Technical Data
Data Sheet 4855, Rev.-

MURC405-MURC460
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 405	MURC 410	MURC 415	MURC 420	MURC 440	MURC 460	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	400	600	V
Average Rectified Forward Current(Square Wave)	$I_{F(AV)}$	4.0 @ T_A = 80°C				4.0 @ T_A = 40°C		A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, half wave, single phase, 60Hz)	I_{FSM}	125				110		A
Max. Junction Capacitance @V_R = 5V, T_C = 25 °C, f_{SIG} = 1MHz, V_{SIG} = 50mV (p-p)	C_T	100				40		pF
Operating JunctionTemperature and Storage Temperature	T_J, T_{stg}	-65 to +175						°C

Electrical Characteristics:

Characteristics	Symbol	MURC 405	MURC 410	MURC 415	MURC 420	MURC 440	MURC 460	Unit
Max. Instantaneous Forward Voltage (Note1) (I_F = 3.0 Amp, T_J = 150 °C) (I_F = 3.0 Amp, T_J = 25 °C) (I_F = 4.0 Amp, T_J = 25 °C)	V_F	0.71 0.88 0.89				1.05 1.25 1.28		V
Max. Instantaneous Reverse Current (Note1) (Rated DC Voltage, T_J = 150 °C) (Rated DC Voltage, T_J = 25 °C)	I_R	150 5				250 10		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. Forward Recovery Time (I_F = 1.0 Amp, di/dt = 100 A/µs, Recover to 1.0 V)	T_{fr}	25				50		nS

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

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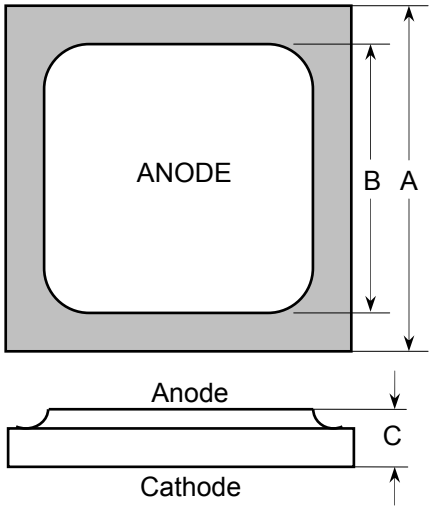
Dimensions in inches (mm)



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	65 x 65	0.065 (1.651)	0.049 (1.254)	0.009 (0.229)

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

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MURC405, MURC410, MURC415, MURC420

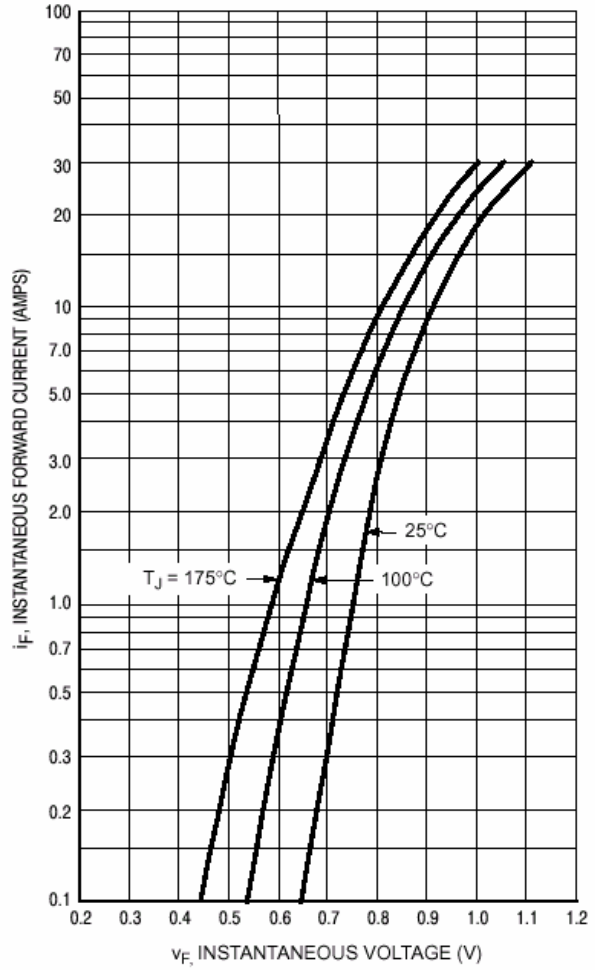

Figure 1. Typical Forward Voltage

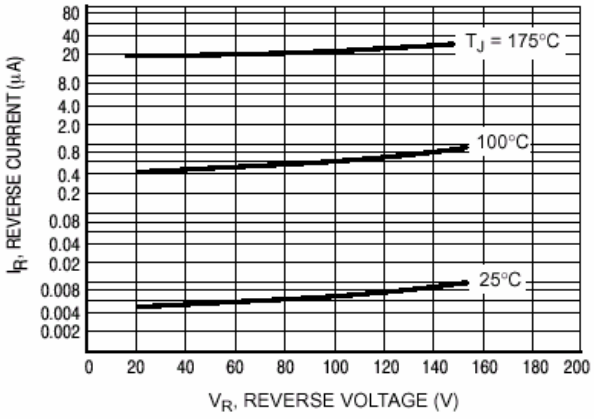

Figure 2. Typical Reverse Current

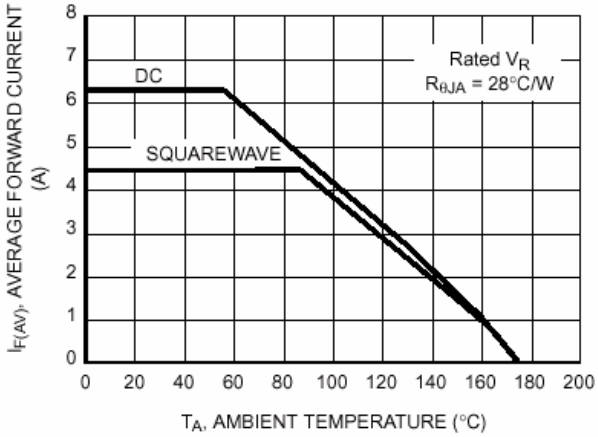

Figure 3. Current Derating (Mounting Method #3 Per Note 2)

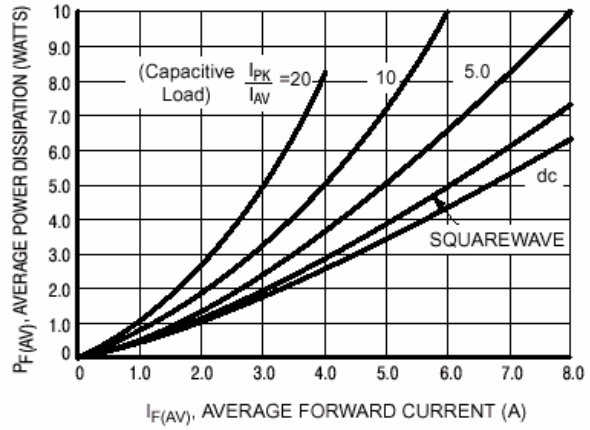

Figure 4. Power Dissipation

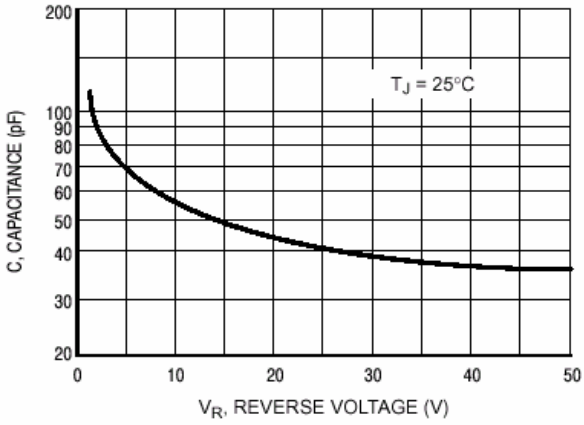

Figure 5. Typical Capacitance

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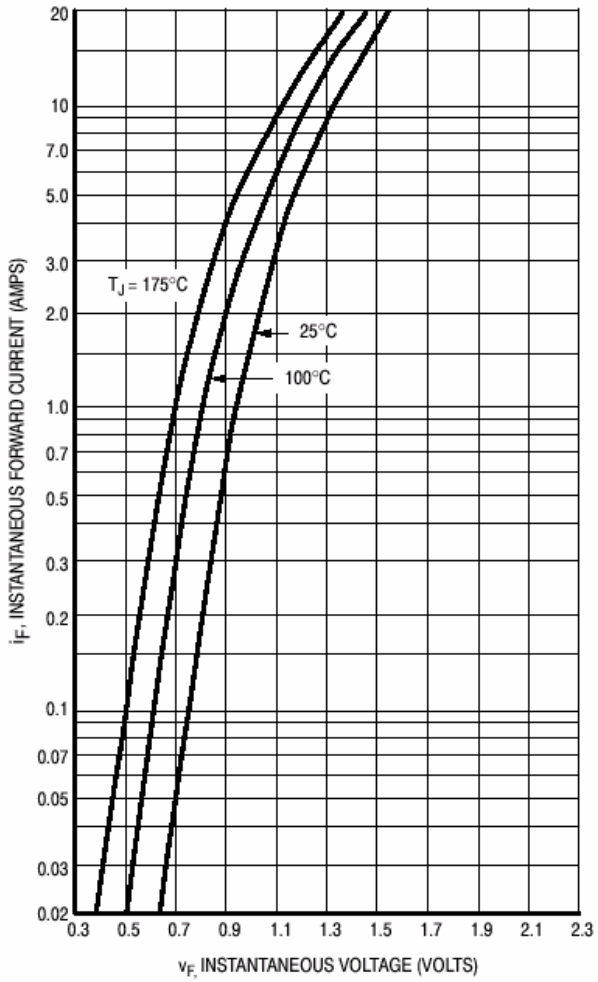

Figure 6. Typical Forward Voltage

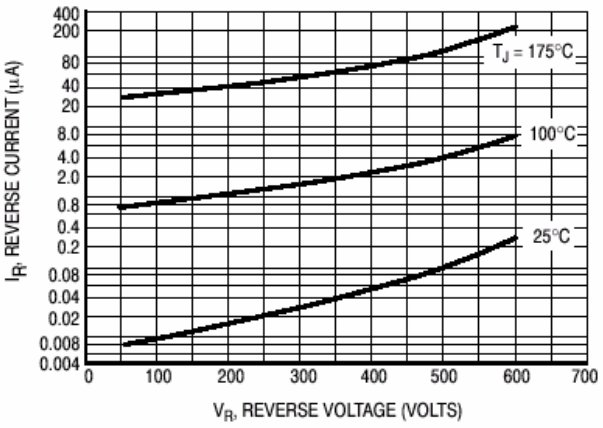

Figure 7. Typical Reverse Current

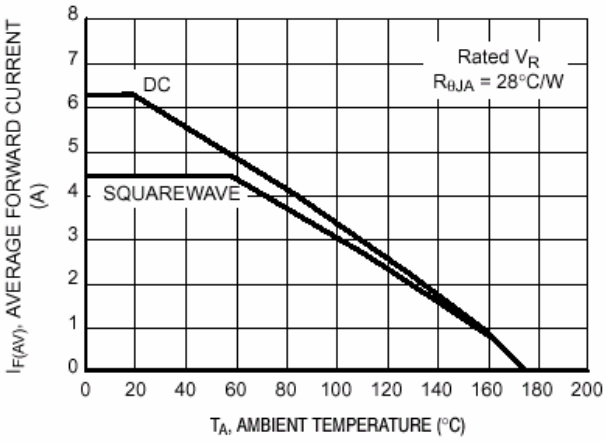

Figure 8. Current Derating
(Mounting Method #3 Per Note 2)

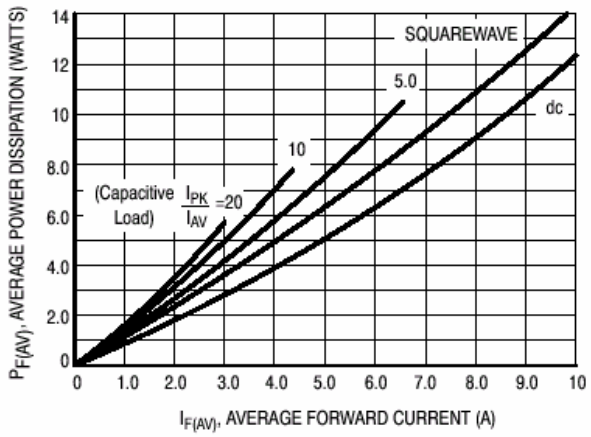

Figure 9. Power Dissipation

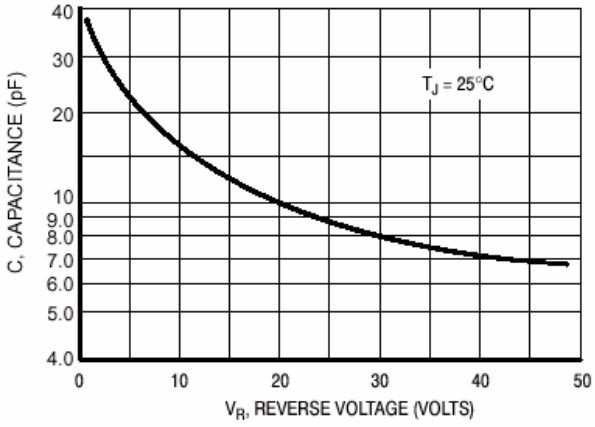

Figure 10. Typical Capacitance