

Technical Data
Data Sheet 4861, Rev.-

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 @ $T_C = 150^\circ\text{C}$				15 @ $T_C = 145^\circ\text{C}$	A
Peak Rectified Forward Current (Rated V_R , Square Wave, 20 kHz)	I_{FRM}	30 @ $T_C = 150^\circ\text{C}$				30 @ $T_C = 145^\circ\text{C}$	A
Max. Peak One Cycle Non-Repetitive Surge Current 8.3 ms, half Sine pulse	I_{FSM}	200			150		A
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	-65 to +175					$^\circ\text{C}$

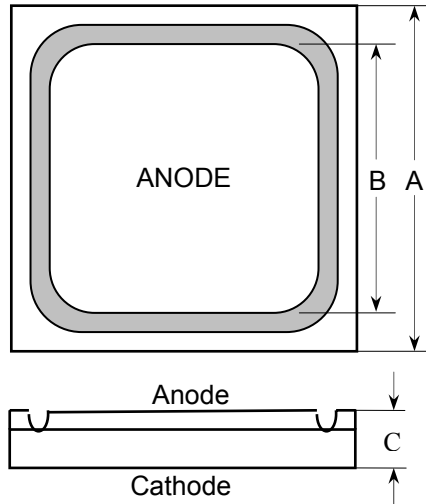
Electrical Characteristics:

Characteristics	Symbol	MURC 1510	MURC 1515	MURC 1520	MURC 1540	MURC 1560	Unit
Max. Instantaneous Forward Voltage (Note1) ($I_F = 15$ Amp, $T_J = 150^\circ\text{C}$) ($I_F = 15$ Amp, $T_J = 25^\circ\text{C}$)	V_F	0.85 1.05			1.12 1.25	1.20 1.50	V
Max. Instantaneous Reverse Current (Note1) (Rated DC Voltage, $T_C = 150^\circ\text{C}$) (Rated DC Voltage, $T_C = 25^\circ\text{C}$)	I_R	500 10			500 10	1000 10	μA
Max. Junction Capacitance @ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$, $V_{SIG} = 50\text{mV}$ (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, $I_{REC}=0.25\text{A}$)	t_{rr}	35 25			60 50		nS

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$

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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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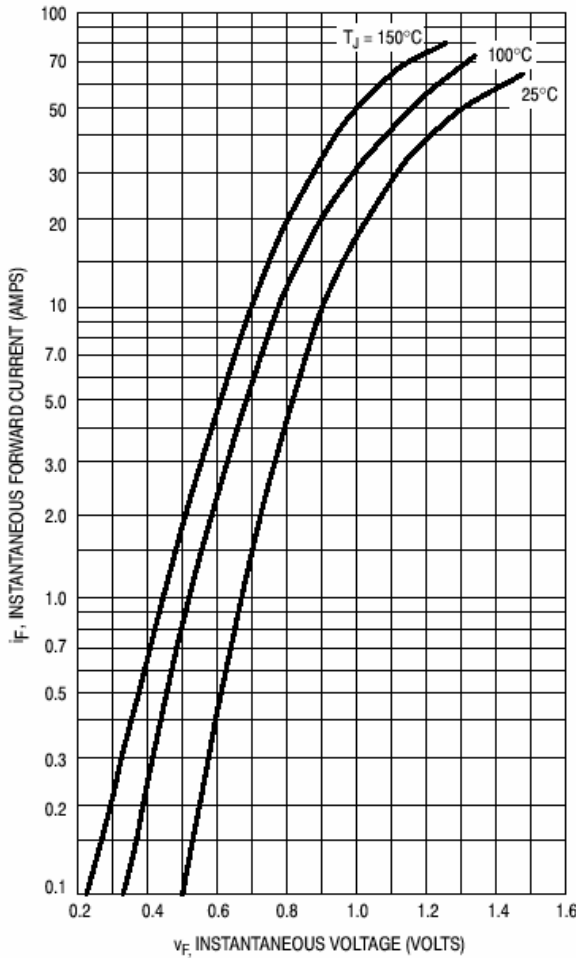


Figure 1. Typical Forward Voltage

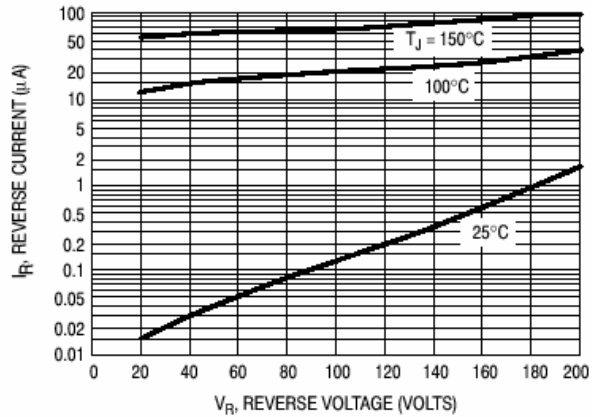


Figure 2. Typical Reverse Current

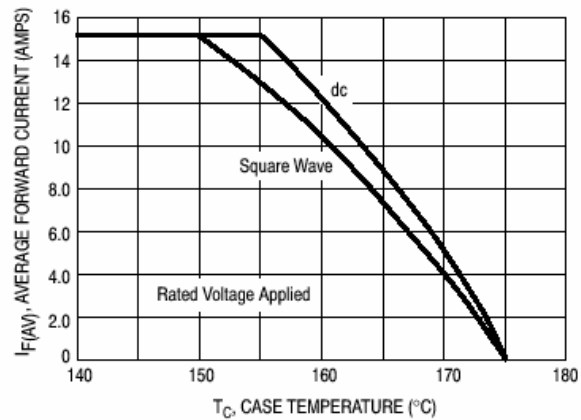


Figure 3. Current Derating, Case

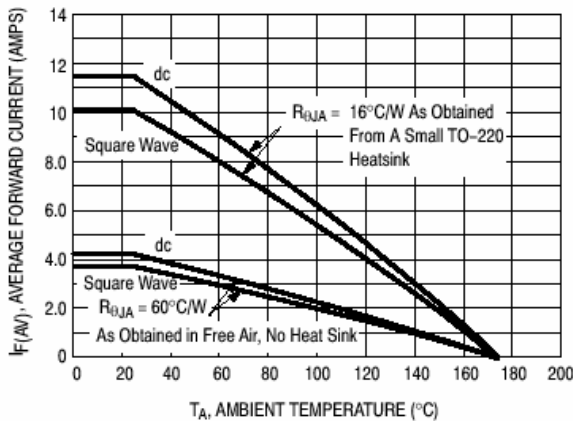


Figure 4. Current Derating, Ambient

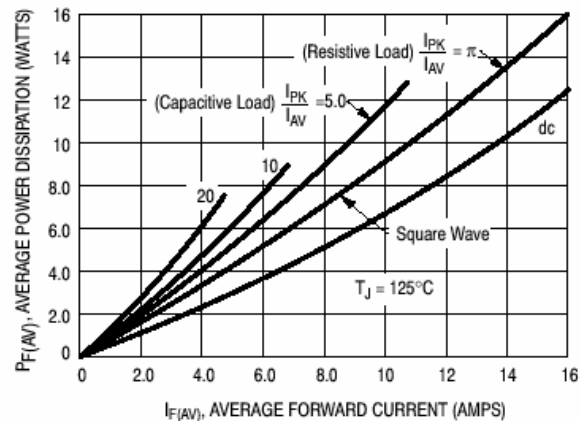


Figure 5. Power Dissipation

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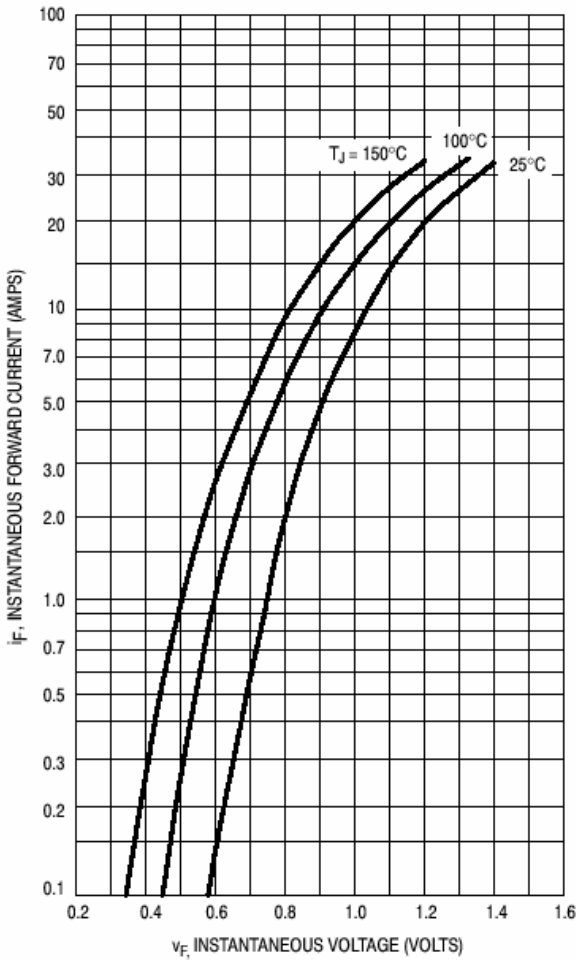


Figure 6. Typical Forward Voltage

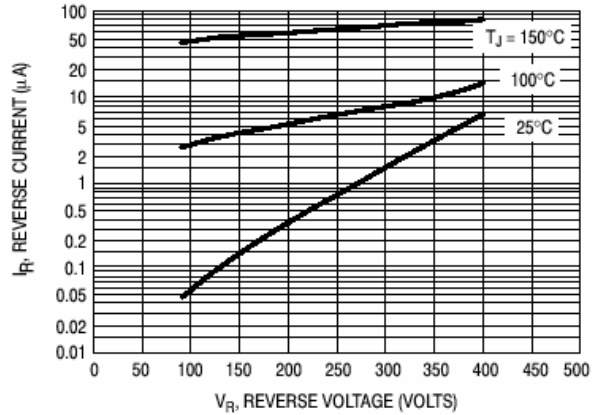


Figure 7. Typical Reverse Current

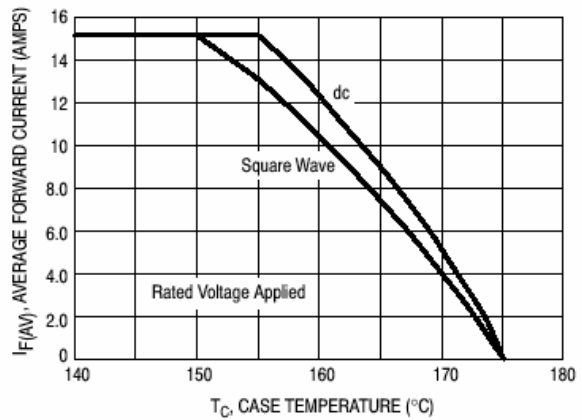


Figure 8. Current Derating, Case

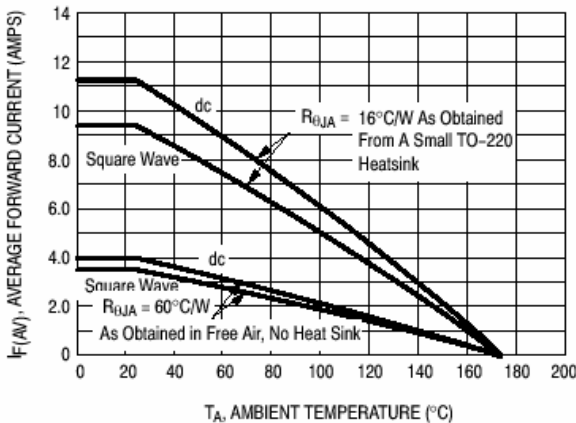


Figure 9. Current Derating, Ambient

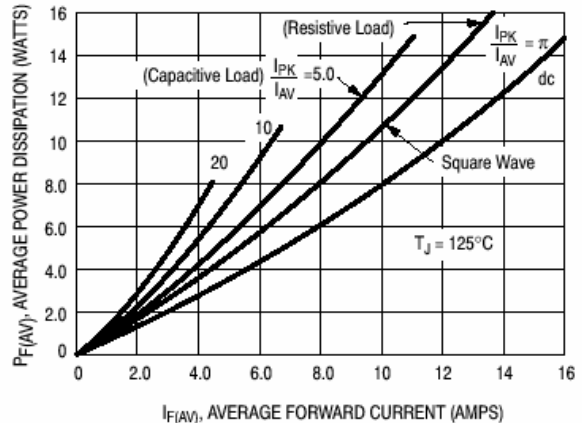


Figure 10. Power Dissipation

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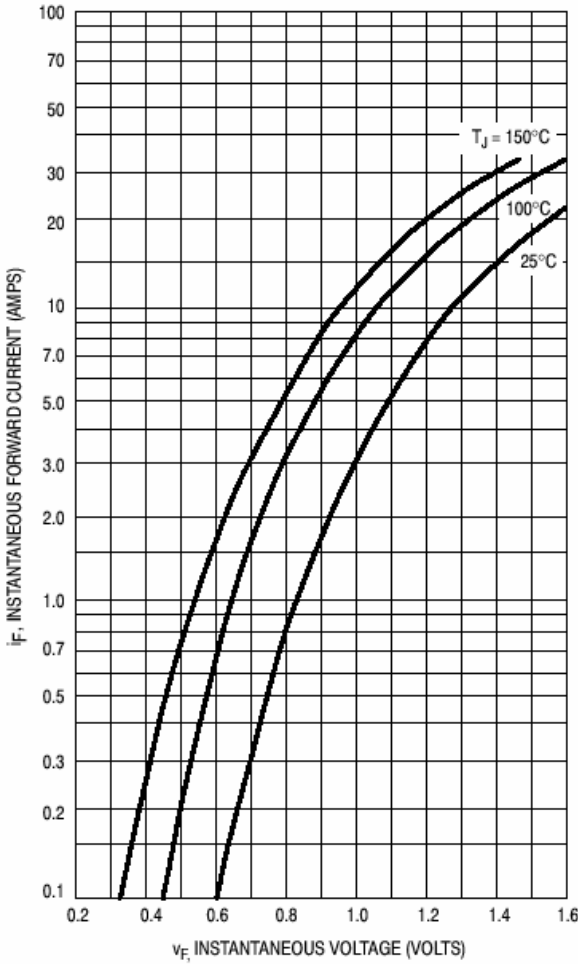


Figure 11. Typical Forward Voltage

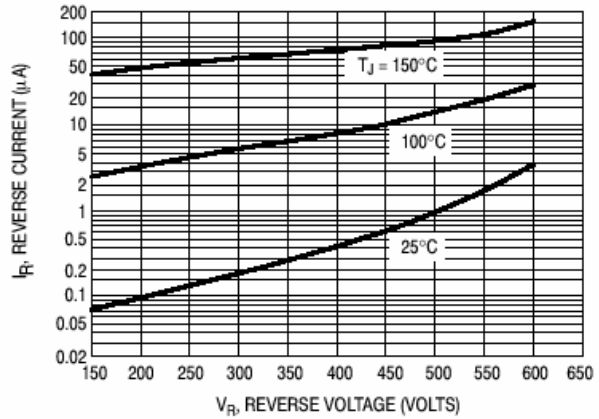


Figure 12. Typical Reverse Current

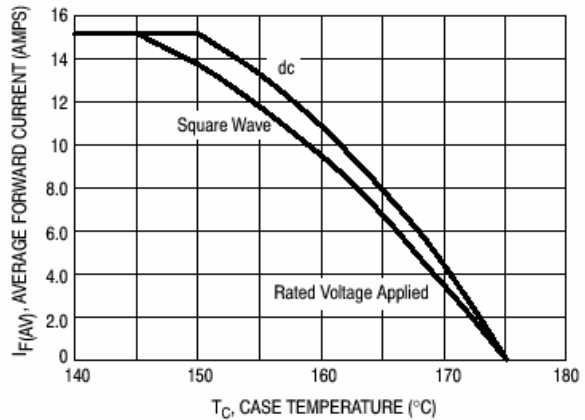


Figure 13. Current Derating, Case

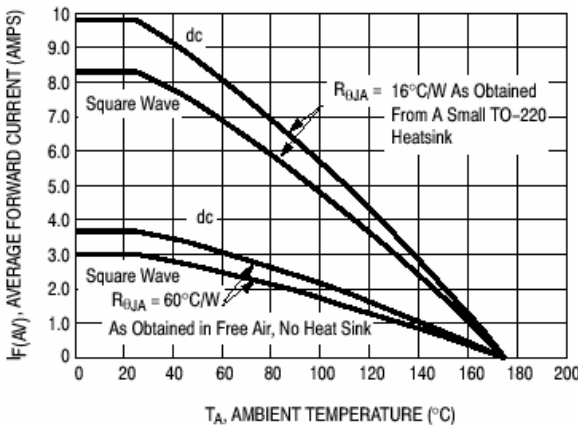


Figure 14. Current Derating, Ambient

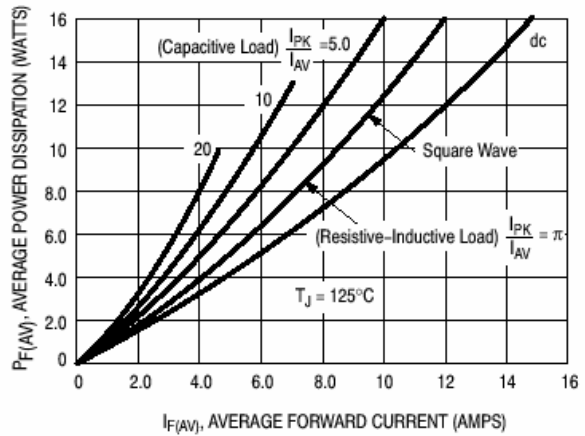


Figure 15. Power Dissipation

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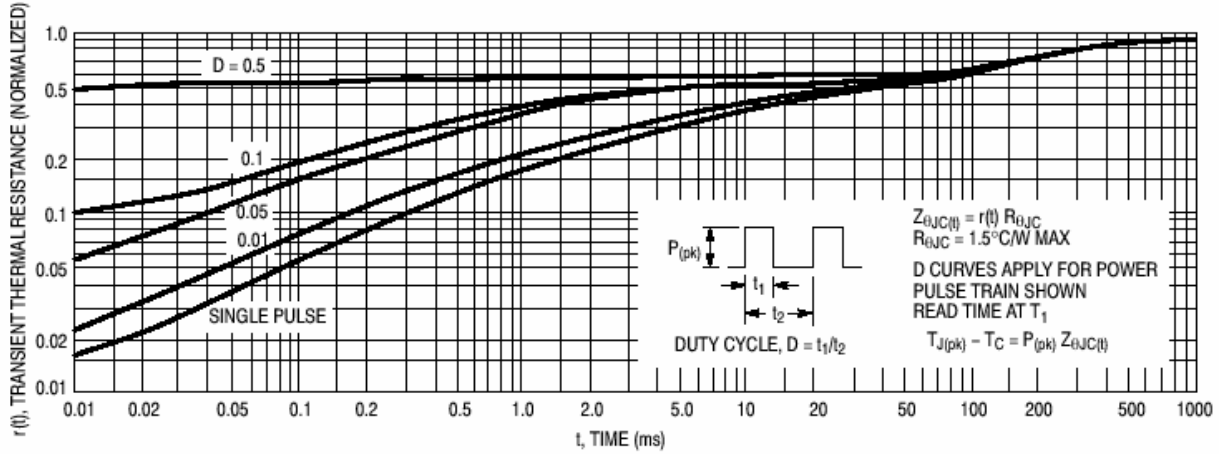


Figure 16. Thermal Response

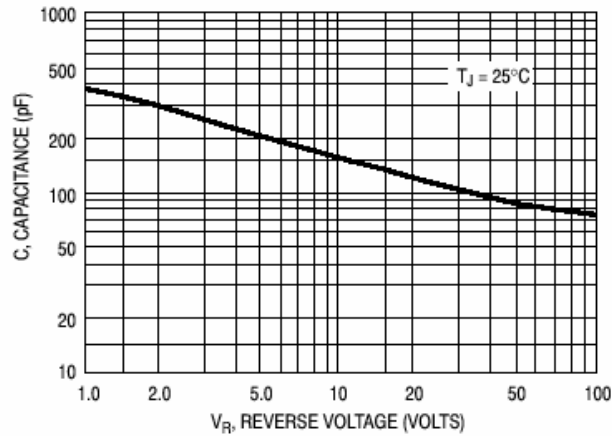


Figure 17. Typical Capacitance