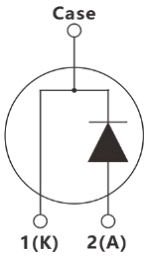
# Silicon Carbide Schottky Diode

| Parameter | Value | Unit |
|---|---|---|
| $V_{RRM}$ | 650 | V |
| $I_F$ | 6 | A |
| $Q_C$ | 25 | nC |




TO-220F-2L

## Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

## Applications

- Switched-Mode Power Supply
- Power Factor Correction
- Uninterruptible Power Supply
- Boost Converter

## Maximum Ratings (at $T_J$=25℃ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Repetitive Peak Reverse Voltage | $V_{RRM}$ | 650 | V |
| Surge Peak Reverse Voltage | $V_{RSM}$ | 650 | V |
| DC Peak Reverse Voltage | $V_R$ | 650 | V |
| Continuous Forward Current<br>$T_C$ = 25℃<br>$T_C$ = 135℃<br>$T_C$ = 160℃ | $I_F$ | <br>18<br>8<br>6 | A |
| Non-Repetitive Forward Surge Current<br>$T_C$ = 25℃,tp =8.3ms,Half Sine Pulse<br>$T_C$ =110℃,tp =8.3ms,Half Sine Pulse | $I_{FSM}$ | <br>60<br>32 | A |
| Non-Repetitive Forward Surge Current<br>$T_C$ = 25℃,tp =8.3ms,Half Sine Pulse<br>$T_C$ =110℃,tp =8.3ms,Half Sine Pulse | $\int i^2dt$ | <br>14.95<br>4.25 | $A^2s$ |
| Power dissipation<br>$T_C$ = 25℃<br>$T_C$ = 110℃ | $P_{tot}$ | <br>65.2<br>30 | W |
| Operating junction Range | $T_j$ | -55 to +175 | ℃ |
| Storage temperature Range | $T_{stg}$ | -55 to +150 | ℃ |

## Thermal Characteristics

| Parameter | Symbol | Typ. | Unit |
|---|---|---|---|
| Thermal resistance, junction – case. | $R_{thJC}$ | 2.30 | ℃/W |

## Electrical Characteristics(at $T_J$=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| DC blocking voltage | $V_{DC}$ | $T_j$=25℃ | 650 | | | V |
| Diode forward voltage | $V_F$ | $I_F$=6A $T_j$=25℃<br>$I_F$=6A $T_j$=135℃<br>$I_F$=6A $T_j$=175℃ | | 1.21<br>1.32<br>1.38 | 1.48<br>1.74<br>1.90 | V |
| Reverse current | $I_R$ | $V_R$=650V $T_j$=25℃<br>$V_R$=650V $T_j$=175℃ | | 0.5<br>15 | 50<br>200 | μA |
| Total capacitive charge | $Q_C$ | $V_R$=400V $T_j$=25℃<br>$Q_C$= $\int_0^{VR}$ C(V)dV | | 25 | | nC |
| Total capacitance | C | $V_R$=1V f=1MHz<br>$V_R$=300V f=1MHz<br>$V_R$=600V f=1MHz | | 350<br>42<br>36 | | pF |
| Capacitance stored energy | $E_C$ | $V_R$=400V | | 3.8 | | μJ |

## Typical Characteristics

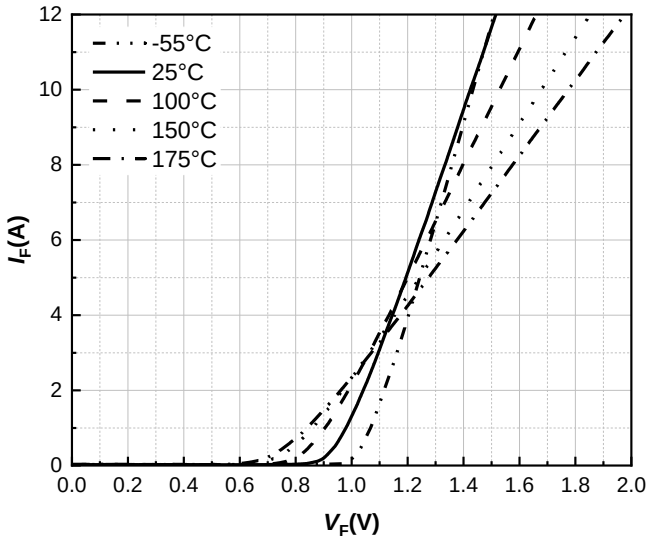



Fig 1. Typical forward characteristics

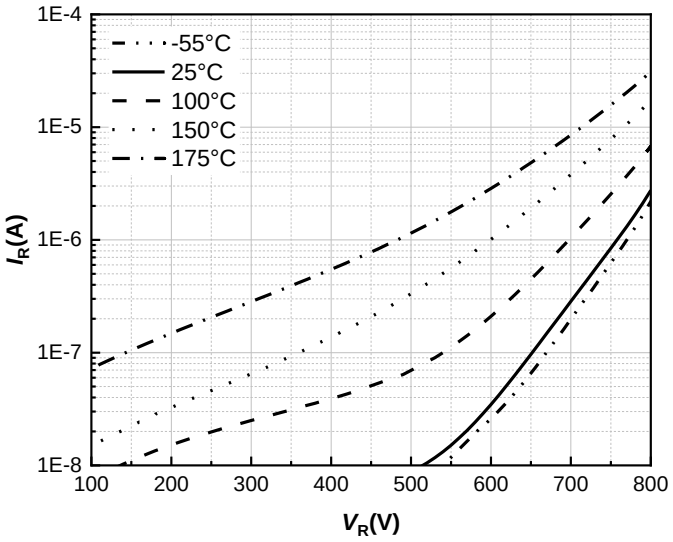



Fig 2. Typical reverse current as function of reverse voltage

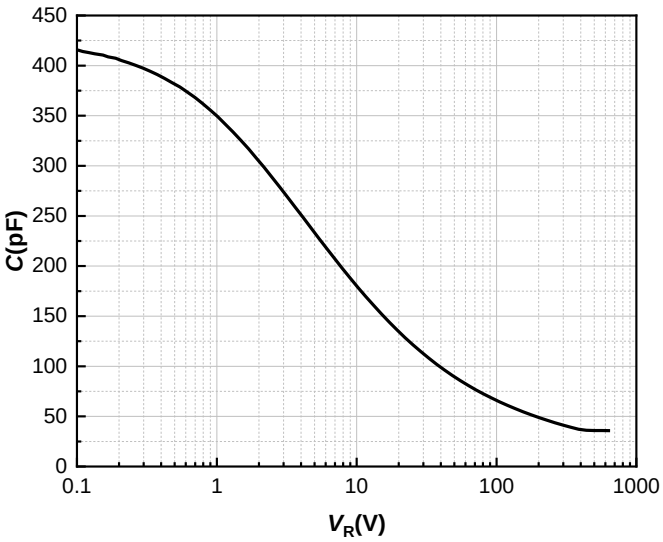



Fig 3. Typical capacitance as function of reverse voltage, $C$=f($V_R$); $T_j$=25°C; $f$=1 MHz

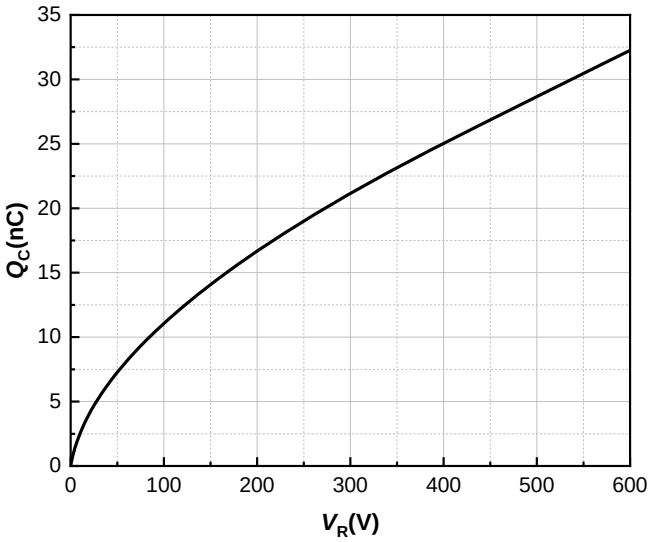
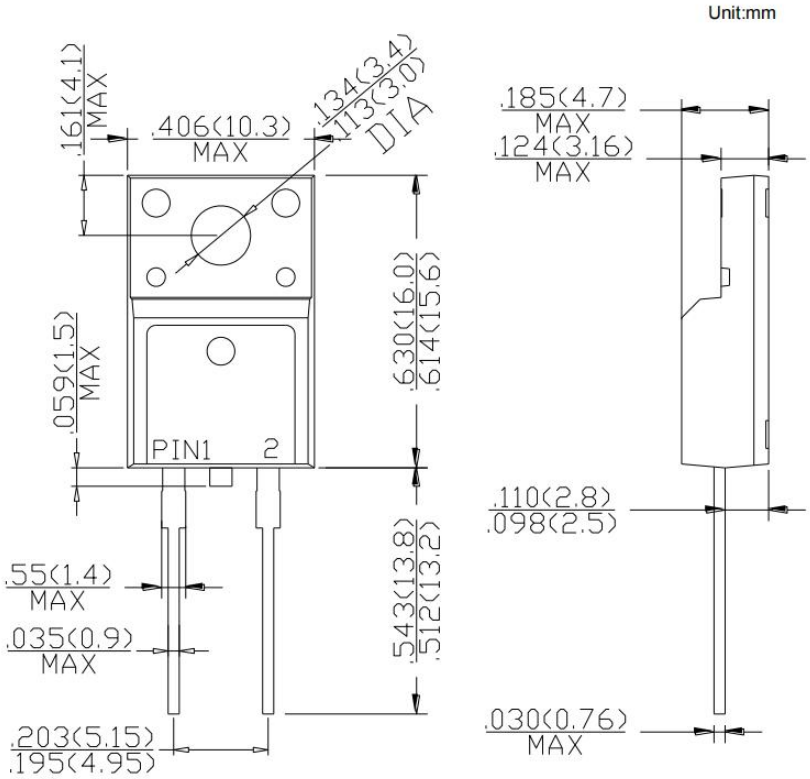



Fig 4. Typical reverse charge as function of reverse voltage

## Package Outlines(Unit:mm)

### TO-220F-2L

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