

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	V_{RRM}	50	100	150	200	400	600	V
Working Peak Reverse Voltage	V_{RWM}							
DC Blocking Voltage	V_R							
Average Rectified Forward Current(Square Wave)	$I_{F(AV)}$	4.0 @ $T_A = 80^\circ\text{C}$				4.0 @ $T_A = 40^\circ\text{C}$		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 @ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$, $f_{SIG} = 1\text{MHz}$, $V_{SIG} = 50\text{mV}$ (p-p)	C_T	100				40		pF
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	-65 to +175						$^\circ\text{C}$

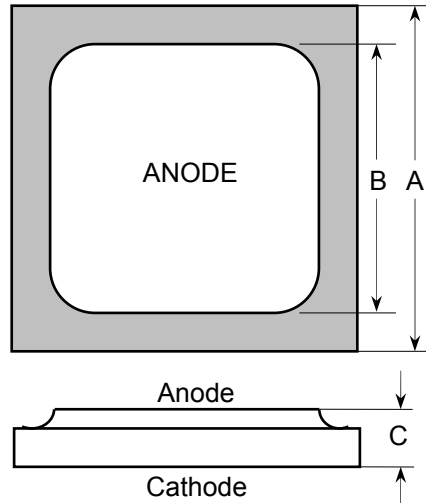
Electrical Characteristics:

Characteristics	Symbol	MURC 405	MURC 410	MURC 415	MURC 420	MURC 440	MURC 460	Unit
Max. Instantaneous Forward Voltage (Note1) ($I_F = 3.0\text{ Amp}$, $T_J = 150^\circ\text{C}$) ($I_F = 3.0\text{ Amp}$, $T_J = 25^\circ\text{C}$) ($I_F = 4.0\text{ Amp}$, $T_J = 25^\circ\text{C}$)	V_F		0.71 0.88 0.89			1.05 1.25 1.28		V
Max. Instantaneous Reverse Current (Note1) (Rated DC Voltage, $T_J = 150^\circ\text{C}$) (Rated DC Voltage, $T_J = 25^\circ\text{C}$)	I_R		150 5			250 10		μA
Max. Reverse Recovery Time ($I_F = 1.0\text{ Amp}$, $di/dt = 50\text{ A}/\mu\text{s}$) ($I_F = 0.5\text{ Amp}$, $I_R = 1.0\text{ A}$, $I_{REC}=0.25\text{A}$)	t_{rr}		35 25			75 50		nS
Max. Forward Recovery Time ($I_F = 1.0\text{ Amp}$, $di/dt = 100\text{ A}/\mu\text{s}$, Recover to 1.0 V)	T_{fr}		25			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	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

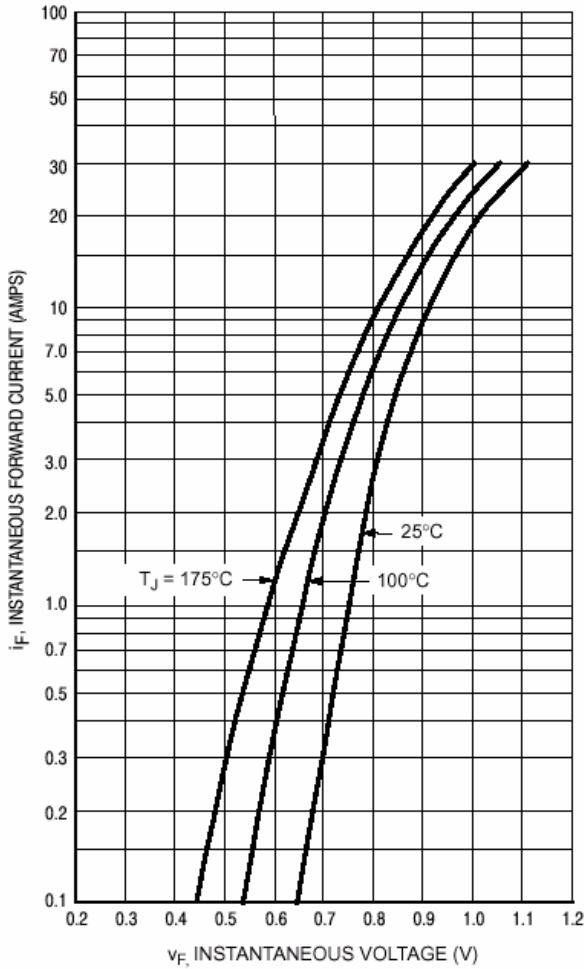


Figure 1. Typical Forward Voltage

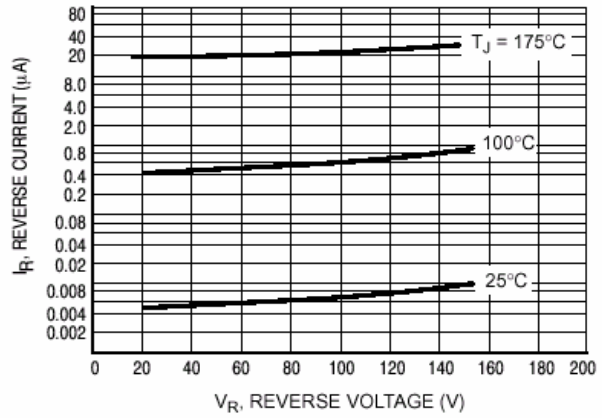
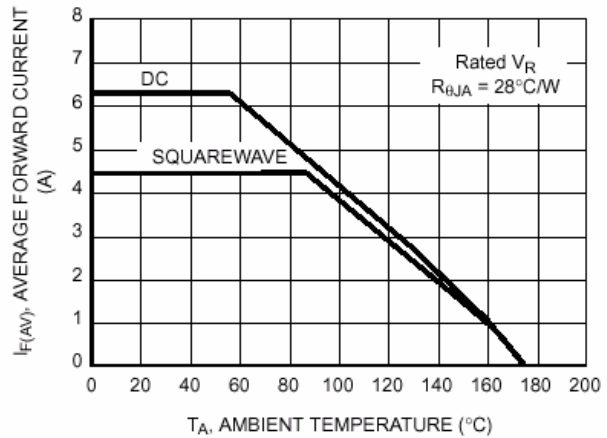


Figure 2. Typical Reverse Current



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

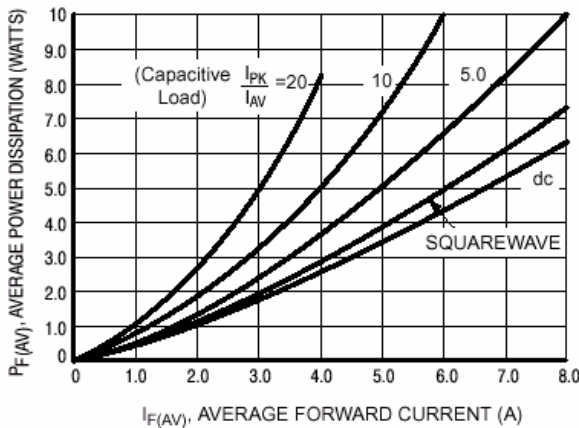


Figure 4. Power Dissipation

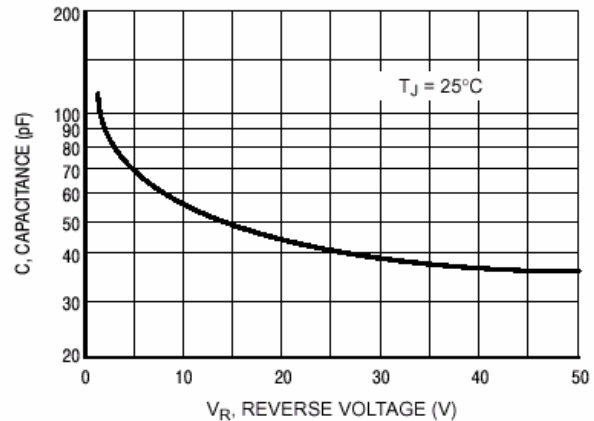


Figure 5. Typical Capacitance

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MURC440, MURC460

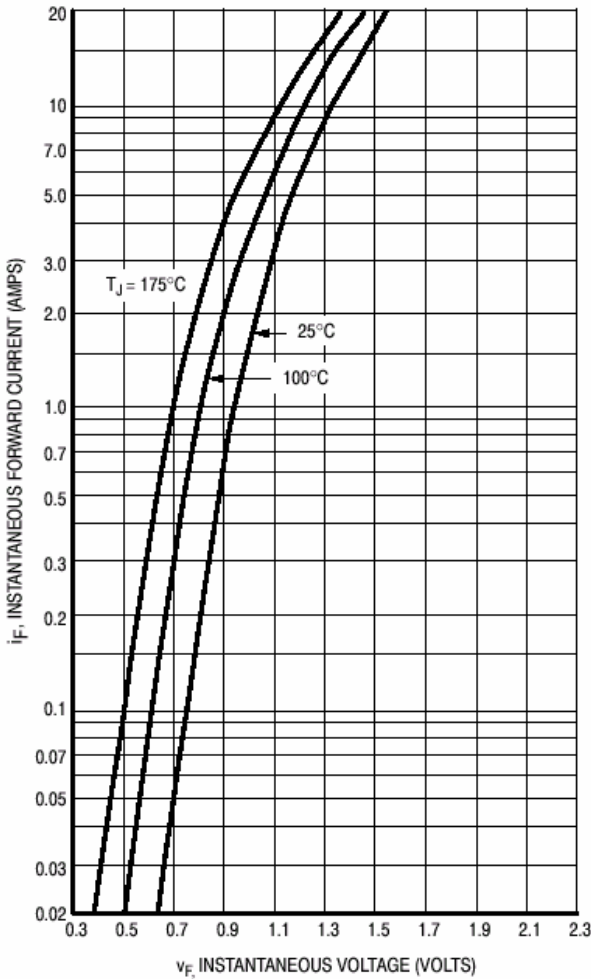


Figure 6. Typical Forward Voltage

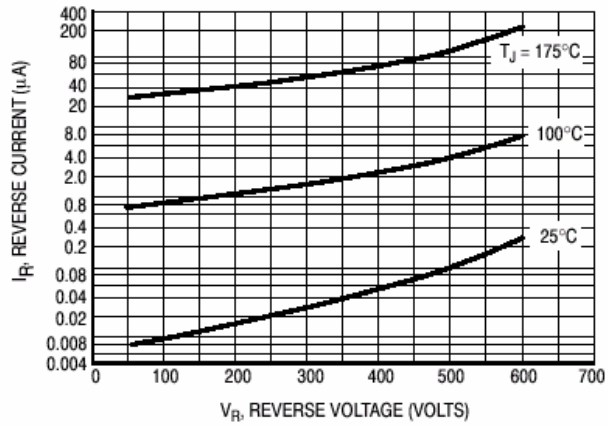
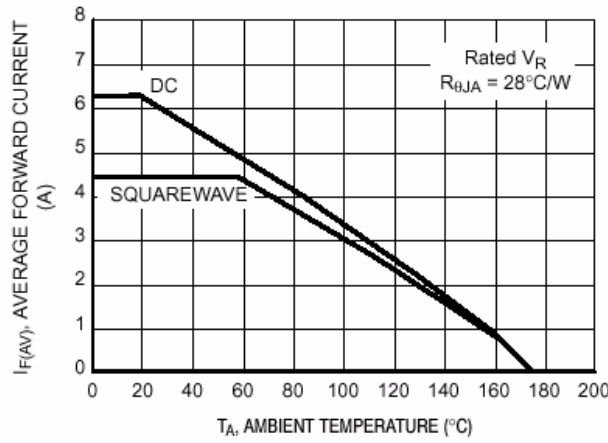


Figure 7. Typical Reverse Current



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

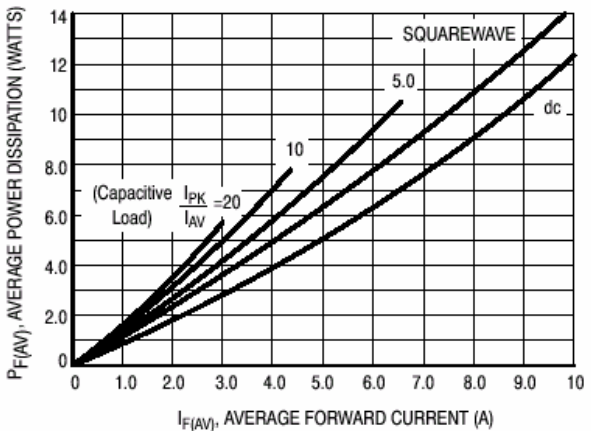


Figure 9. Power Dissipation

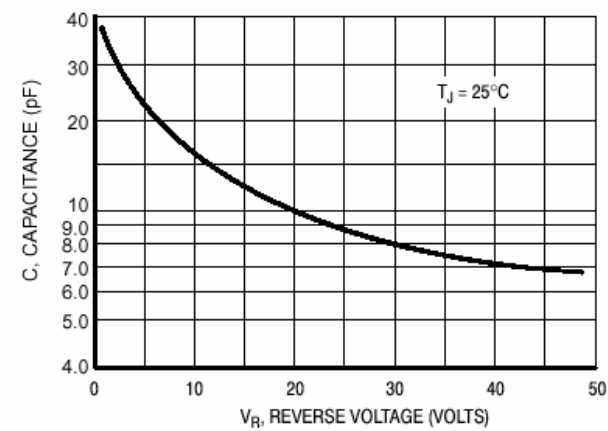


Figure 10. Typical Capacitance