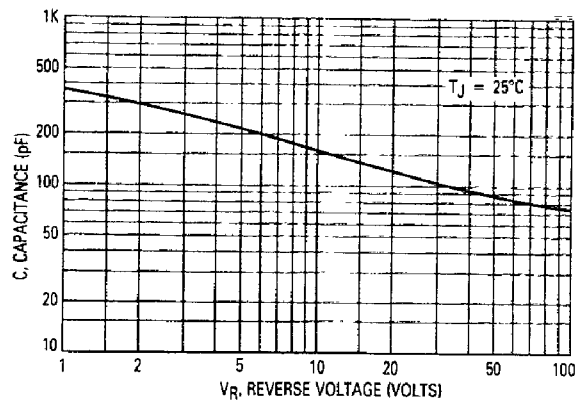


Figure 17. Typical Capacitance (Per Leg)