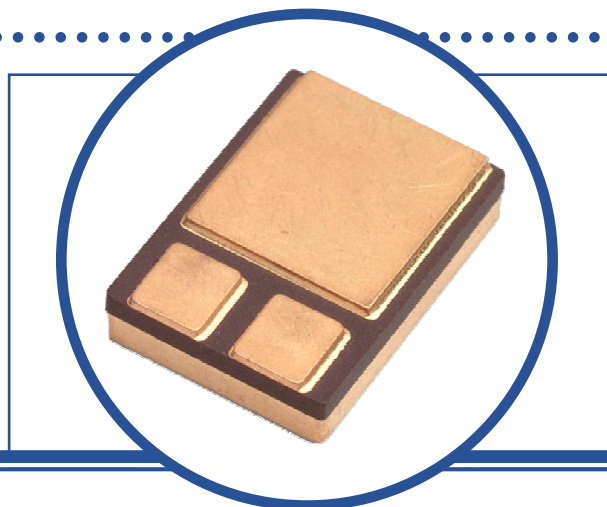


# SILICON CARBIDE (SiC) SCHOTTKY DIODE

## SML10SIC06SMDC

- Hermetic Ceramic Surface Mount SMD1 (TO-276AB) Package
- Semelab's Silicon Carbide (SiC) Schottky diodes exhibit low forward voltage and superb high temperature performance.
- Suitable for high-frequency hard switching applications, where system efficiency and reliability are paramount.
- No reverse recovery time due to absence of minority carrier injection.
- Screening Options Available.



### ABSOLUTE MAXIMUM RATINGS (Per Diode, $T_C = 25^\circ\text{C}$ unless otherwise stated)

$V_R$	DC Reverse Voltage	600V
$V_{RRM}$	Repetitive Peak Reverse Voltage	600V
$I_F$	DC Forward Current ( $T_J = 175^\circ\text{C}$ )	10A
$I_{FRM}$	Repetitive Peak Forward Current <sup>(1)</sup>	67A
$I_{FSM}$	Surge Peak Forward Current <sup>(2)</sup>	250A
$P_D$	Total Power Dissipation at Derate Above $25^\circ\text{C}$	100W 0.5W/ $^\circ\text{C}$
$T_J$	Junction Temperature Range	-55 to $+225^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55 to $+225^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	2.0	$^\circ\text{C}/\text{W}$

#### Notes

(1)  $T_C = 25^\circ\text{C}$ ,  $T_p = 10\text{ms}$ , Half Sine Wave,  $D = 0.3$

(2)  $T_C = 25^\circ\text{C}$ ,  $T_p = 10\mu\text{s}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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

### Static Characteristics

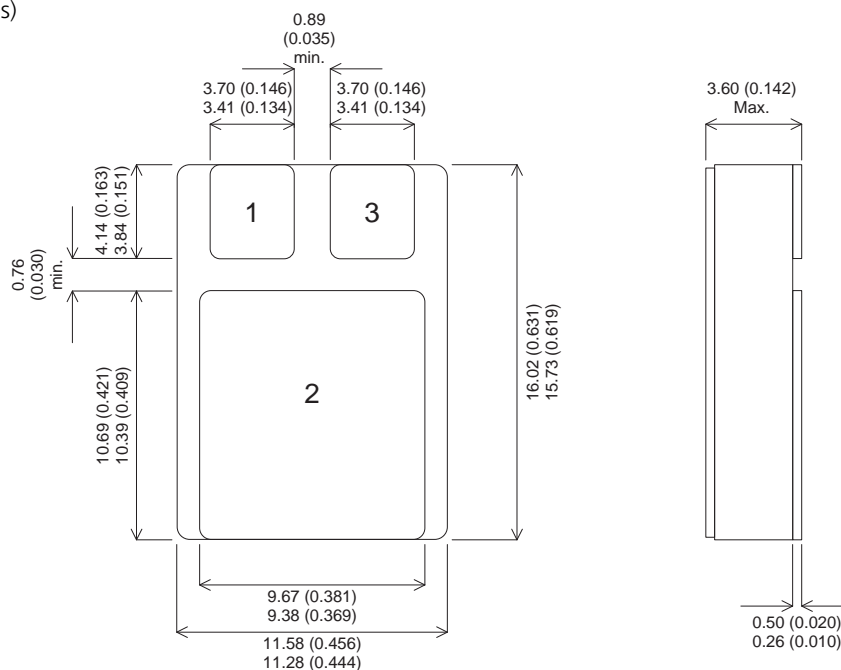
Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_F$	Forward Voltage	$I_F = 10\text{A}$		1.5	1.8	V
		$T_J = 175^\circ\text{C}$		2.0	2.4	
$I_R$	Reverse Current	$V_R = 600\text{V}$		10	50	$\mu\text{A}$
		$T_J = 175^\circ\text{C}$		20	200	

### Dynamic Characteristics

$Q_C$	Total Capacitive Charge	$V_R = 600\text{V}$ , $I_F = 10\text{A}$ $\delta i/\delta t = 500\text{A}/\mu\text{s}$		25		nC
C	Total Capacitance	$V_R = 1.0\text{V}$ , $f = 1.0\text{MHz}$		480		pF
		$V_R = 200\text{V}$ , $f = 1.0\text{MHz}$		50		
		$V_R = 400\text{V}$ , $f = 1.0\text{MHz}$		42		

## MECHANICAL DATA

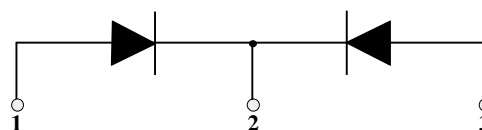
Dimensions in mm (inches)



### SMD1 (TO-276AB)

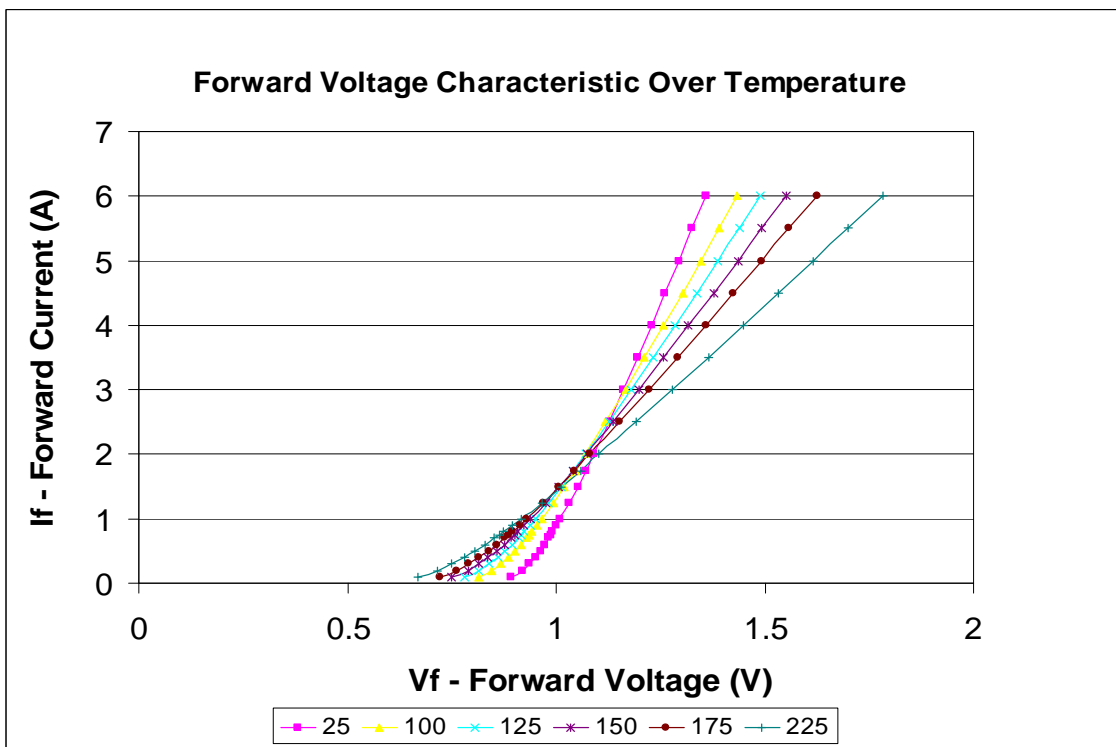
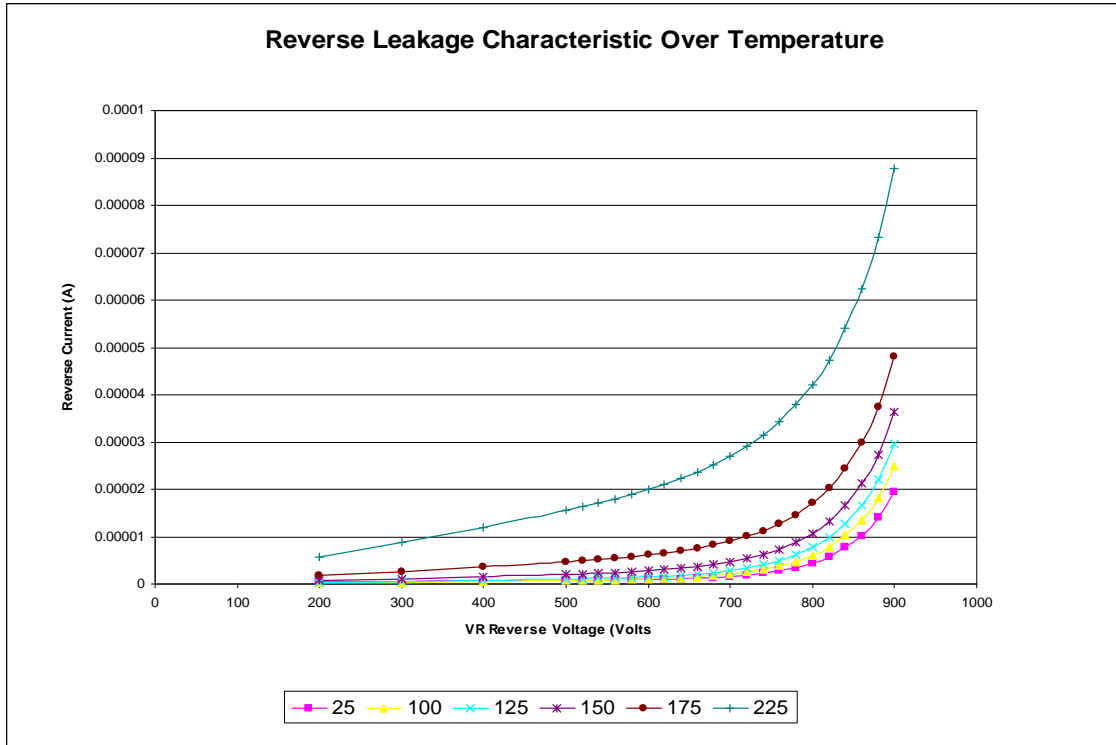
#### Underside View

Pad 1 – Anode 1    Pad 2 – Common Cathode    Pad 3 – Anode 2



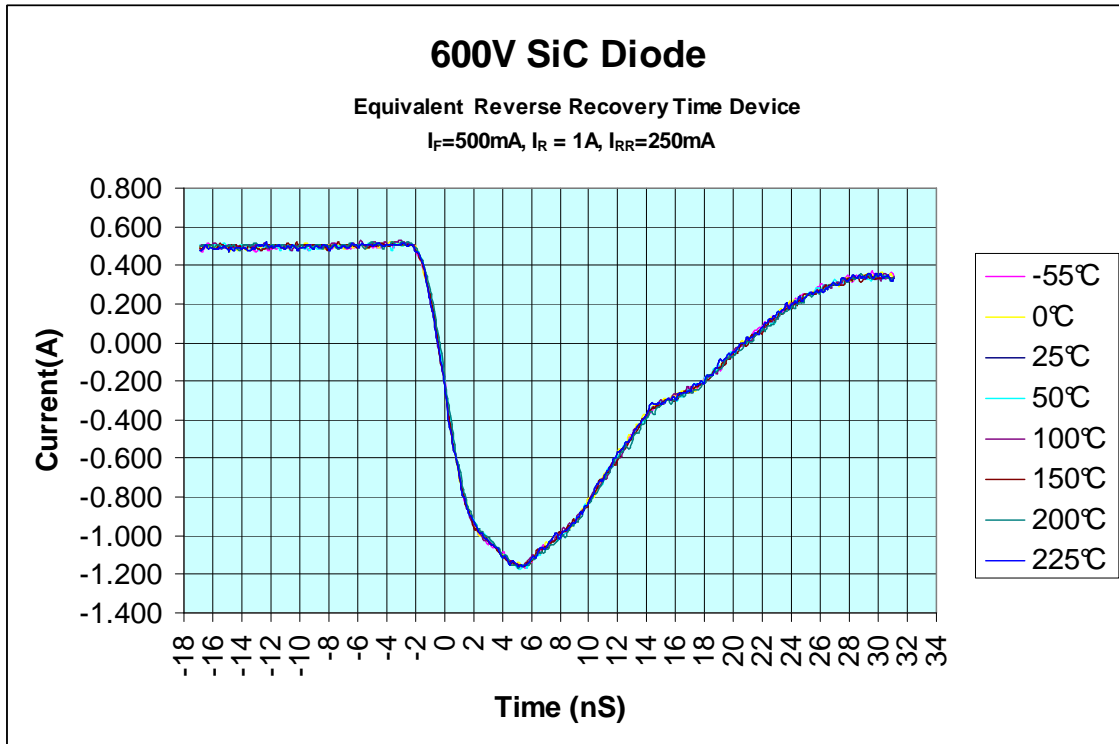
# SILICON CARBIDE (SiC) SCHOTTKY DIODE SML10SIC06SMDC

## Typical Performance Over Temperature Range



# SILICON CARBIDE (SiC) SCHOTTKY DIODE SML10SIC06SMDC

## Typical Performance Over Temperature Range



SiC Schottky Diodes have 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.