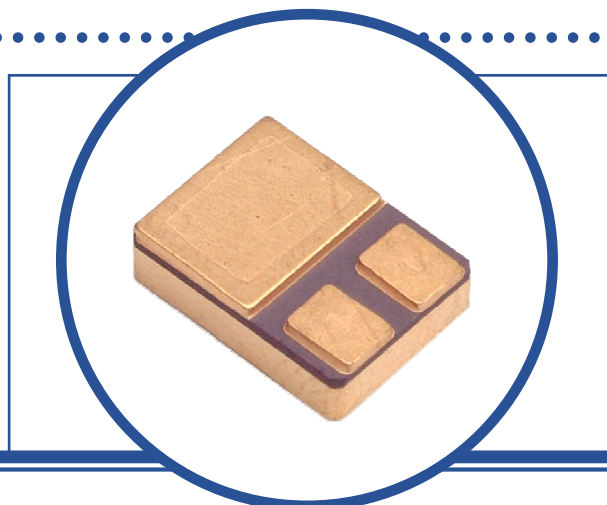


# DUAL SILICON CARBIDE SCHOTTKY DIODE

## SML20SIC06N1M

- $V_{R(max)} = 600V$
- $I_{F(avg)} = 20A$
- $V_{F(typ)} = 1.5V$
- Hermetic Ceramic TO-276AA SMD0.5 Package
- No Reverse or Forward Recovery
- Dual Common Cathode Configuration
- High Reliability Screening Options Available



### ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ C$ unless otherwise stated)

$V_{RRM}$	Peak Repetitive Reverse Voltage	600V
$V_{RSM}$	Surge Peak Reverse Voltage	600V
$I_{F(AVG)}$	Average Forward Current @ $T_J = 87^\circ C$	20A
$I_{FSM}$	Surge Non Repetitive Forward Current <sup>(1)</sup>	90A
$I_{FRM}$	Repetitive Peak Forward Current <sup>(2)</sup>	80A
$I_{FMAX}$	Non-Repetitive Peak Forward Current	50A
$P_D$	Total Power Dissipation (per diode) at $T_C = 25^\circ C$ Derate Above $T_C = 25^\circ C$	120W 0.6W/°C
$T_J$	Junction Temperature Range	-55 to +225°C
$T_{stg}$	Storage Temperature Range	-55 to +225°C

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction To Case (per Diode)	1.66	°C/W

(1) MIL-STD-750 Method 4066.4 Condition A1.  $I_O = 10A$ ,  $V_{RWM} = 600V$ ,  $V_{RSM} = 600V$ , ten surges of 8.3mS each at 1 minute intervals,  $T_{case} = 25^\circ C$ .

(2)  $T_{case} = 25^\circ C$ ,  $T_p = 8.3mS$  Half sine wave  $D=0.3$

# SILICON CARBIDE SCHOTTKY DIODE

## SML20SIC06N1M

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise stated Per Side)

Symbol	Parameters	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>F</sub> <sup>(1)</sup>	Diode Forward Voltage	I <sub>F</sub> = 10A		0.50	0.60	V
		I <sub>F</sub> = 20A		0.45	0.80	
		I <sub>F</sub> = 20A T <sub>J</sub> = 175°C		0.15	0.30	
I <sub>R</sub>	Leakage Current	V <sub>R</sub> = 600V		10	100	μA
		V <sub>R</sub> = 600V T <sub>J</sub> = 175°C		15	200	

### DYNAMIC CHARACTERISTICS

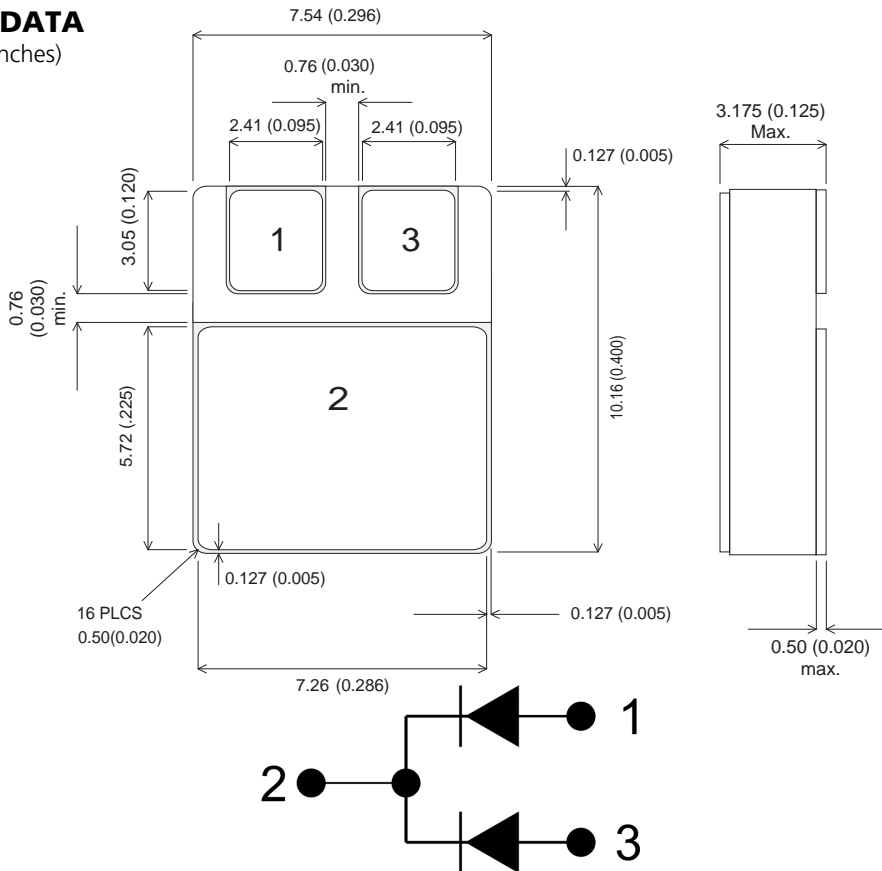
Q <sub>C</sub>	Total Capacitive Charge	V <sub>R</sub> = 600V dI/dt = 500A/μs	I <sub>F</sub> = 10A T <sub>J</sub> = 25°C		TBD		nC
C <sub>T</sub>	Junction Capacitance (f = 1.0MHz)	V <sub>R</sub> = 0V	T <sub>J</sub> = 25°C		TBD		pF
		V <sub>R</sub> = 200V	T <sub>J</sub> = 25°C		TBD		
		V <sub>R</sub> = 400V	T <sub>J</sub> = 25°C		TBD		

#### Notes

(1) Pulse Width ≤ 300us, δ ≤ 2%

### MECHANICAL DATA

Dimensions in mm (inches)



### SMD0.5 (TO-276AA) CERAMIC PACKAGE

Underside View

Pad 1 - Anode 1

Pad 2 =Cathode

Pad 3 - Anode 2