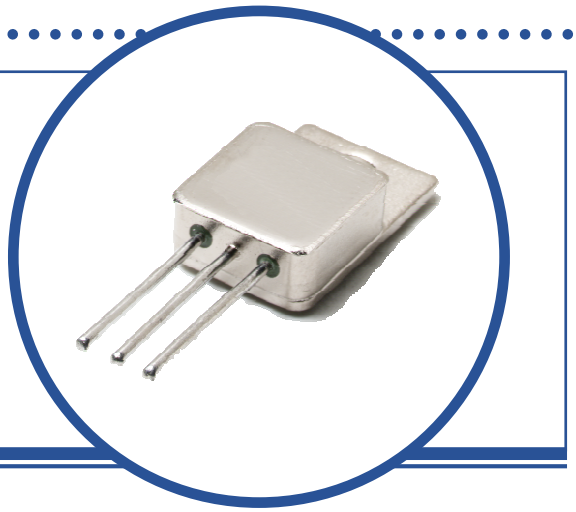
# SILICON CARBIDE (SiC) SCHOTTKY DIODE

TT electronics
Semelab Limited

## SML10SIC06Y

- Hermetic Metal TO-257AA 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 ($T_C$ = 25°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°C) | 10A |
| $I_{FRM}$ | Repetitive Peak Forward Current (1) | 67A |
| $I_{FSM}$ | Surge Peak Forward Current (2) | 250A |
| $P_D$ | Total Power Dissipation at | 100W |
| | Derate Above 25°C | 0.5W/°C |
| $T_J$ | Junction Temperature Range | -55 to +225°C |
| $T_{stg}$ | Storage Temperature Range | -55 to +225°C |

### THERMAL PROPERTIES

| Symbols | Parameters | Max. | Units |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance, Junction To Case | 2.0 | °C/W |

Notes
(1) $T_c$ = 25°C, $T_p$ = 10ms, Half Sine Wave, D = 0.3
(2) $T_c$ = 25°C, $T_p$ = 10µs



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## ELECTRICAL CHARACTERISTICS ($T_C$ = 25°C unless otherwise stated)

### Static Characteristics

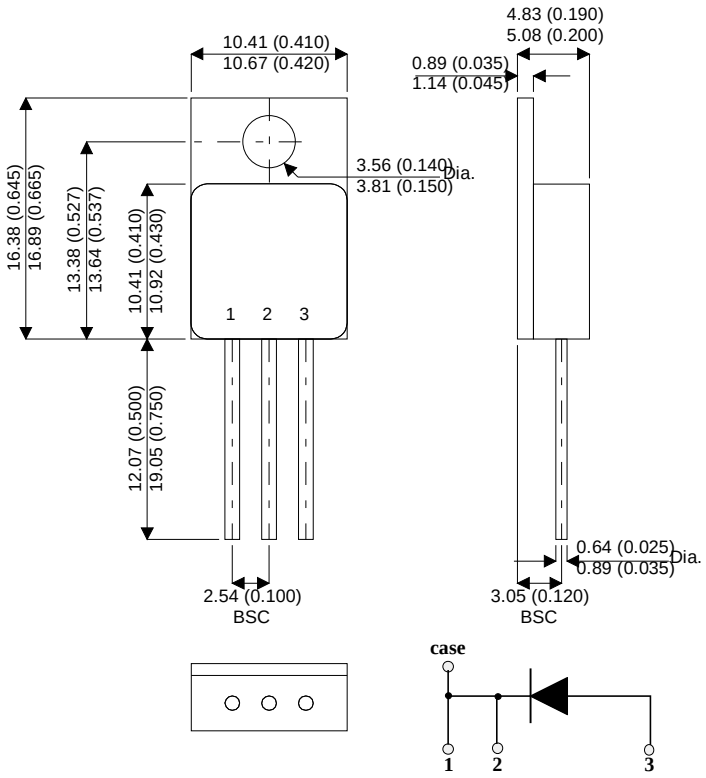
| Symbols | Parameters | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | $I_F$ = 10A | | 1.5 | 1.8 | V |
| | | $T_J$ = 175°C | | 2.0 | 2.4 | |
| $I_R$ | Reverse Current | $V_R$ = 600V | | 10 | 50 | µA |
| | | $T_J$ = 175°C | | 20 | 200 | |

### Dynamic Characteristics

| | | | | | | |
|---|---|---|---|---|---|---|
| $Q_C$ | Total Capacitive Charge | $V_R$ = 600V, $I_F$ = 10A<br>δi/δt = 500A/µs | | 25 | | nC |
| C | Total Capacitance | $V_R$ = 1.0V, f = 1.0MHz | | 480 | | pF |
| | | $V_R$ = 200V, f = 1.0MHz | | 50 | | |
| | | $V_R$ = 400V, f = 1.0MHz | | 42 | | |

## MECHANICAL DATA

Dimensions in mm (inches)




**TO-257AA**

Pin 1 – Cathode Pin 2 – Cathode Pin 3 – Anode Case - Cathode