

Data Sheet 4858, Rev.-
Technical Data

MURC805-MURC860
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:

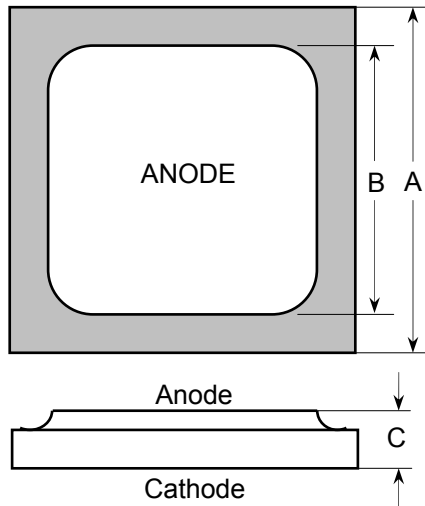
Characteristics	Symbol	MURC 805	MURC 810	MURC 815	MURC 820	MURC 840	MURC 860	Unit
Peak Inverse Voltage	V_{RWM}	50	100	150	200	400	600	V
Average Rectified Forward Current Total Device,(Rated V_R), $T_C = 150^\circ\text{C}$	$I_{F(AV)}$	8.0						A
Peak Repetitive Forward Current (Rated V_R , Squire Wave,20KHZ), $T_C = 150^\circ\text{C}$	I_{FM}	16						A
Max. Peak One Cycle Non-Repetitive Surge Current 8.3 ms, half Sine pulse	I_{FSM}	100						A
Operating JunctionTemperature and Storage Temperature	T_J, T_{stg}	-65 to +175						$^\circ\text{C}$

Electrical Characteristics:

Characteristics	Symbol	MURC 805	MURC 810	MURC 815	MURC 820	MURC 840	MURC 860	Unit
Max. Forward Voltage Drop(Note1) ($I_F = 8.0$ Amp, $T_J = 150^\circ\text{C}$) ($I_F = 8.0$ Amp, $T_J = 25^\circ\text{C}$)	V_F	0.895 0.975				1.00 1.30	1.20 1.50	V
Max. Reverse Current (Note1) (Rated DC Voltage, $T_J = 150^\circ\text{C}$) (Rated DC Voltage, $T_J = 25^\circ\text{C}$)	I_R	250 5.0				500 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 $\leq 2\%$

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	85 x 85	0.085 (2.159)	0.069 (1.753)	0.009 (0.229)

⁽¹⁾ Tolerance is ± 0.003" (0.076 mm)

⁽²⁾ Tolerance is ± 0.001" (0.025 mm)

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MURC805, MURC810, MURC815, MURC820

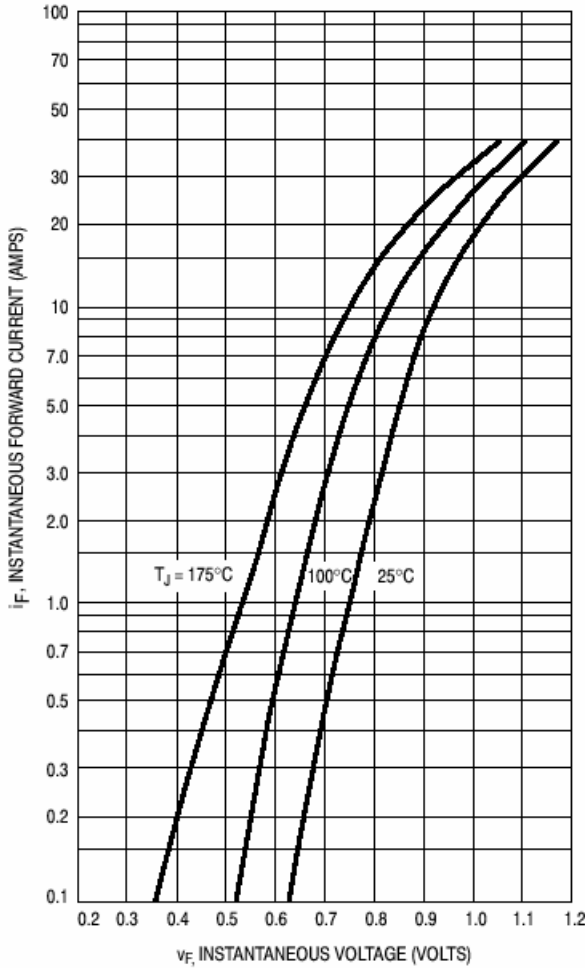


Figure 1. Typical Forward Voltage

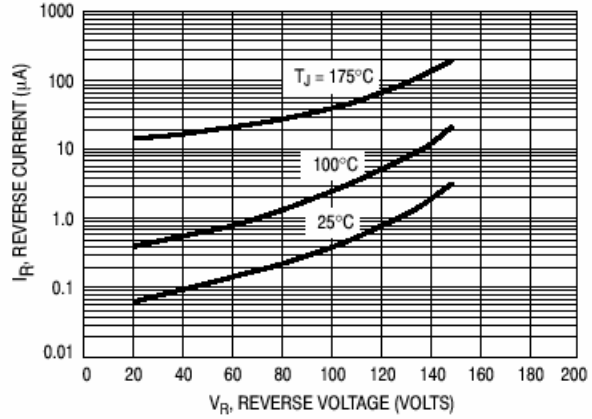


Figure 2. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

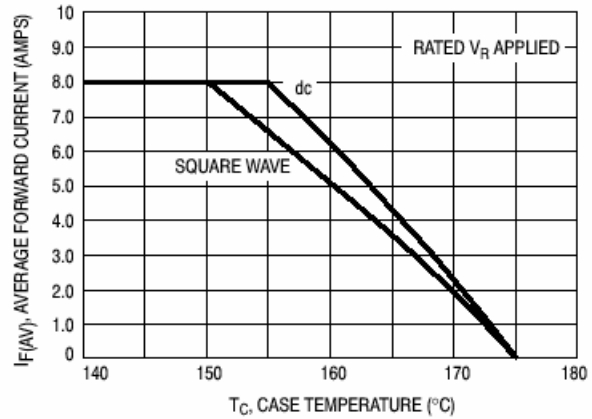


Figure 3. Current Derating, Case

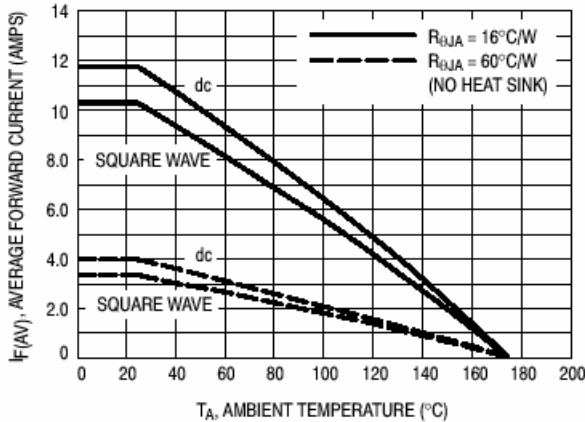


Figure 4. Current Derating, Ambient

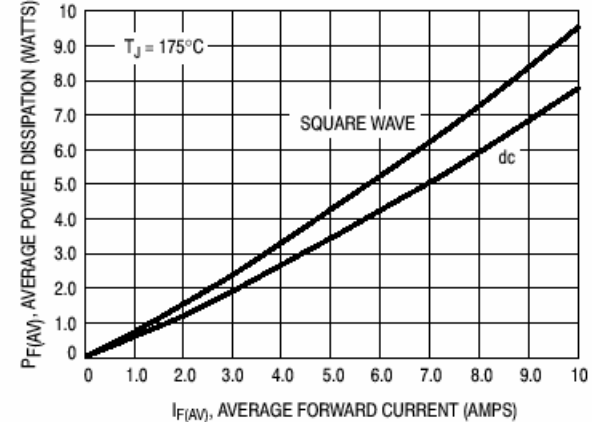


Figure 5. Power Dissipation

MURC840

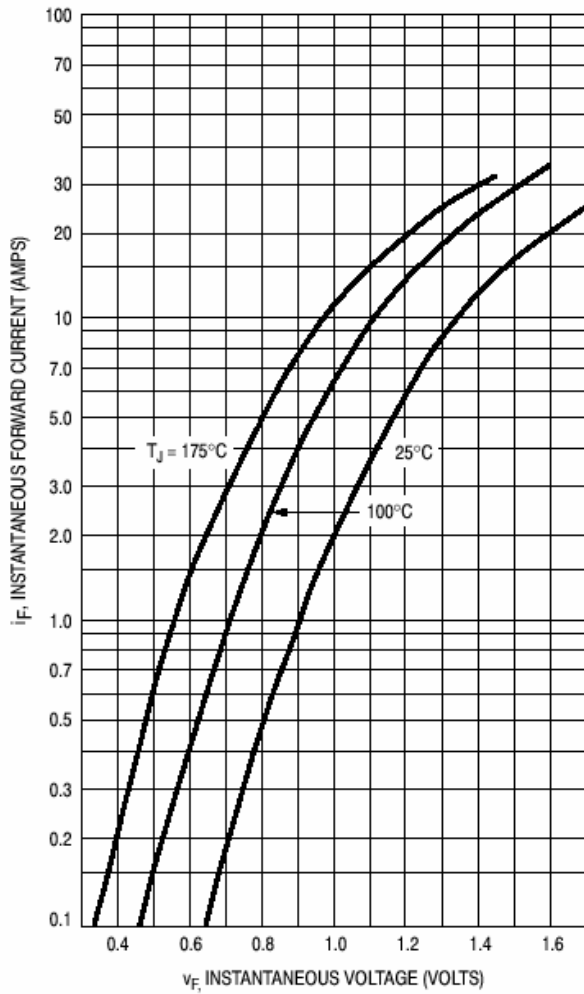


Figure 6. Typical Forward Voltage

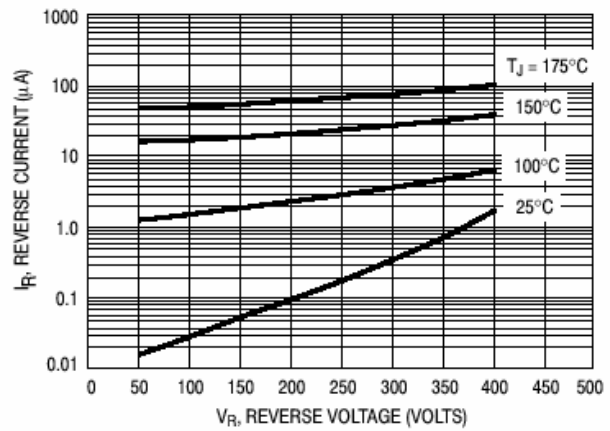


Figure 7. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

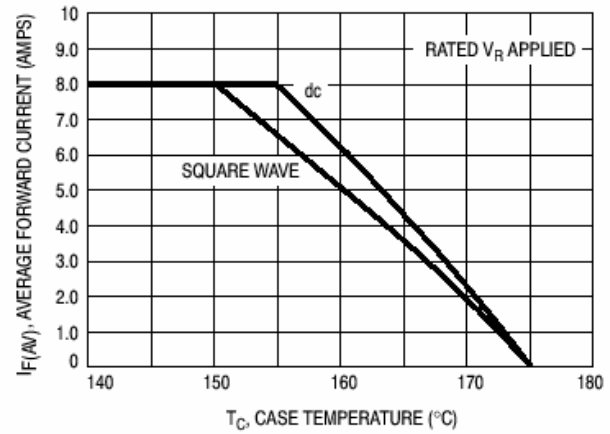


Figure 8. Current Derating, Case

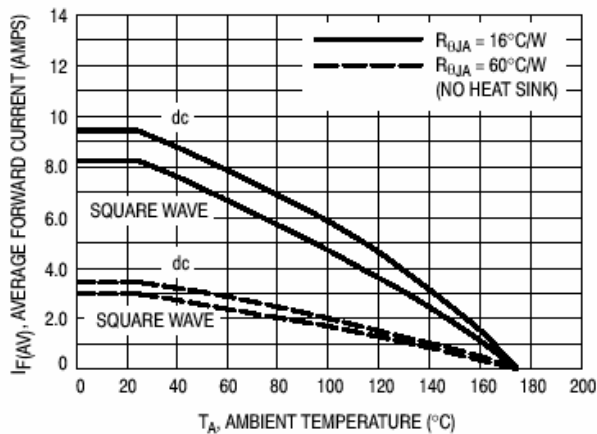


Figure 9. Current Derating, Ambient

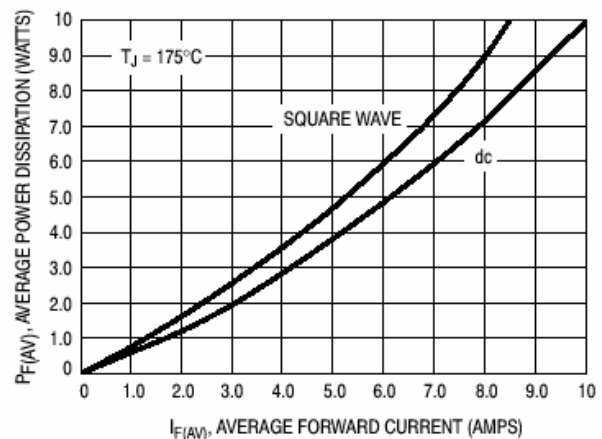


Figure 10. Power Dissipation

MURC860

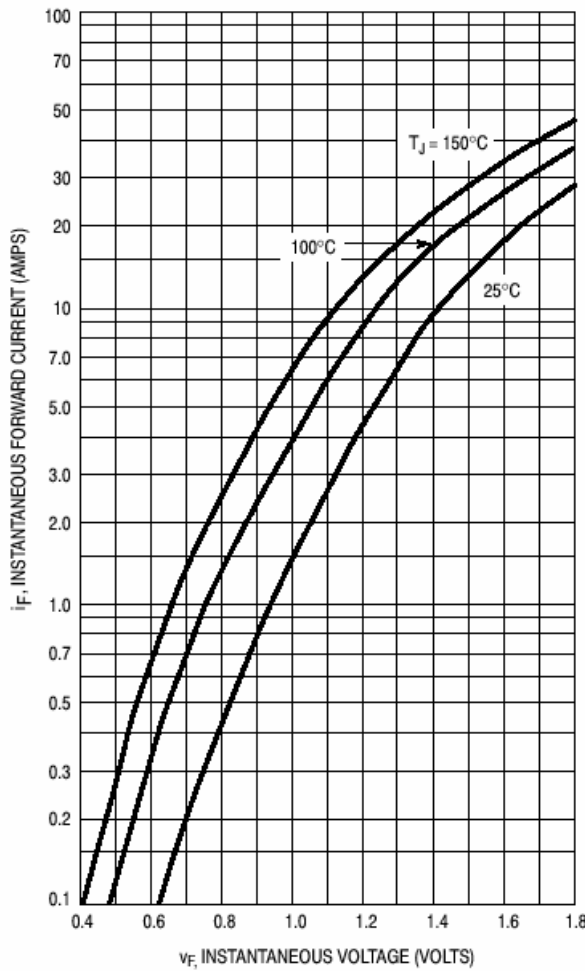


Figure 11. Typical Forward Voltage

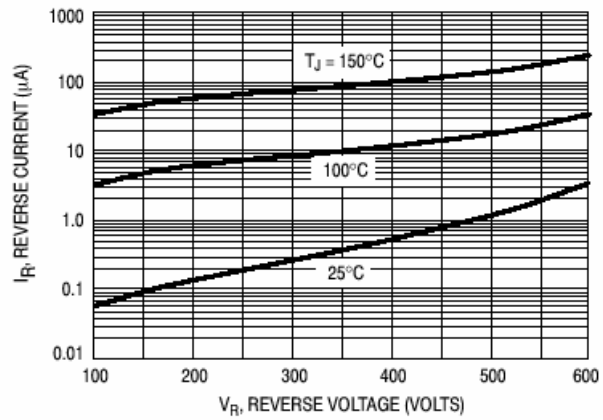


Figure 12. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

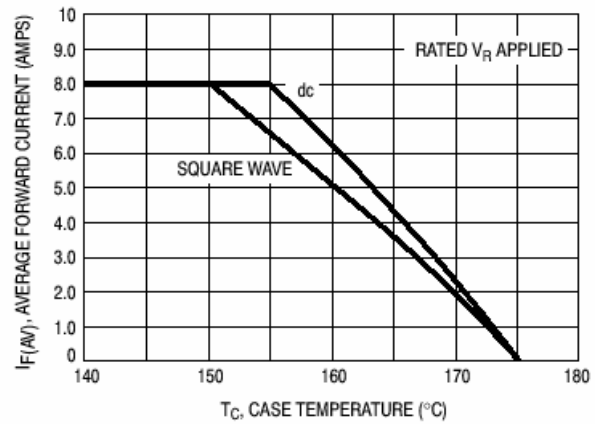


Figure 13. Current Derating, Case

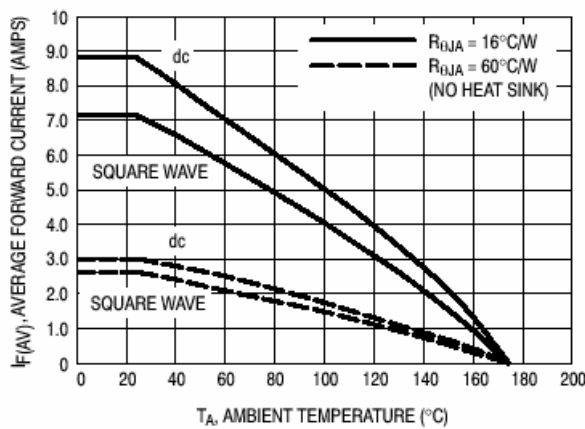


Figure 14. Current Derating, Ambient

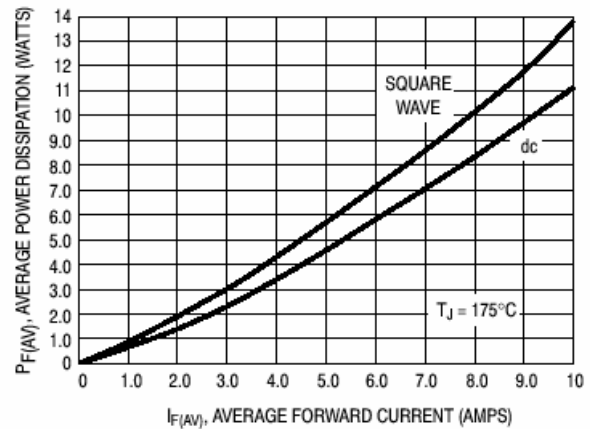


Figure 15. Power Dissipation

MURC805, MURC810, MURC815, MURC820, MURC840, MURC860

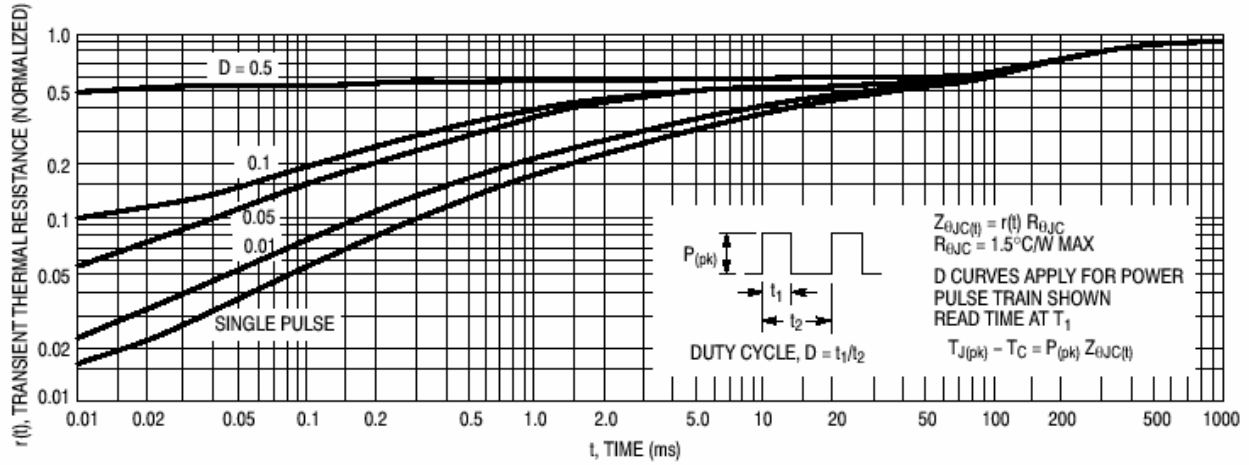


Figure 16. Thermal Response

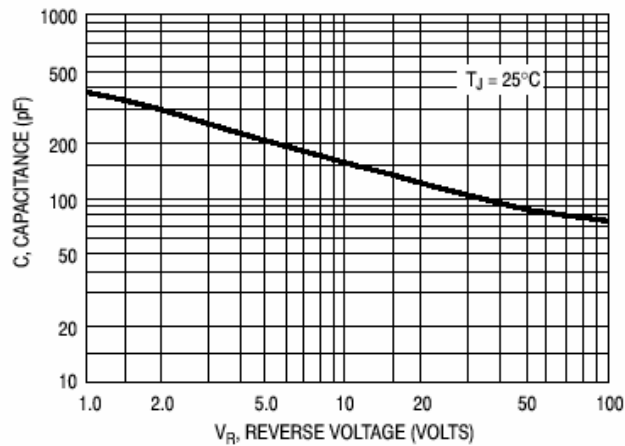


Figure 17. Typical Capacitance