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°C	$I_{F(AV)}$	8.0						A
Peak Repetitive Forward Current (Rated V_R, Squre Wave,20KHz), T_C = 150°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						°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 °C) (I_F = 8.0 Amp, T_J = 25 °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 °C) (Rated DC Voltage, T_J = 25 °C)	I_R	250 5.0				500 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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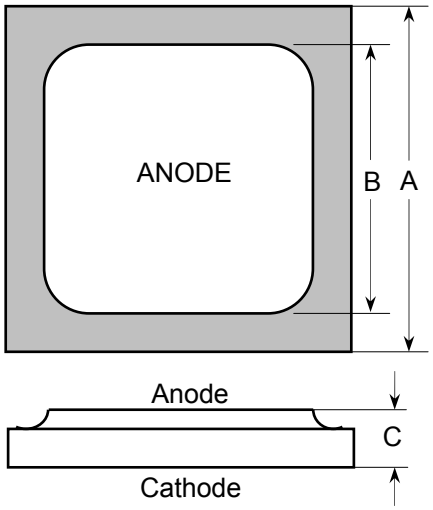
Dimensions in inches (mm)



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	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

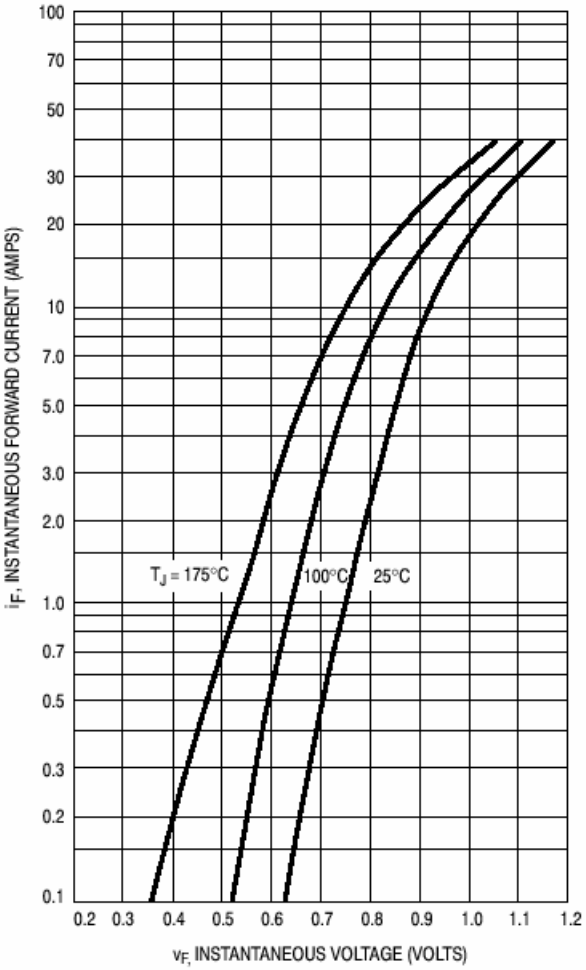

Figure 1. Typical Forward Voltage

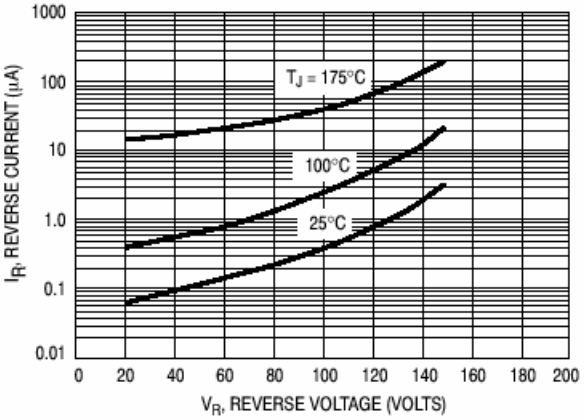

Figure 2. Typical Reverse Current*

* 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.

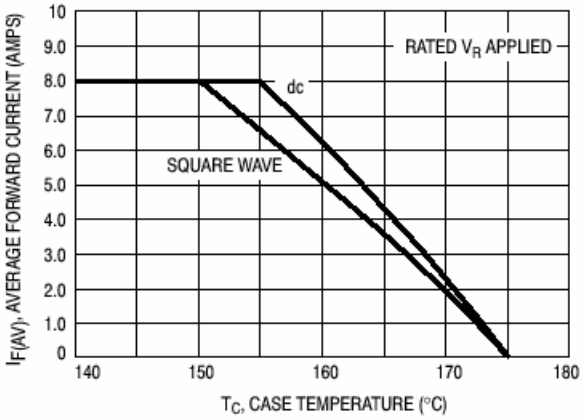

Figure 3. Current Derating, Case

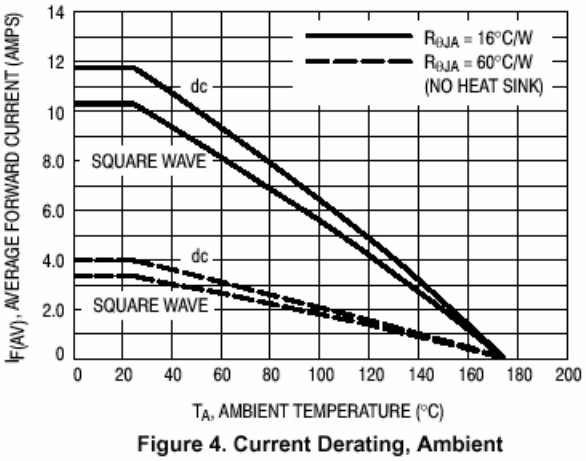

Figure 4. Current Derating, Ambient

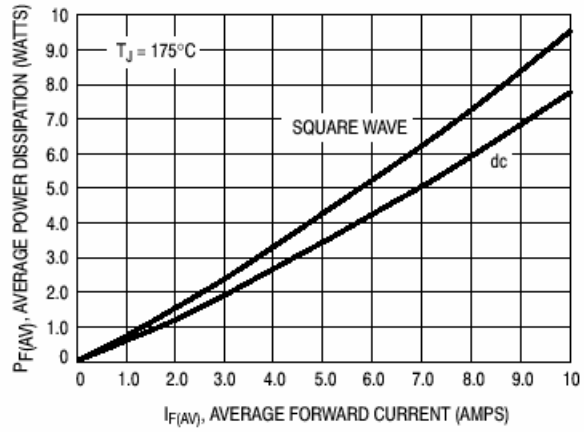

Figure 5. Power Dissipation

MURC840

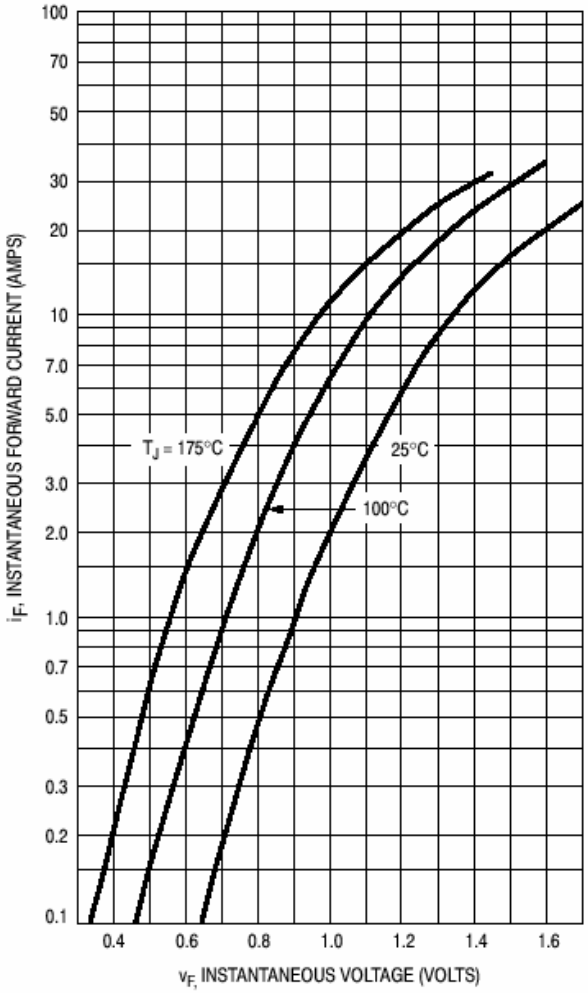

Figure 6. Typical Forward Voltage

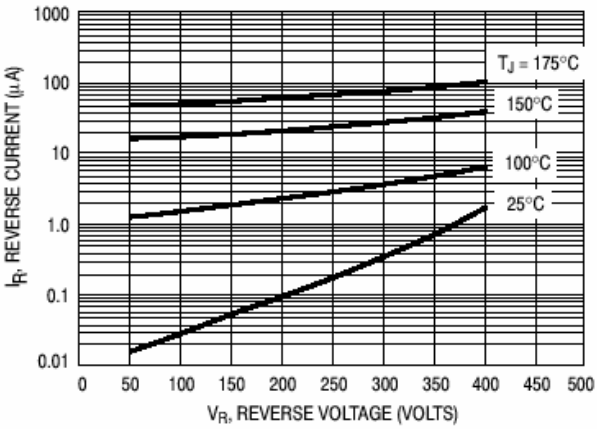

Figure 7. Typical Reverse Current*

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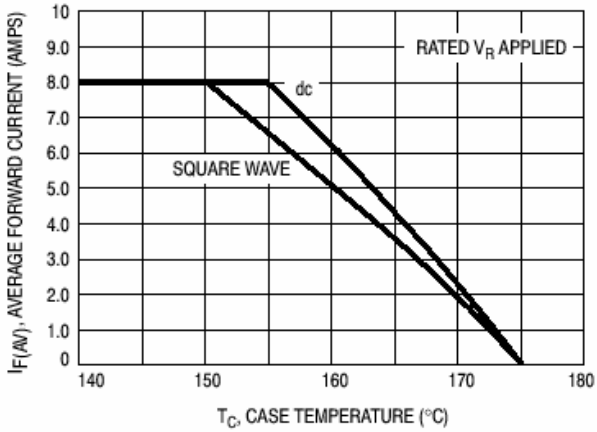

Figure 8. Current Derating, Case

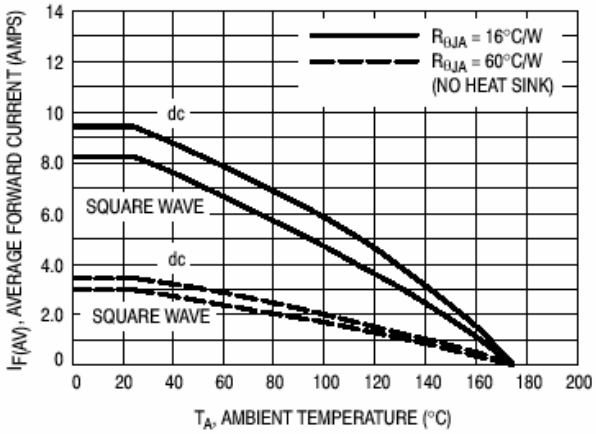

Figure 9. Current Derating, Ambient

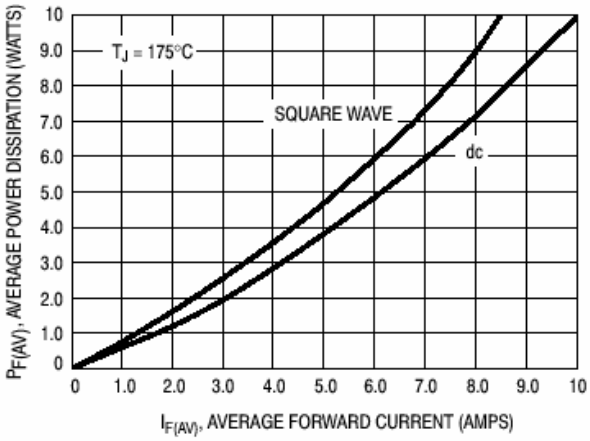

Figure 10. Power Dissipation

MURC860

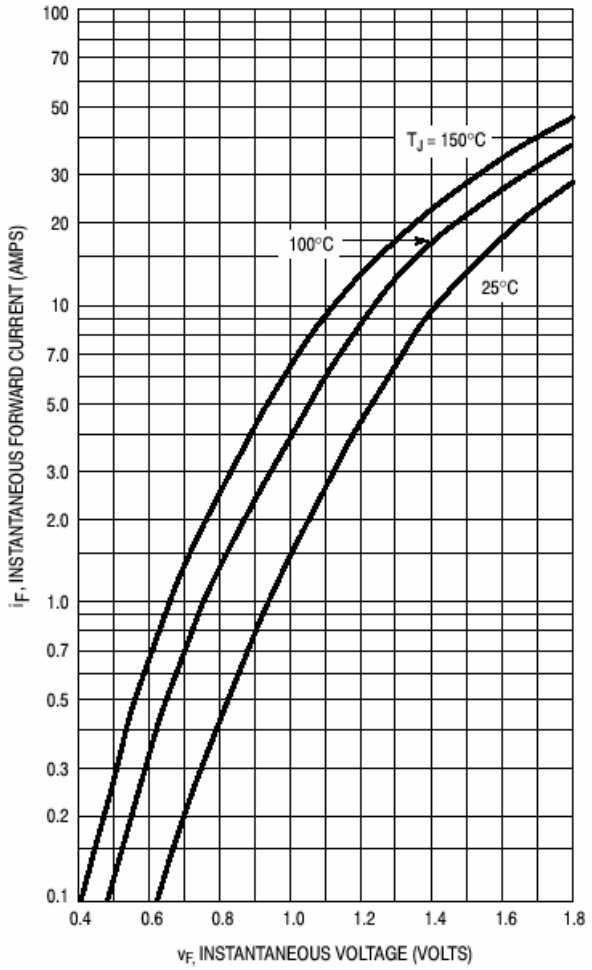

Figure 11. Typical Forward Voltage

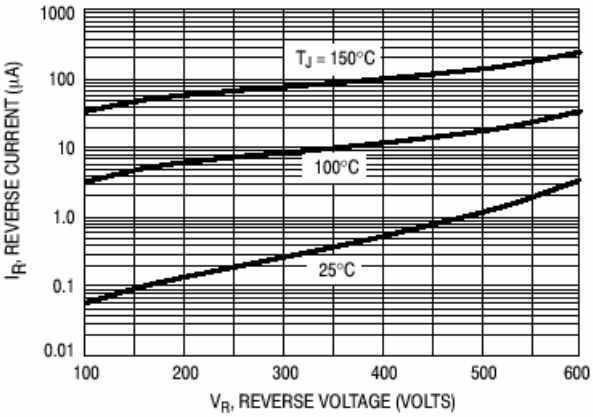

Figure 12. Typical Reverse Current*

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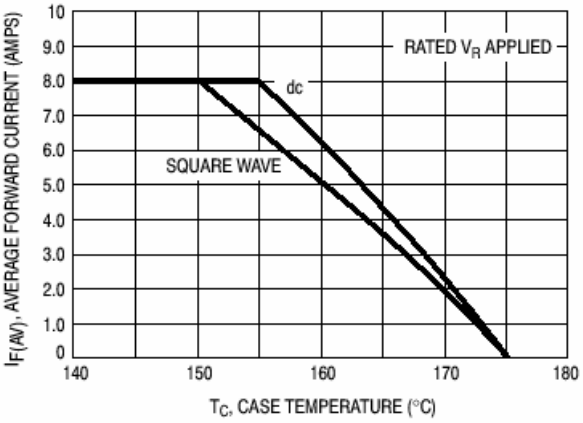

Figure 13. Current Derating, Case

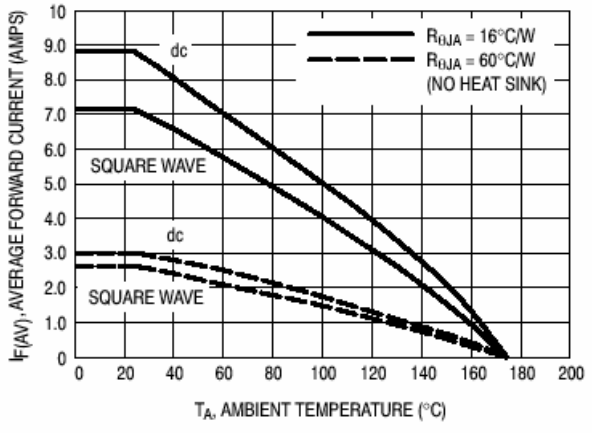

Figure 14. Current Derating, Ambient

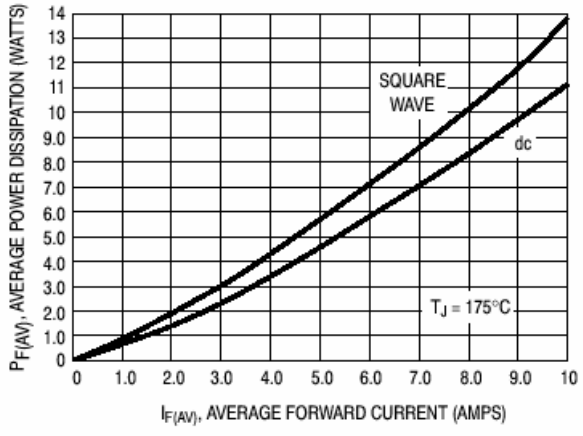

Figure 15. Power Dissipation

MURC805, MURC810, MURC815,MURC820, MURC840, MURC860

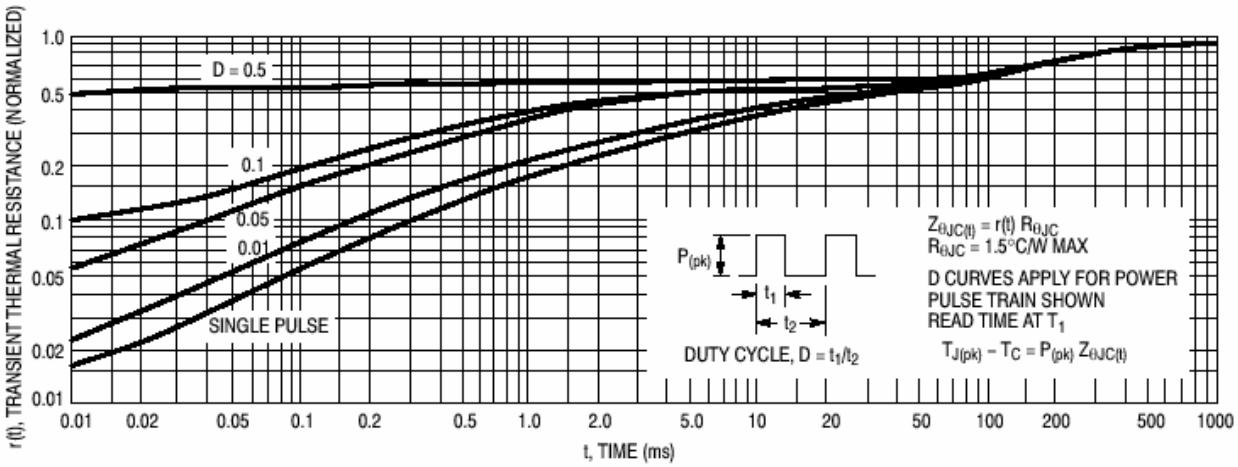

Figure 16. Thermal Response

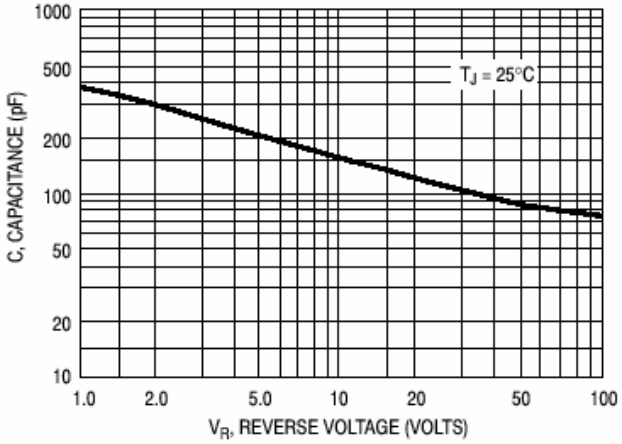

Figure 17. Typical Capacitance