Technical Data
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MURC1510-MURC1560
Ultrafast Silicon Die

Applications:

- **Switching Power Supply • General Purpose • Free-Wheeling Diodes • Polarity Protection Diode**

Features:

- **Glass-Passivated**
- **Epitaxial Construction.**
- **Low Reverse Leakage Current**
- **High Surge Current Capability**
- **Low Forward Voltage Drop**
- **Fast Reverse-Recovery Behavior**

Maximum Ratings:

Characteristics	Symbol	MURC 1510	MURC 1515	MURC 1520	MURC 1540	MURC 1560	Unit
Peak Inverse Voltage	V_{RWM}	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
Max. Peak One Cycle Non-Repetitive Surge Current 8.3 ms, half Sine pulse	I_{FSM}	200			150		A
Operating JunctionTemperature and Storage Temperature	T_J, T_{stg}	-65 to +175					°C

Electrical Characteristics:

Characteristics	Symbol	MURC 1510	MURC 1515	MURC 1520	MURC 1540	MURC 1560	Unit
Max. Instantaneous Forward Voltage (Note1) (I_F = 15 Amp, T_J = 150 °C) (I_F = 15 Amp, T_J = 25 °C)	V_F		0.85 1.05		1.12 1.25	1.20 1.50	V
Max. Instantaneous Reverse Current (Note1) (Rated DC Voltage, T_C = 150 °C) (Rated DC Voltage, T_C = 25 °C)	I_R		500 10		500 10	1000 10	µA
Max. Junction Capacitance @V_R = 5V, T_C = 25 °C f_{SIG} = 1MHz, V_{SIG} = 50mV (p-p)	C_T	240					pF
Max Reverse Recovery Time (I_F = 1.0 Amp, di/dt = 50 A/µs) (I_F = 0.5 Amp, I_R = 1.0 A, I_{REC}=0.25A)	t_{rr}		35 25		60 50		nS

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

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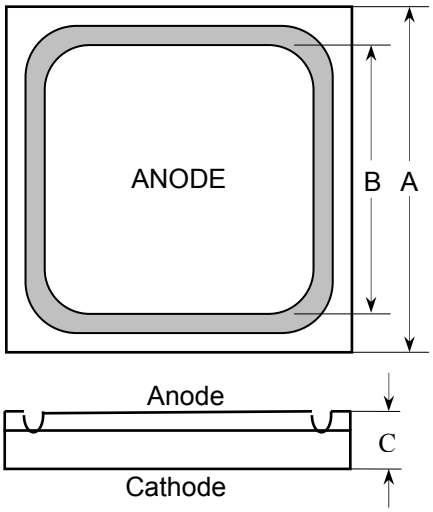
Dimensions in inches (mm)



Top side metalization:
Al - 25 kÅ minimum or
Ti/Ni/Ag - 30 kÅ minimum

Bottom side metalization:
Ti/Ni/Ag - 30 kÅ minimum.
Bottom side is cathode, top side is anode.

Die type	Area (mil^2)	Dimension A [1] Inch (millimeter)	Dimension B [1] Inch (millimeter)	Dimension C [2] Inch (millimeter)
Si p-n die	120 x 120	0.120 (3.048)	0.094 (2.388)	0.010 (0.254)

[1] Tolerance is ± 0.003" (0.076 mm)
[2] Tolerance is ± 0.001" (0.025 mm)

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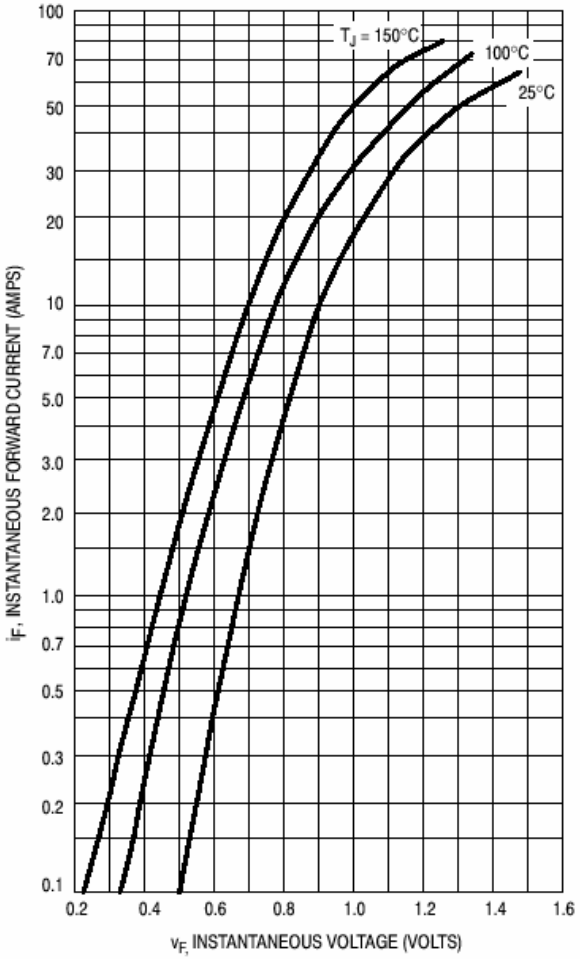

Figure 1. Typical Forward Voltage

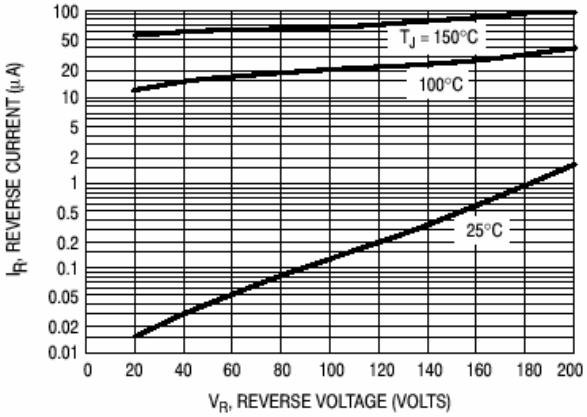

Figure 2. Typical Reverse Current

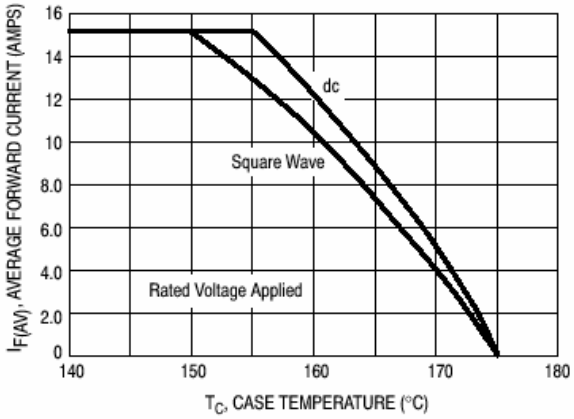

Figure 3. Current Derating, Case

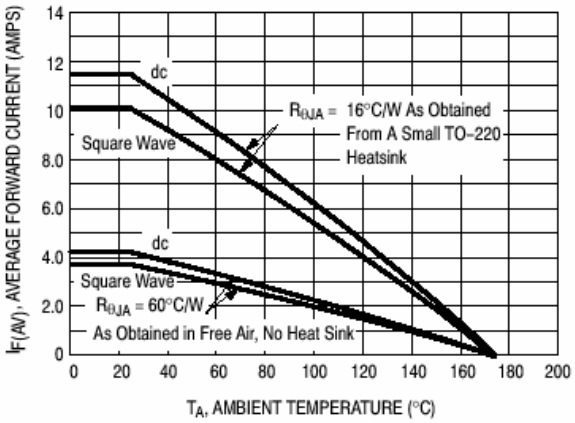

Figure 4. Current Derating, Ambient

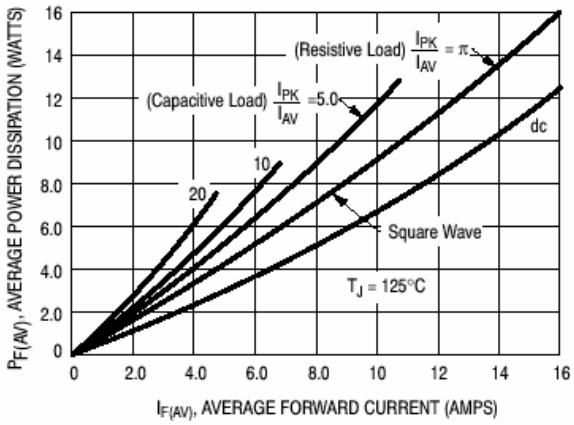

Figure 5. Power Dissipation

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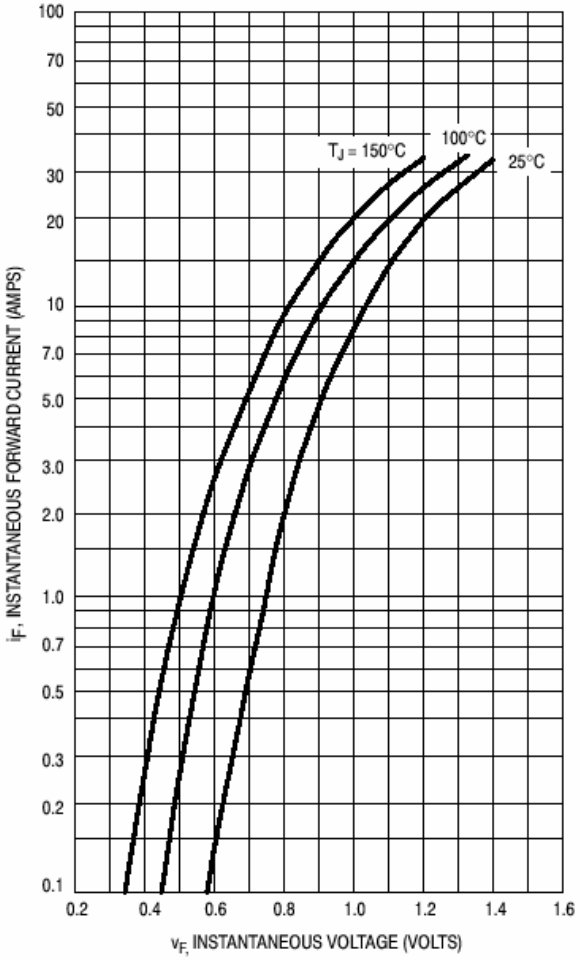

Figure 6. Typical Forward Voltage

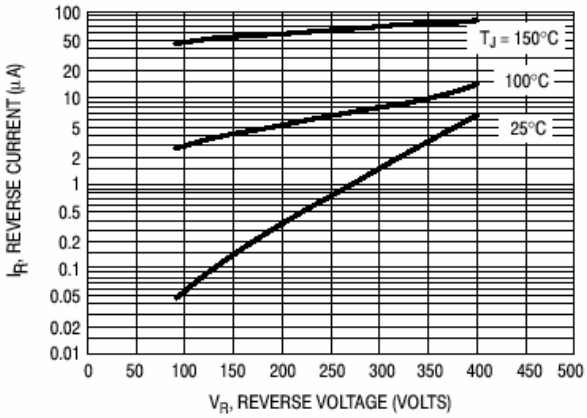

Figure 7. Typical Reverse Current

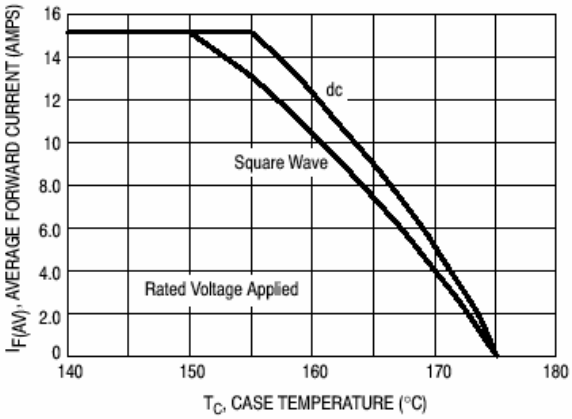

Figure 8. Current Derating, Case

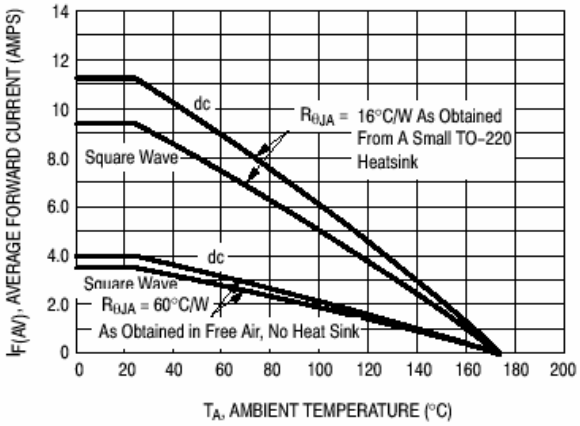

Figure 9. Current Derating, Ambient

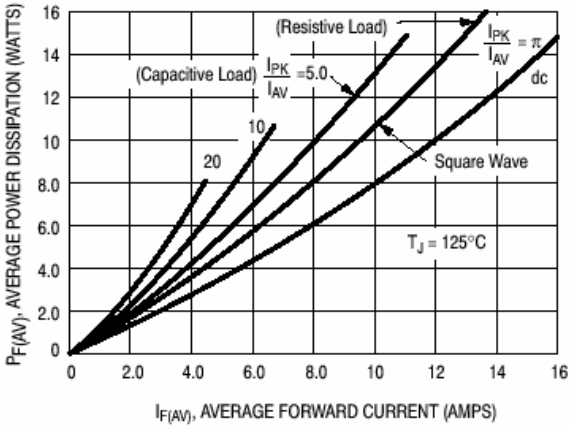

Figure 10. Power Dissipation

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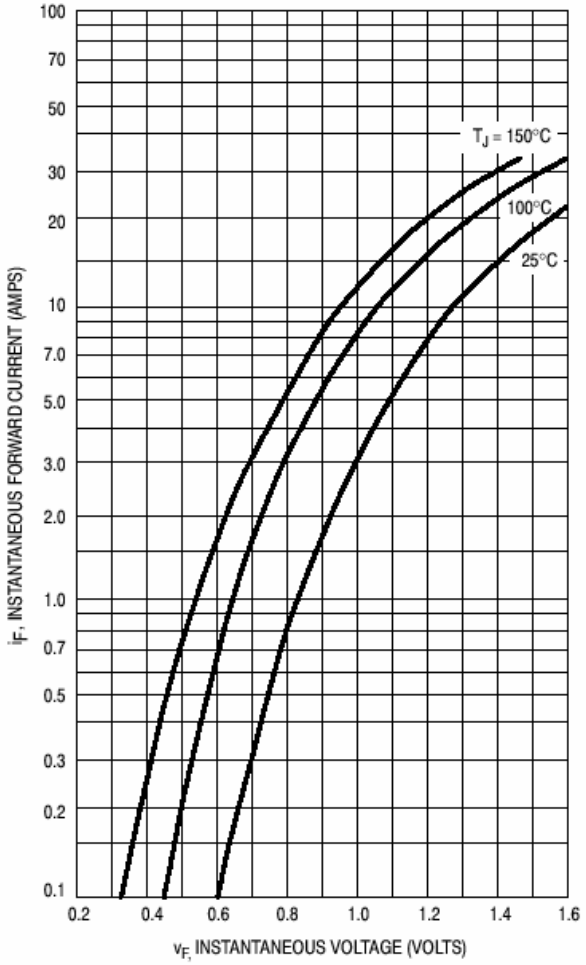

Figure 11. Typical Forward Voltage

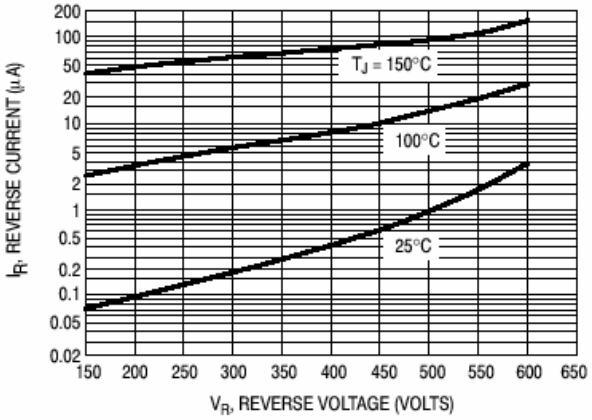

Figure 12. Typical Reverse Current

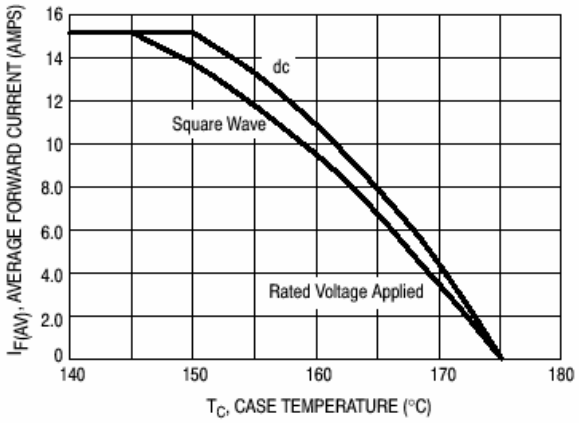

Figure 13. Current Derating, Case

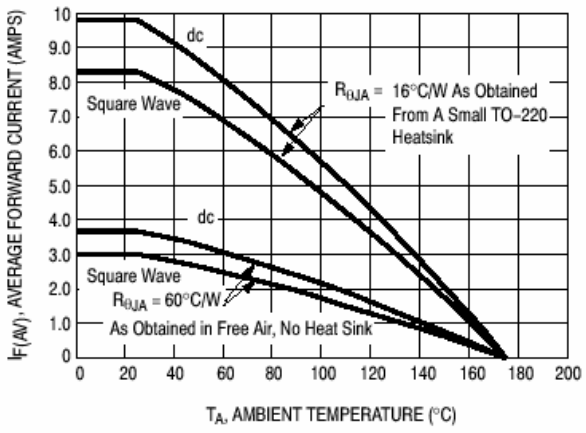

Figure 14. Current Derating, Ambient

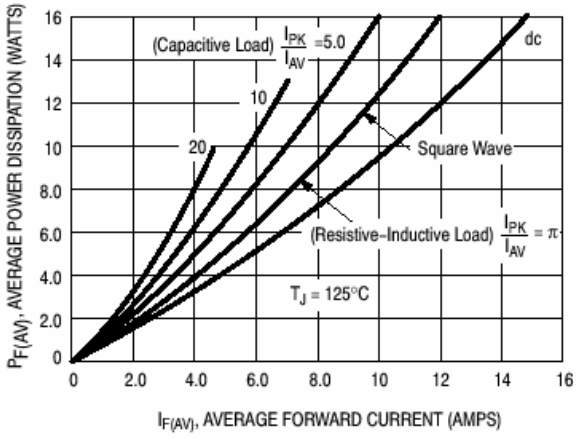

Figure 15. Power Dissipation

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MURC1510, MURC1515, MURC1520, MURC1540, MURC1560

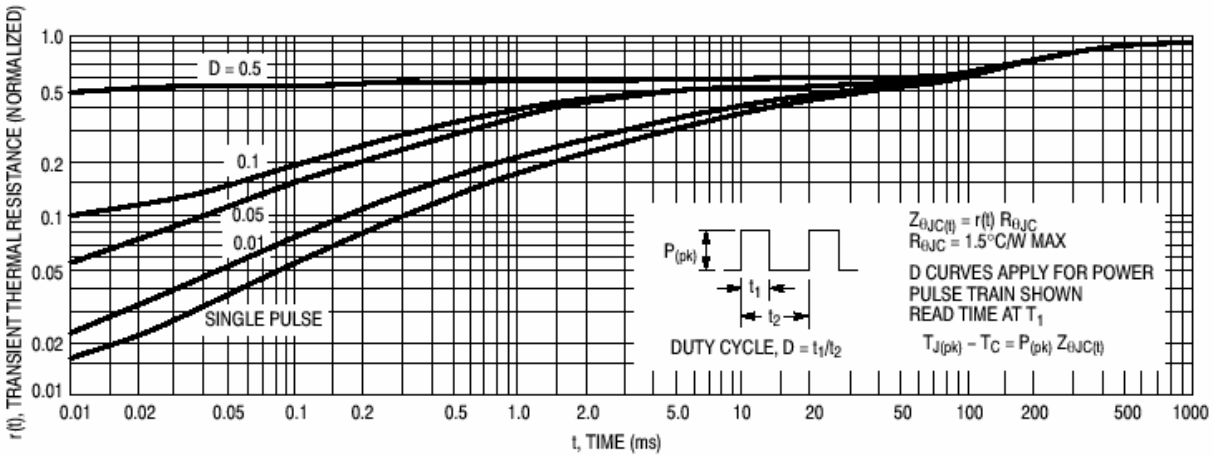

Figure 16. Thermal Response

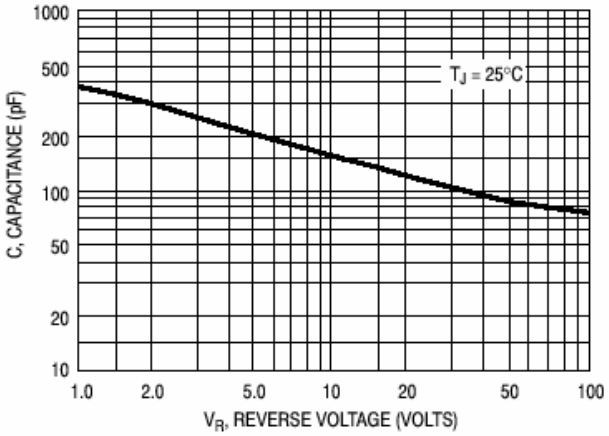

Figure 17. Typical Capacitance