Technical Data
Data Sheet 4853, Rev. B

MURC105-MURC160
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 105	MURC 110	MURC 115	MURC 120	MURC 130	MURC 140	MURC 150	MURC 160	Unit
Peak Inverse Voltage	V_{RWM}	50	100	150	200	300	400	500	600	V
Average Rectified Forward Current(Square Wave Mounting Method #3 Per Note1)	$I_{F(AV)}$	1.0 @ T_A = 130°C				1.0 @ T_A = 120°C				A
Max. Peak One Cycle Non-Repetitive Surge Current 8.3 ms, half Sine pulse	I_{FSM}	35								A
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	-65 to +175								°C

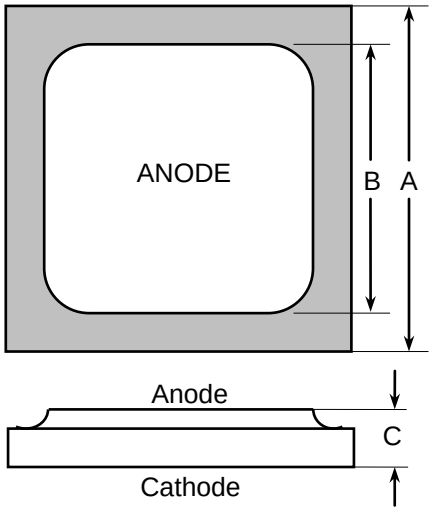
Electrical Characteristics:

Characteristics	Symbol	MURC 105	MURC 110	MURC 115	MURC 120	MURC 130	MURC 140	MURC 150	MURC 160	Unit
Max. Forward Voltage Drop (Note1) (I_F = 1.0 Amp, T_J = 150 °C) (I_F = 1.0 Amp, T_J = 25 °C)	V_F	0.710 0.875				1.05 1.25				V
Max. Reverse Current (Note1) (Rated DC Voltage, T_J = 150 °C) (Rated DC Voltage, T_J = 25 °C)	I_R	50 2.0				150 5.0				µA
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				75 50				nS
Max. Junction Capacitance @V_R = 5V, T_C = 25 °C f_{SIG} = 1MHz, V_{SIG} = 50mV (p-p)	C_T	30				10				pF
Max Forward Recovery Time (I_F = 1.0 Amp, di/dt = 50 A/µs, I_{REC} to 1.0V)	T_{fr}	25				50				nS

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

Technical Data
Data Sheet 4853, Rev. B

Dimensions in inches (mm)



Top side metalization - Aluminum - 25 kÅ

Bottom side metalization - Titanium 1.2 kÅ, Nickel 1.8 kÅ, Silver - 30 kÅ minimum

Bottom side is cathode, top side is anode.

See part ordering information for different options

Die type	Area (mil^2)	Dimension A [1] Inch (millimeter)	Dimension B [1] Inch (millimeter)	Dimension C [2] Inch (millimeter)
Si p-n die	34 x 34	0.034 (0.864)	0.020 (0.508)	0.009 (0.229)

(1) Tolerance is ± 0.003” (0.076 mm)
(2) Tolerance is ± 0.001” (0.025 mm)

MURC105, MURC110, MURC115, MURC120

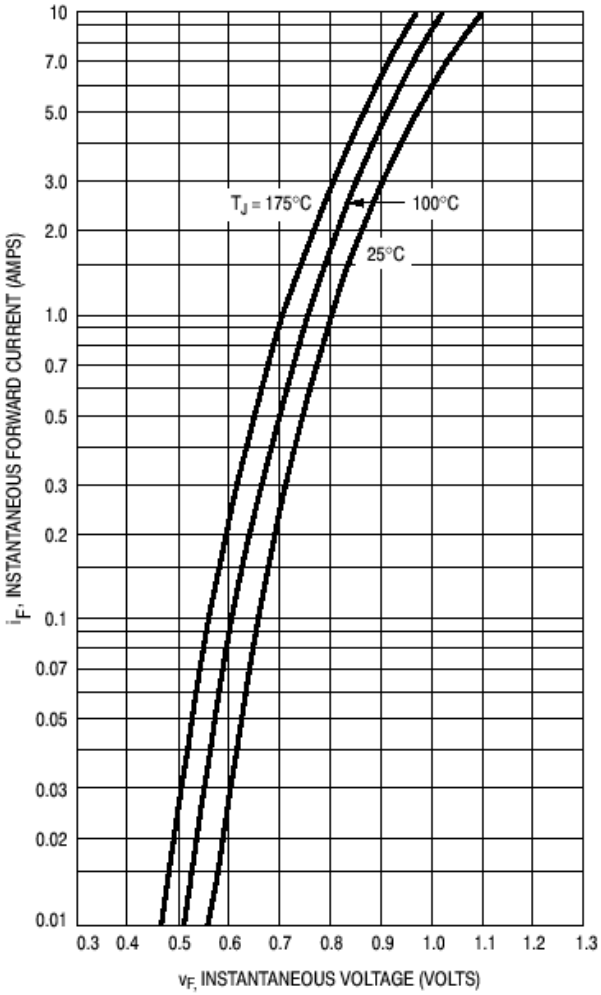


Figure 1. Typical Forward Voltage

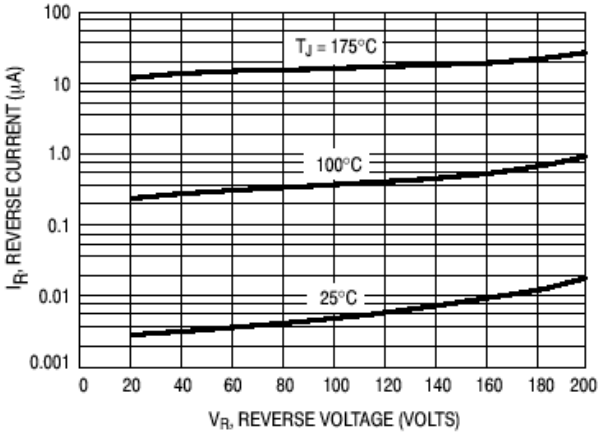


Figure 2. Typical Reverse Current*

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

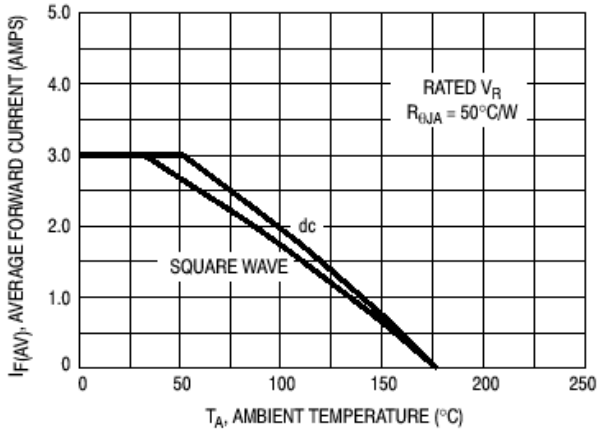


Figure 3. Current Derating
(Mounting Method #3 Per Note 1)

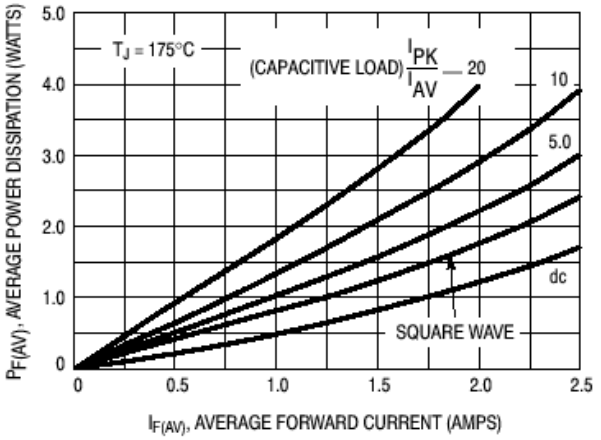


Figure 4. Power Dissipation

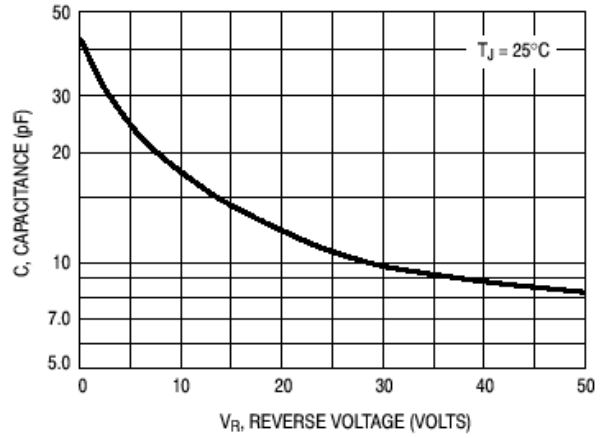


Figure 5. Typical Capacitance

MURC130, MURC140, MURC150, MURC160

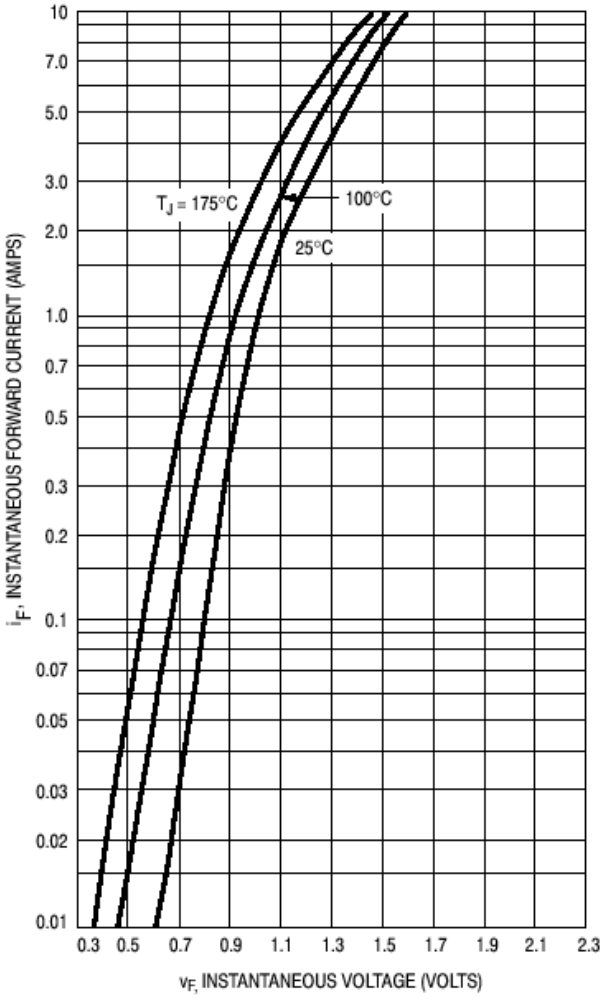


Figure 6. Typical Forward Voltage

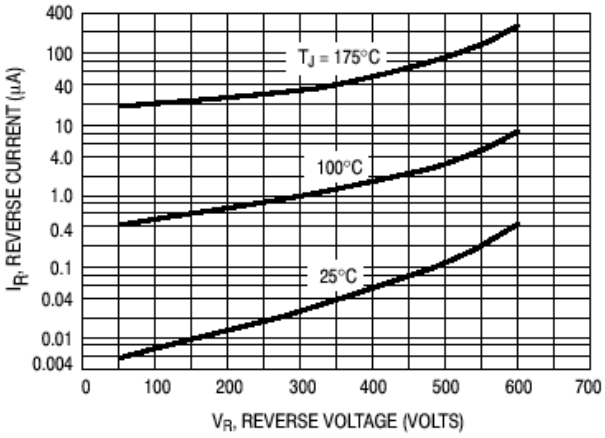


Figure 7. Typical Reverse Current*

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

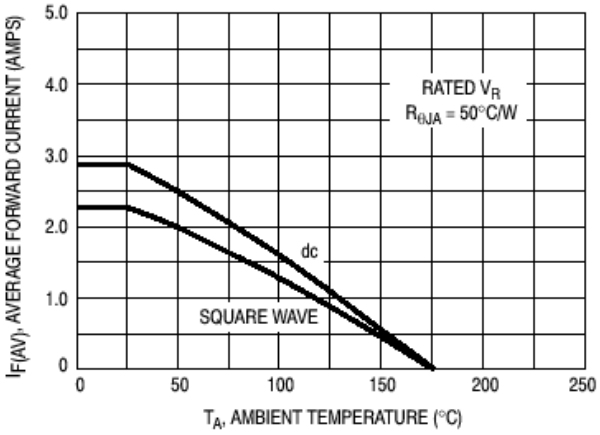


Figure 8. Current Derating (Mounting Method #3 Per Note 1)

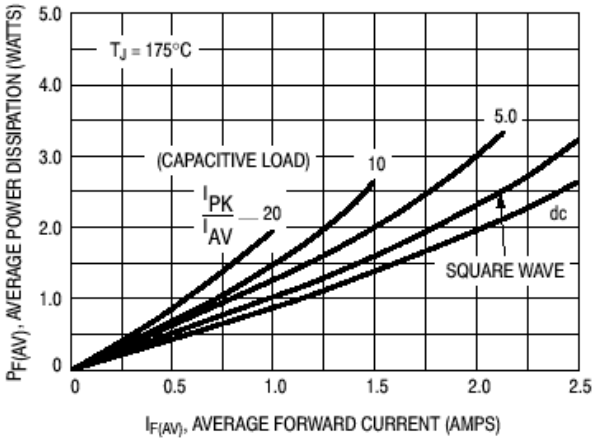


Figure 9. Power Dissipation

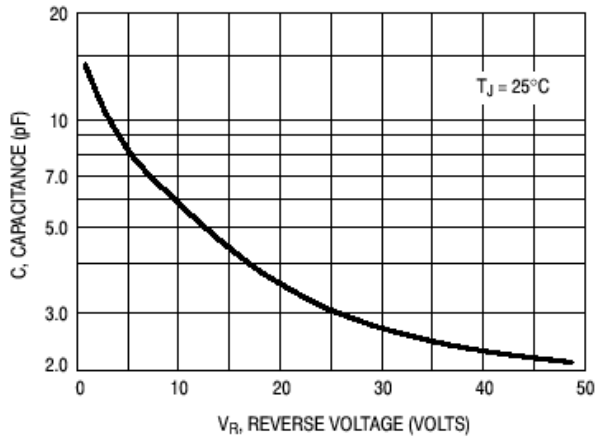


Figure 10. Typical Capacitance

Technical Data
Data Sheet 4853, Rev. B

PART ORDERING INFORMATION

Default part number is Al top, Ag bottom.
Add the following suffix for these metal combinations:

Suffix	Top	Bottom	Part Number
	Al	*Ag*	*MURC105*
AG	*Al*	*Au*	*MURC105AG*
BB	*Ag*	*Ag*	*MURC105BB*
BG	*Ag*	*Au*	*MURC105BG*
GG	*Au*	*Au*	*MURC105GG*
GB	*Au*	*Ag*	*MURC105GB*
-R	*- Reverse polarity -*		*MURC105-R*

A = Ti (0.3 kA) / Al (25 kA)
B = Ti (1.2 kA) / Ni (1.8 kA) / Ag (30kA)
G = Ti (1.2 kA) / Ni (1.8 kA) / Au (12kA) ***(TOP)*** / Ti (1.2 kA) / Ni (1.8 kA) / Au (4kA) ***(BOTTOM)***

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