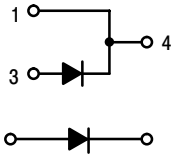
Toohong

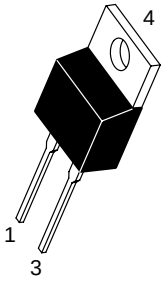
MUR1510, MUR1515,MUR1520, MUR1540,MUR1560

SWITCHMODE™ Power Rectifiers

ULTRAFAST RECTIFIERS 15 AMPERES, 100−600 VOLTS

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





TO−220AC
CASE 221B
PLASTIC

Features

- Ultrafast 35 and 60 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO−220 Package
- High Voltage Capability to 600 V
- Low Forward Drop
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating Specified @ Both Case and Ambient Temperatures
- 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

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	V
Average Rectified Forward Current (Rated V_R)	$I_{F(AV)}$	15 @ T_C = 150°C				15 @ T_C = 145°C	A
Peak Rectified Forward Current (Rated V_R, Square Wave, 20 kHz)	I_{FRM}	30 @ T_C = 150°C				30 @ T_C = 145°C	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	200			150		A
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	−65 to +175					°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	1.5	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	1520	1540	1560	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 15 A, T_C = 150°C) (i_F = 15 A, T_C = 25°C)	v_F	 0.85 1.05	 1.12 1.25	 1.20 1.50	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, T_C = 150°C) (Rated DC Voltage, T_C = 25°C)	i_R	 500 10	 500 10	 1000 10	μA
Maximum Reverse Recovery Time (I_F = 1.0 A, di/dt = 50 A/μs)	t_{rr}	35	60		ns

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

MUR1510, MUR1515, MUR1520

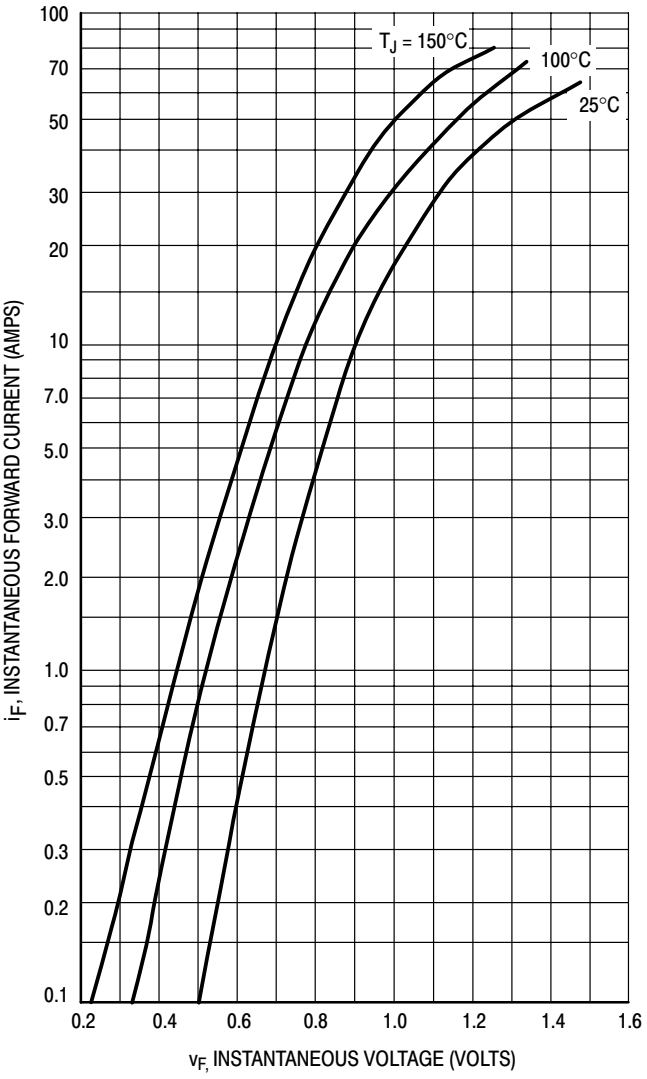


Figure 1. Typical Forward Voltage

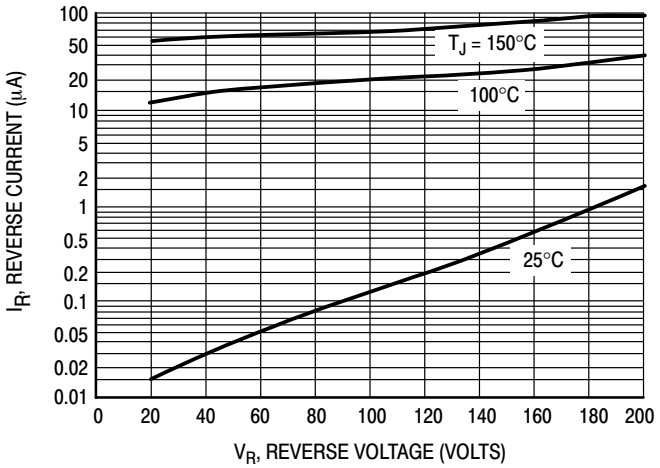


Figure 2. Typical Reverse Current

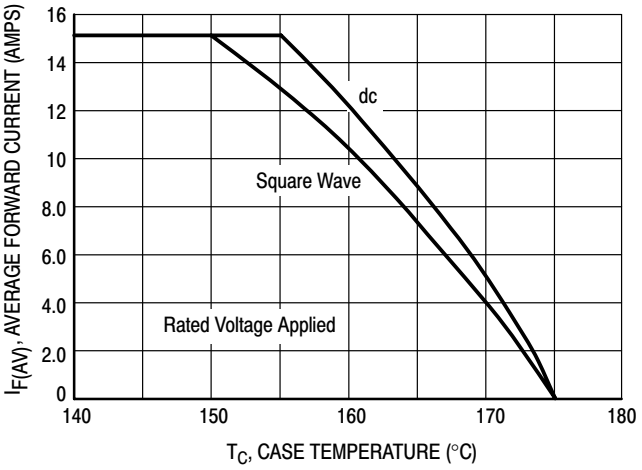


Figure 3. Current Derating, Case

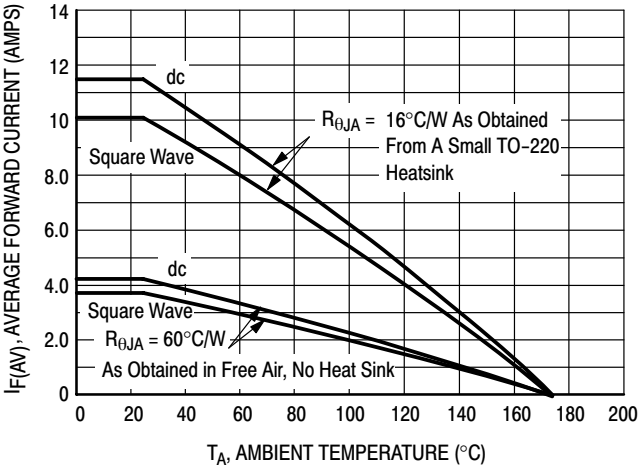


Figure 4. Current Derating, Ambient

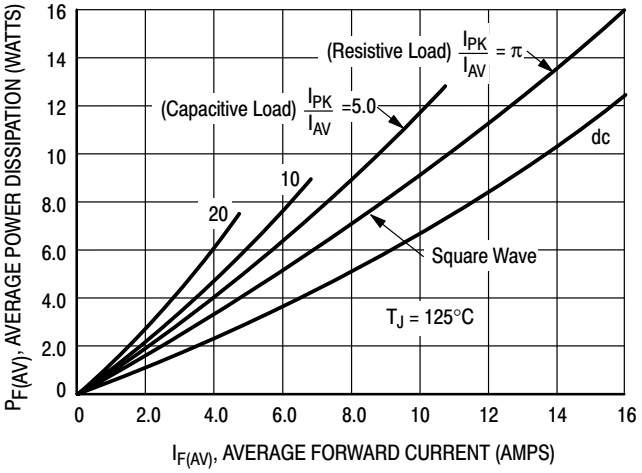


Figure 5. Power Dissipation

MUR1540

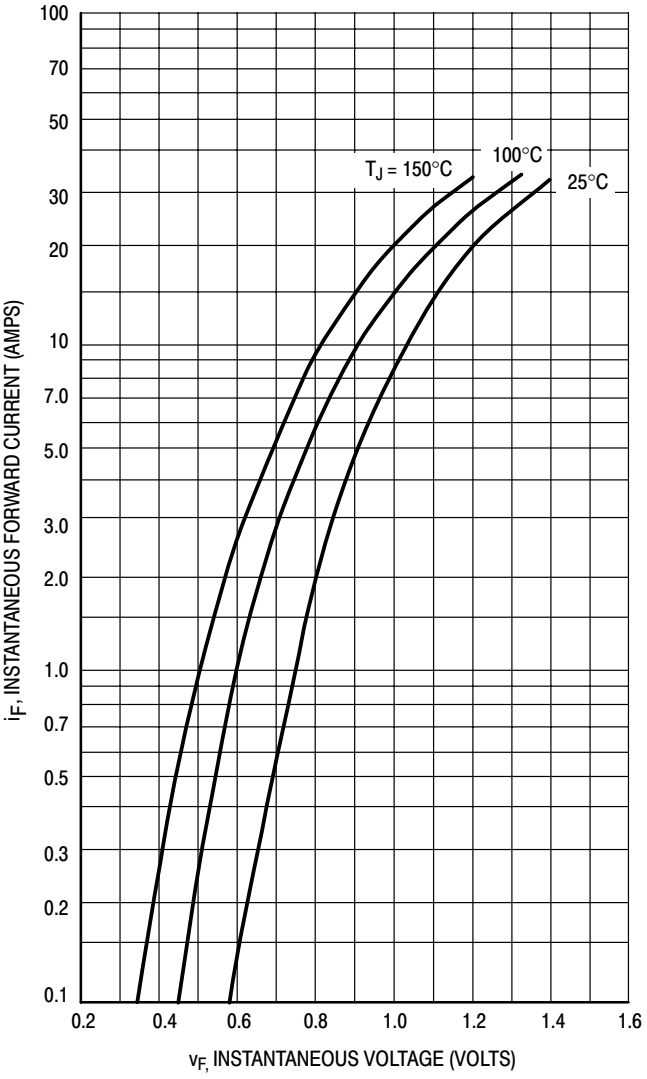


Figure 6. Typical Forward Voltage

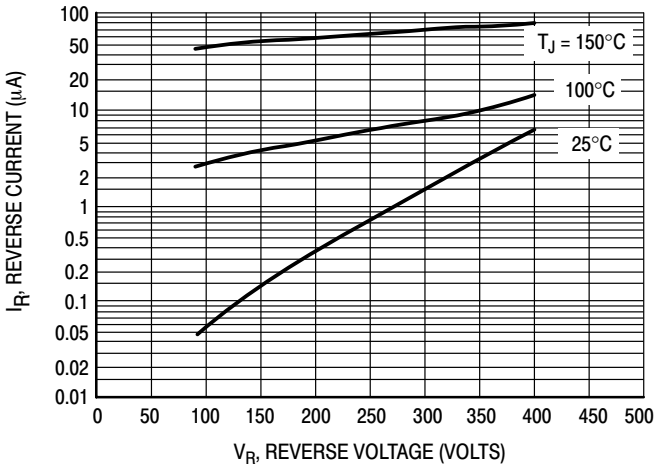


Figure 7. Typical Reverse Current

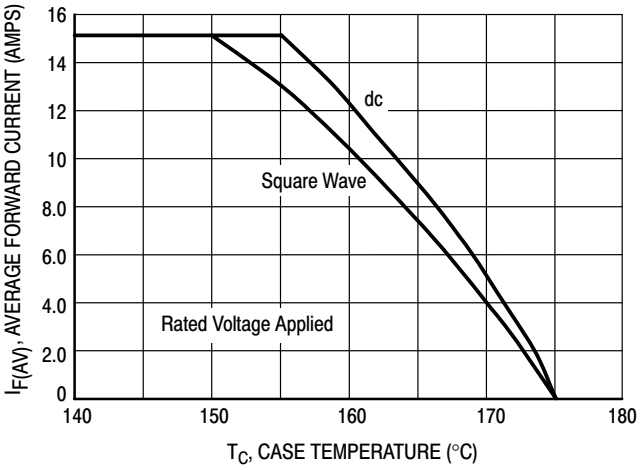


Figure 8. Current Derating, Case

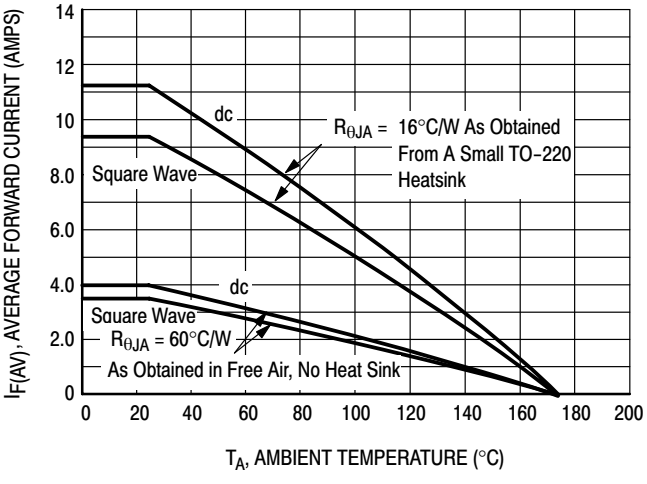


Figure 9. Current Derating, Ambient

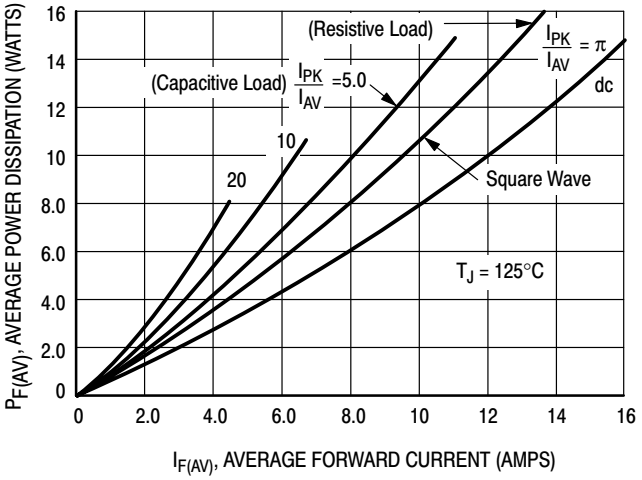


Figure 10. Power Dissipation

MUR1560

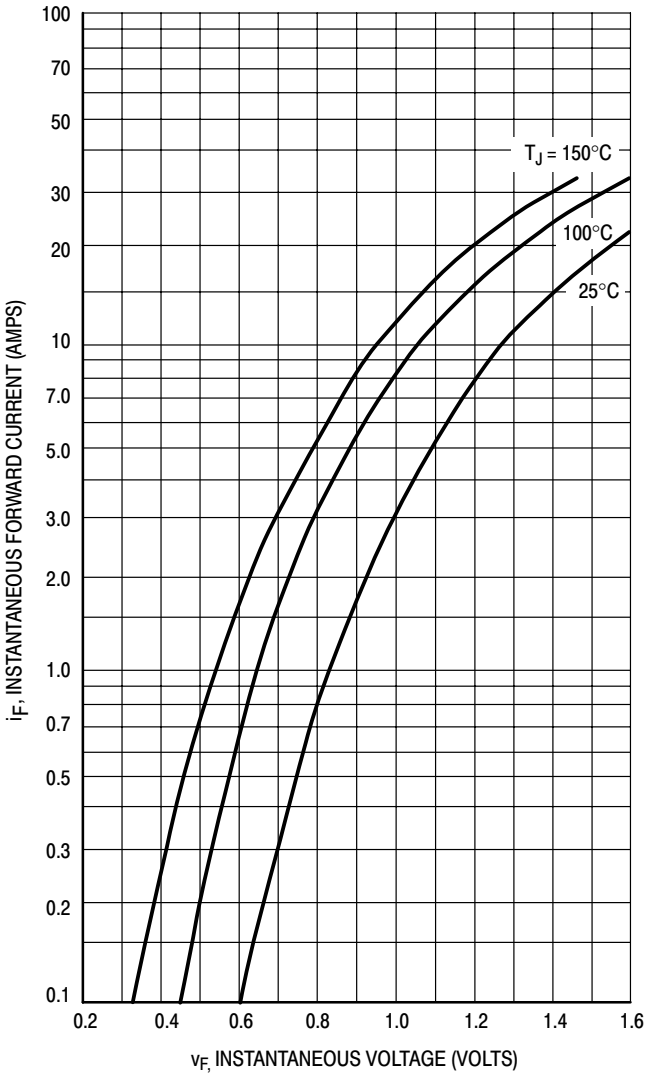


Figure 11. Typical Forward Voltage

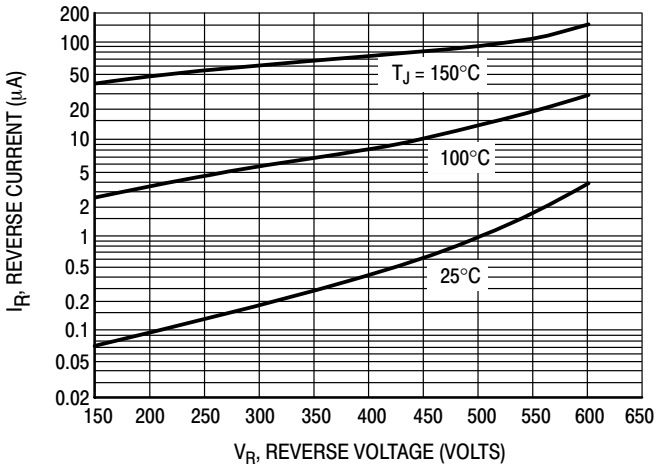


Figure 12. Typical Reverse Current

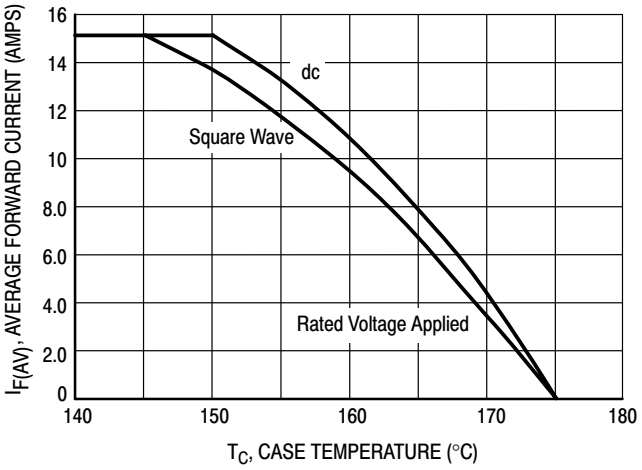


Figure 13. Current Derating, Case

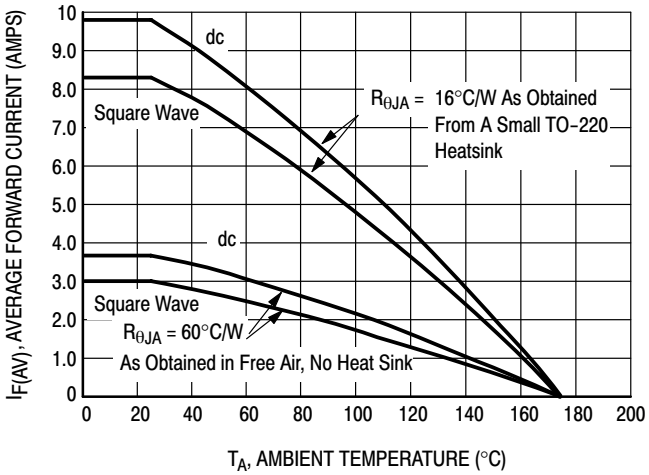


Figure 14. Current Derating, Ambient

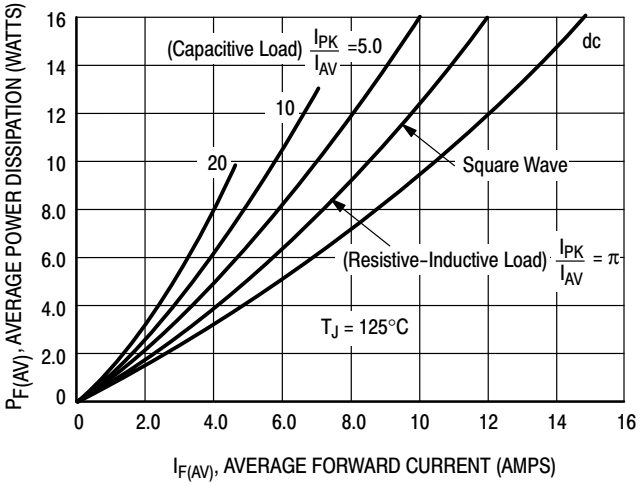


Figure 15. Power Dissipation

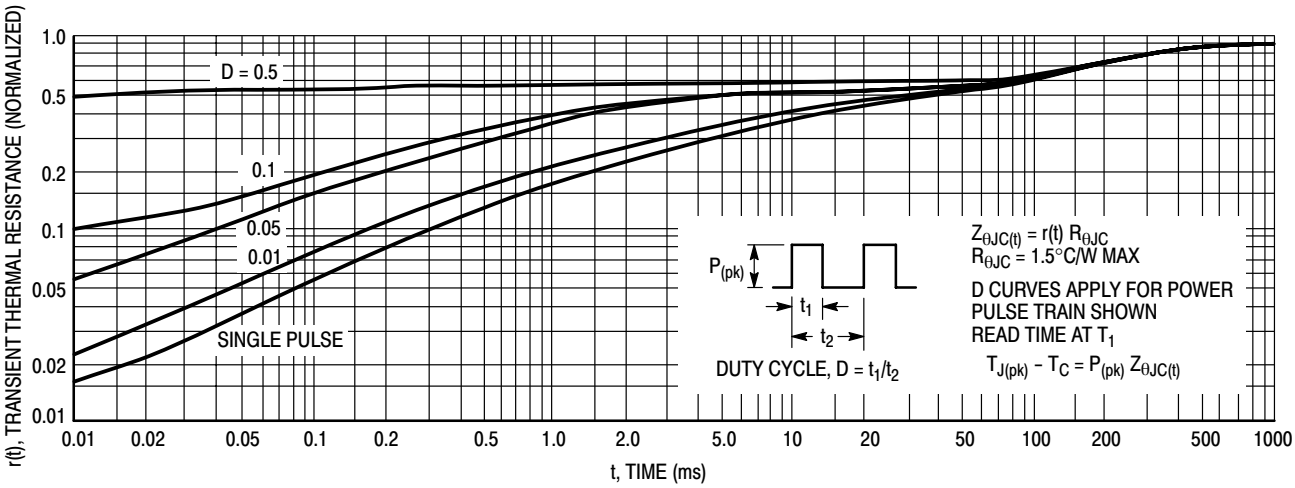


Figure 16. Thermal Response

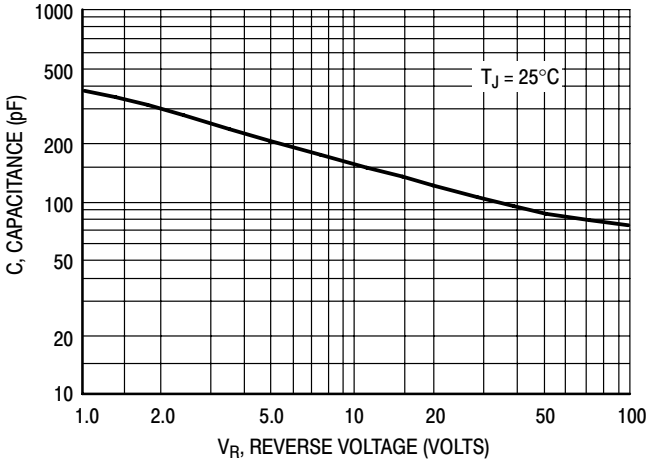


Figure 17. Typical Capacitance