

Technical Data  
Data Sheet 4860, Rev.-

## MURC1060

### 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                             | $V_{RWM}$   | -                                                                                                            | 600         | V                |
| Max. Average Forward                             | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 100^\circ\text{C}$ ,<br>rectangular wave form                                        | 10          | A                |
| Max. Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3 ms, half Sine pulse                                                                                      | 60          | A                |
| Max. Junction Capacitance                        | $C_J$       | @ $V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ ,<br>$V_{SIG} = 50\text{mV (p-p)}$ | 240         | pF               |
| Max. Junction Temperature                        | $T_J$       | -                                                                                                            | -65 to +150 | $^\circ\text{C}$ |
| Max. Storage Temperature                         | $T_{stg}$   | -                                                                                                            | -65 to +150 | $^\circ\text{C}$ |

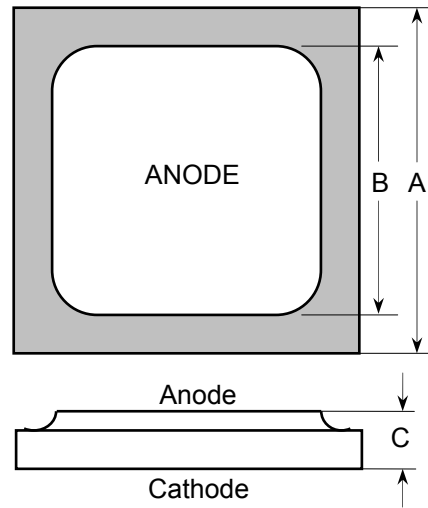
#### Electrical Characteristics:

| Characteristics             | Symbol   | Condition                                                            | Max. | Units         |
|-----------------------------|----------|----------------------------------------------------------------------|------|---------------|
| Max. Forward Voltage Drop * | $V_{F1}$ | @ 10A, Pulse, $T_J = 25^\circ\text{C}$                               | 2.2  | V             |
|                             | $V_{F2}$ | @ 10A, Pulse, $T_J = 100^\circ\text{C}$                              | 2.0  | V             |
| Max. Reverse Current *      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25^\circ\text{C}$              | 5    | $\mu\text{A}$ |
|                             | $I_{R2}$ | @ $V_R = 0.8V_R$<br>$T_J = 100^\circ\text{C}$                        | 50   | $\mu\text{A}$ |
| Max Reverse Recovery Time   | $t_{rr}$ | $I_F = 0.5\text{A}$ , $I_R = 1.0\text{A}$ , $I_{REC} = 0.25\text{A}$ | 50   | nS            |
| Max Reverse Recovery Time   | $t_{rr}$ | $I_F = 10\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$               | 90   | nS            |

\* Pulse Width < 300 $\mu\text{s}$ , 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 <sup>2</sup> ) | Dimension A <sup>(1)</sup><br>Inch (millimeter) | Dimension B <sup>(1)</sup><br>Inch (millimeter) | Dimension C <sup>(2)</sup><br>Inch (millimeter) |
|------------|--------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Si p-n die | 85 x 85                  | 0.085 (2.159)                                   | 0.069 (1.753)                                   | 0.009 (0.229)                                   |

<sup>(1)</sup> Tolerance is  $\pm 0.003"$  (0.076 mm)

<sup>(2)</sup> Tolerance is  $\pm 0.001"$  (0.025 mm)

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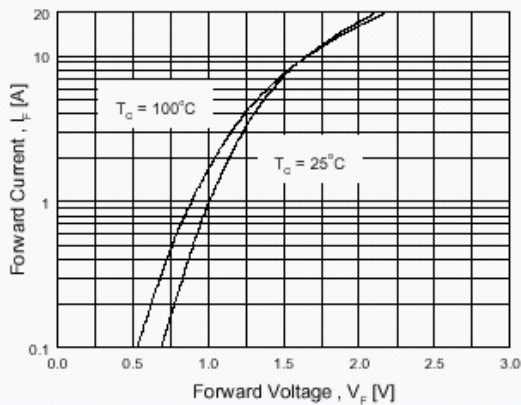
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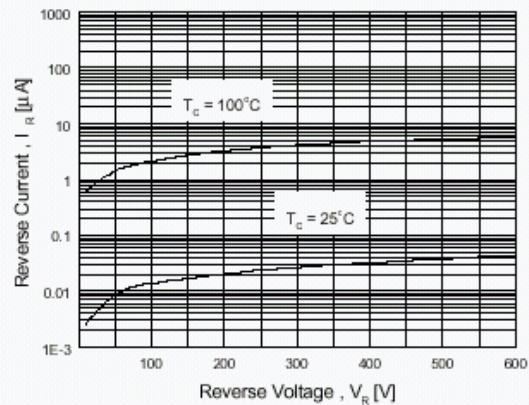
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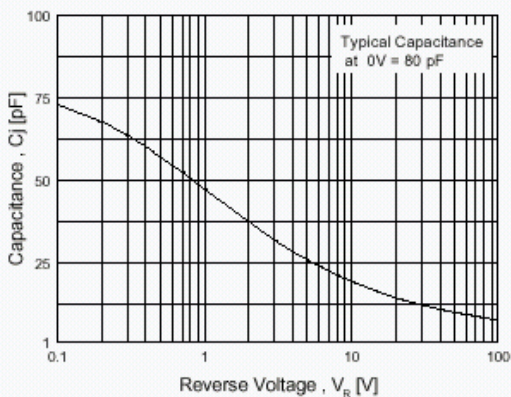
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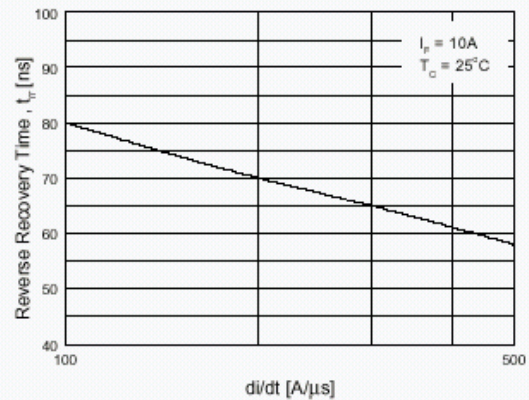
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



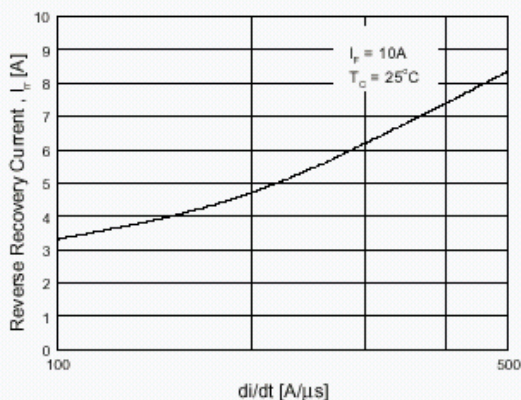
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



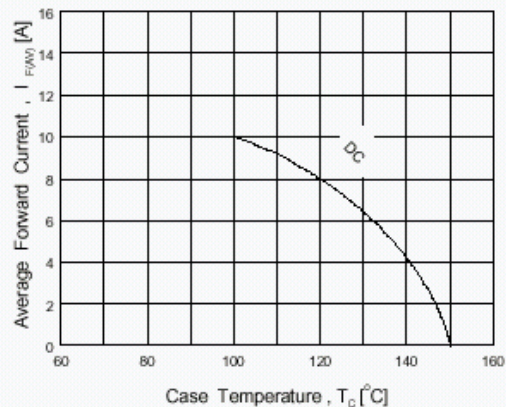
**Figure 3. Typical Junction Capacitance**



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



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



**Figure 6. Forward Current Derating Curve**