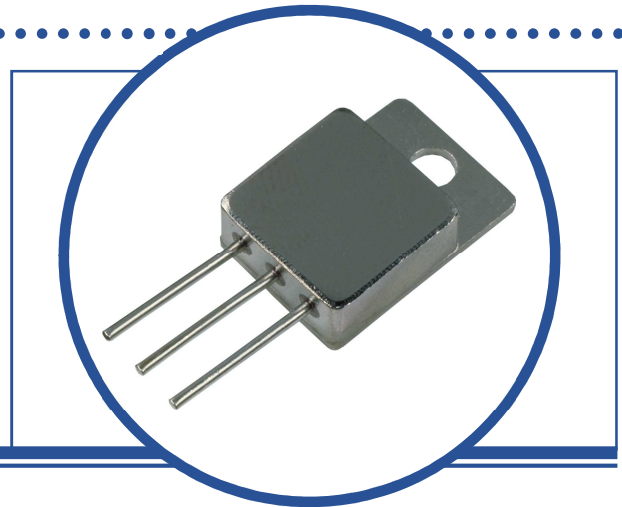


600V SiC COMMON CATHODE SCHOTTKY DIODE

SML10SIC06M3M

- High Temperature Operation $T_j = 200^\circ\text{C}$
- Common Cathode Configuration
- High Rel and Space Screening Options Available
- Suitable for Down Hole Applications.



DIODE ABSOLUTE MAXIMUM RATINGS ($T_{\text{case}} = 25^\circ\text{C}$ unless otherwise stated)

| | | |
|---------------------|--|----------------|
| V_{RRM} | Repetitive Peak Reverse Voltage | 600V |
| V_{RSM} | Surge Peak Reverse Voltage | 600V |
| V_{DC} | DC Blocking Voltage | 600V |
| $I_{\text{F(AVG)}}$ | Maximum Average Forward Current | 10A |
| I_{FRM} | Repetitive Peak Forward Surge Current ⁽¹⁾ | 45A |
| T_j | Operating Temperature | -55 to +200 °C |
| T_{Jstg} | Storage Temperature | -55 to +225 °C |

ELECTRICAL CHARACTERISTICS (Per Diode, $T_{\text{case}} = 25^\circ\text{C}$ unless otherwise stated)

| Symbols | Parameters | Test Conditions | Min. | Typ. | Max. | Units |
|----------------------|-----------------|---|------|------|------|---------------|
| $V_{\text{F}}^{(1)}$ | Forward Voltage | $I_{\text{F}} = 10\text{A}$ $T_{\text{C}} = 175^\circ\text{C}$ | | 1.6 | 1.8 | V |
| | | | | 2.0 | 2.5 | |
| I_{R} | Reverse Current | $V_{\text{R}} = V_{\text{RRM}}$ $T_{\text{C}} = 175^\circ\text{C}$ | | 10 | 100 | μA |
| | | | | | 1000 | |

DYNAMIC CHARACTERISTICS

| | | | | | | | |
|----------------|-------------------------|--|---|--|----|--|----|
| Q_{C} | Total Capacitive Charge | $I_{\text{F}} = 10\text{A}$ $di/dt = 500\text{A}/\mu\text{s}$ | $V_{\text{R}} = 600\text{V}$ $T_{\text{J}} = 25^\circ\text{C}$ | | 32 | | nC |
|----------------|-------------------------|--|---|--|----|--|----|

Notes:

1) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

THERMAL PROPERTIES

| Symbols | Parameters | Min. | Typ. | Max. | Units |
|-----------------------|---|------|------|------|---------------------------|
| $R_{\theta\text{JC}}$ | Thermal Resistance, Junction To Case, $T_{\text{C}} = 25^\circ\text{C}$ | TBD | TBD | TBD | $^\circ\text{C}/\text{W}$ |

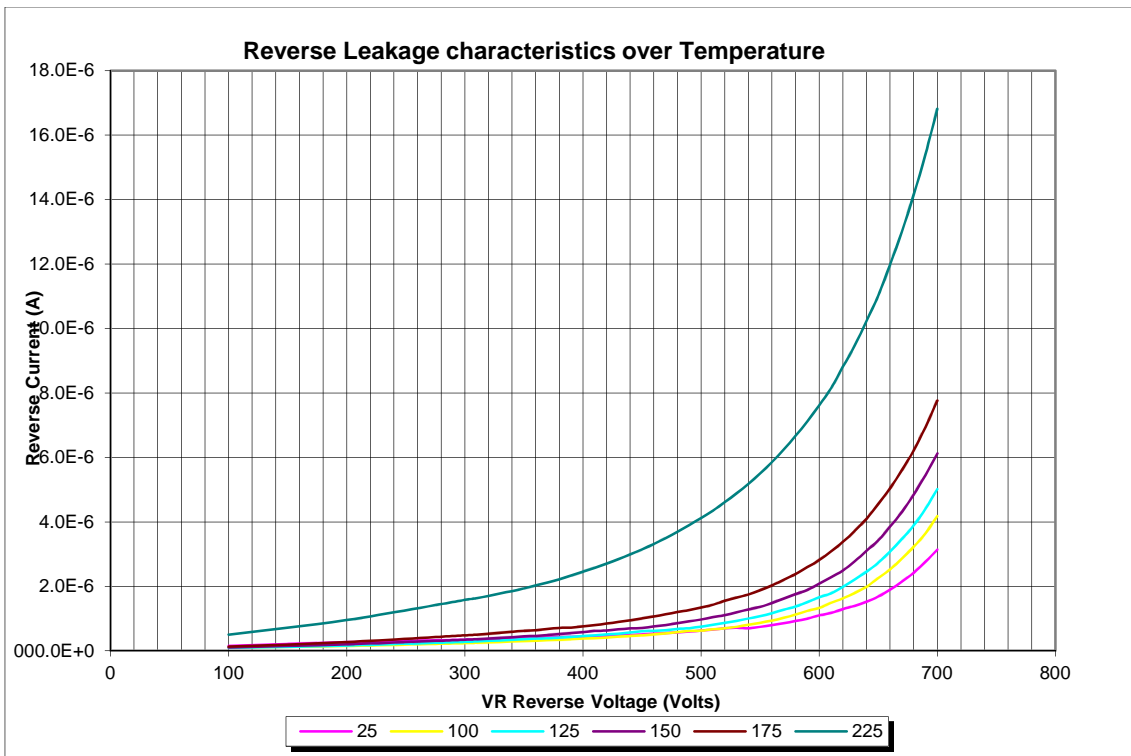
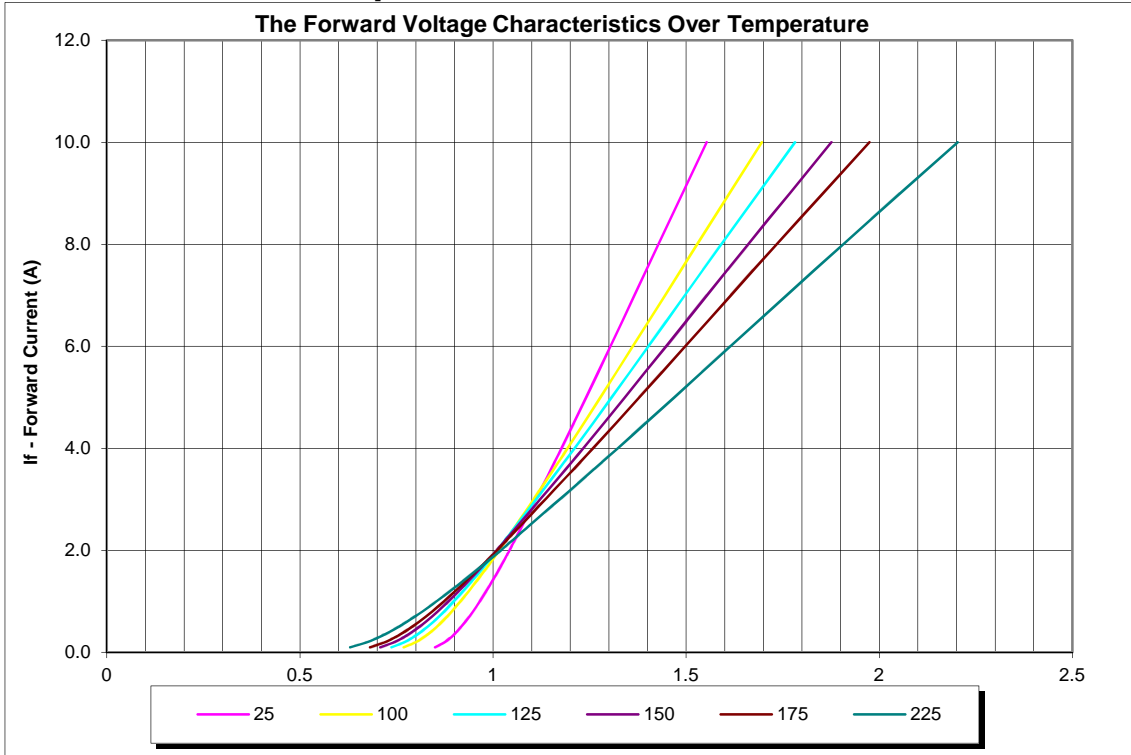
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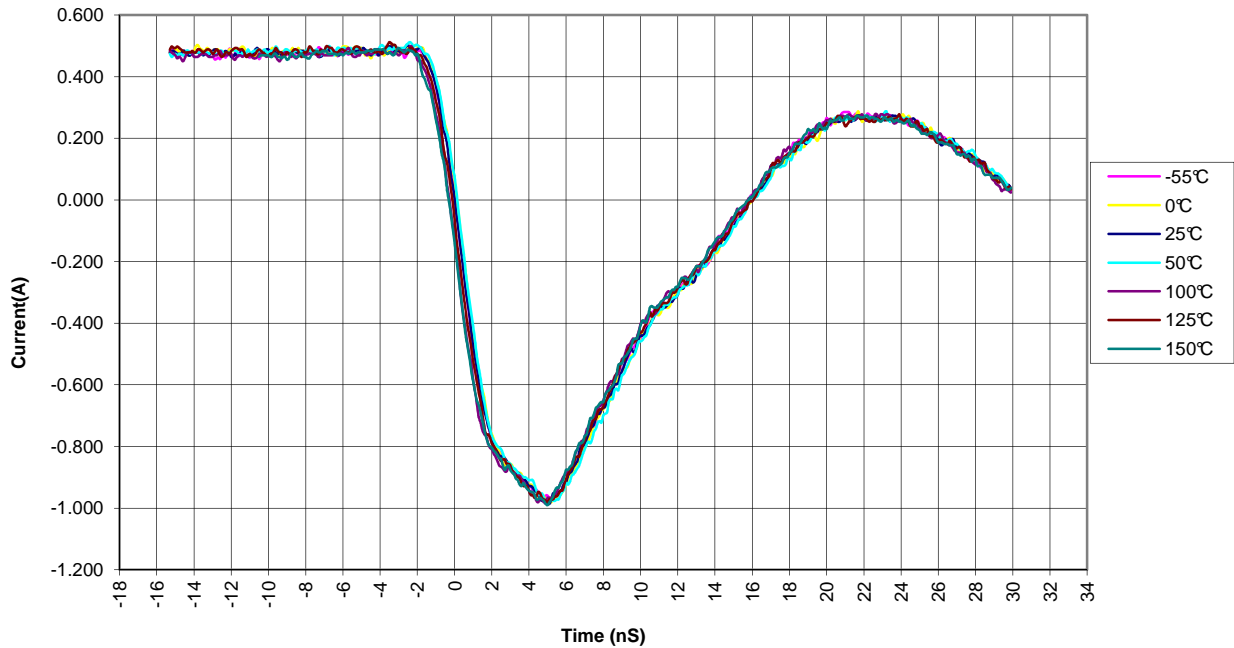
Typical Performance Over Temperature



600V SiC COMMON CATHODE SCHOTTKY DIODE

SML10SIC06M3M

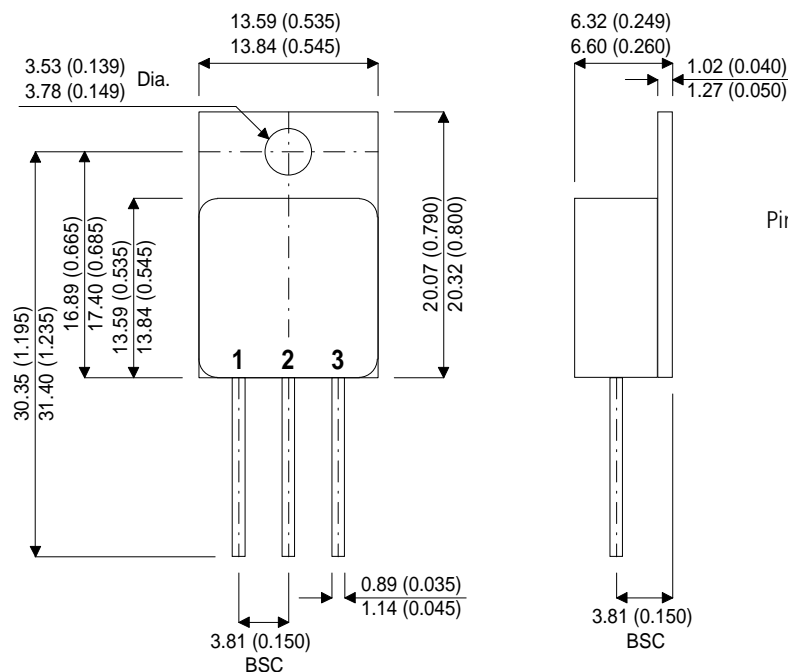
Equivalent Reverse Recovery Time
 $I_F=500\text{mA}$, $I_R = 1\text{A}$, $I_{RR}=250\text{mA}$



SiC Schottky Diode, no minority carrier recombination thus zero reverse recovery. Recovery time shown is due to a small junction capacitance charge and is independent of junction temperature.

MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA

Pin 1 – Anode1 Pin 2 – Cathode Pin 3 – Anode 2

