

Technical Data
Data Sheet 4859, Rev.-

MURC1020
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	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	200	V
Max. Average Forward	$I_{F(AV)}$	50% duty cycle @ $T_C=100^\circ\text{C}$, rectangular wave form	10	A
Max. Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	100	A
Max. Junction Capacitance	C_J	@ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$, $V_{SIG} = 50\text{mV (p-p)}$	130	pF
Max. Junction Temperature	T_J	-	-65 to +150	$^\circ\text{C}$
Max. Storage Temperature	T_{stg}	-	-65 to +150	$^\circ\text{C}$

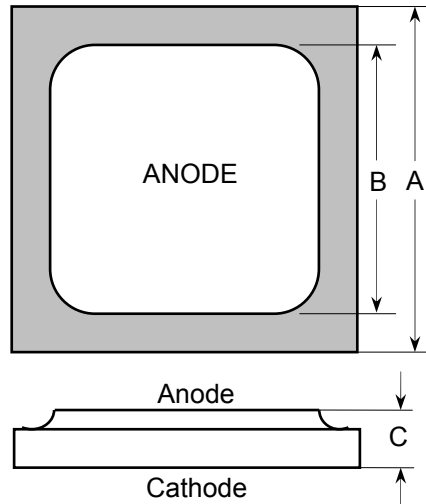
Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop *	V_{F1}	@ 10A, Pulse, $T_J = 25^\circ\text{C}$	1.2	V
	V_{F2}	@ 10A, Pulse, $T_J = 100^\circ\text{C}$	1.0	V
Max. Reverse Current *	I_{R1}	@ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$	10	μA
	I_{R2}	@ $V_R = 0.8V_R$ $T_J = 100^\circ\text{C}$	100	μA
Max Reverse Recovery Time	t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{REC}=0.25\text{A}$	25	nS
Max Reverse Recovery Time	t_{rr}	$I_F=10\text{A}$, $di/dt=200\text{A}/\mu\text{s}$	35	nS

* Pulse Width < 300 μs , 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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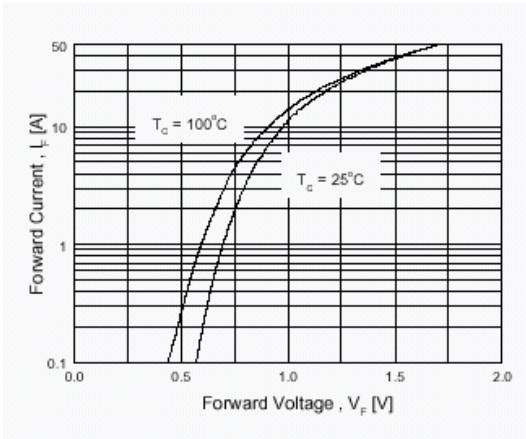


Figure 1. Typical Forward Voltage Drop vs. Forward Current

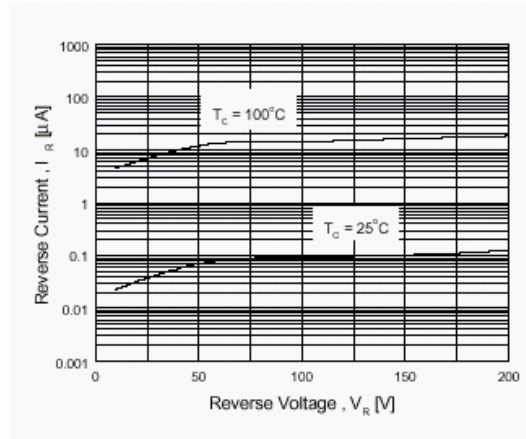


Figure 2. Typical Reverse Current vs. Reverse Voltage

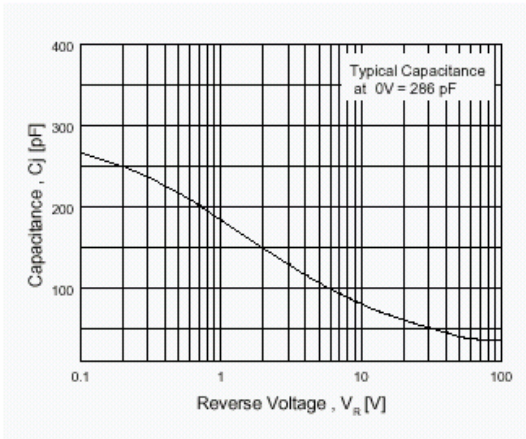


Figure 3. Typical Junction Capacitance

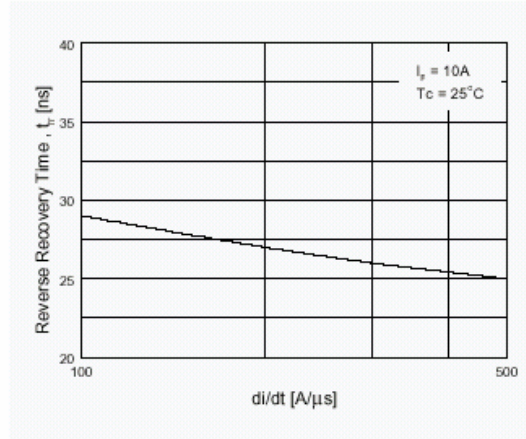


Figure 4. Typical Reverse Recovery Time vs. di/dt

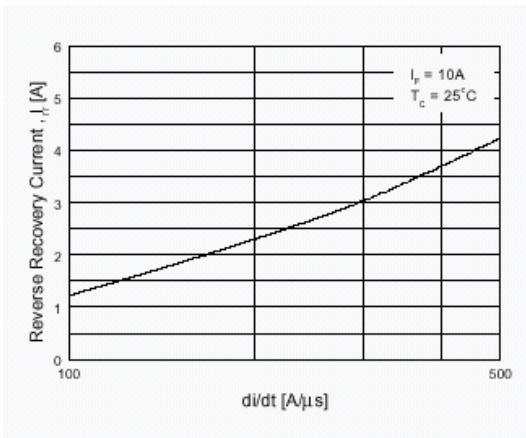


Figure 5. Typical Reverse Recovery Current vs. di/dt

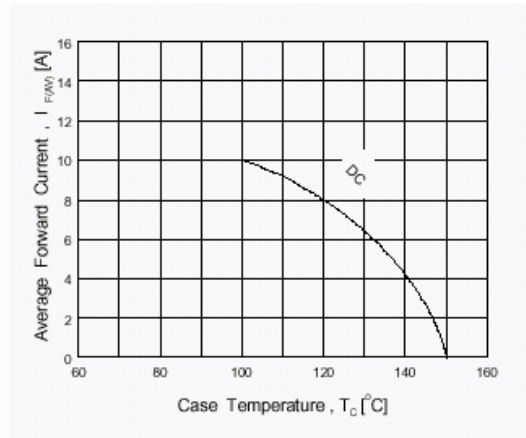


Figure 6. Forward Current Derating Curve