SEMICONDUCTOR

# SC0565 SC0565F SC0565D2 SC0565M2

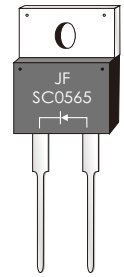
SILICON CARBIDE SCHOTTKY DIODE
Reverse Voltage - 650 Volts
Forward Current - 5.0Amperes

## DESCRIPTION

SiC Schottky Diode has no switching loss, provides improved system efficiency against Si diodes by utilizing new semiconductor material–Silicon Carbide, enables higher operating frequency, and helps increasing power density and reduction of system size /cost. Its high reliability ensures robust operation during surge or over–voltage conditions.

TO-220AC

**SC0565**




ITO-220AC

**SC0565F**


## FEATURES

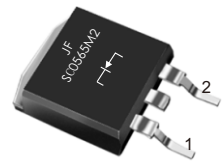
- Max Junction Temperature 175°C
- High Surge Current Capacity
- Positive Temperature Coefficient
- Ease of Paralleling
- No Reverse Recovery/No Forward Recovery

## MECHANICAL DATA

- Case: JEDEC TO-220AC/ITO–220AC/TO–263AC/TO-252
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

TO-252

**SC0565M2**




TO-263AC

**SC0565D2**


## TYPICAL APPLICATIONS

- General Purpose
- SMPS, Solar inverter, UPS
- Power Switching Circuits

## MAXIMUM RATINGS

(Ratings at 25°C ambient temperature unless otherwise specified )

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 650 | V |
| Continuous Rectified Forward Current | $I_F$ | 5 | A |
| Repetitive Forward Surge Current (NOTE 1) | $I_{F,RM}$ | 30 | A |
| Operating junction temperature range | $T_J$ | -55 to+175 | °C |
| Storage temperature range | $T_{stg}$ | -55 to+175 | °C |

Notes: 1.Half–Sine Pulse, tp=8. 3ms

# RATINGS AND CHARACTERISTIC

## ELECTRICAL CHARACTERISTCS（$T_A$=25°C Unless otherwise noted）

| Parameter | Test Conditions | | Symbol | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Instaneous forward voltage | $I_F$=5A | $T_A$=25℃ | $V_F$ | 1. 6 | 1. 8 | V |
| | | $T_A$=175℃ | | 1. 8 | 2. 0 | |
| Reverse current | $V_R$=650V | $T_A$=25℃ | $I_R$ | – | 10 | μA |
| | | $T_A$=125℃ | | – | 40 | |
| | | $T_A$=175℃ | | – | 100 | |
| Typical junction capacitance | $V_R$=1V,f=100kHz | | $C_j$ | 208 | – | pF |
| | $V_R$=10V,f=100kHz | | | 90 | – | |
| | $V_R$=40V,f=100kHz | | | 45 | – | |

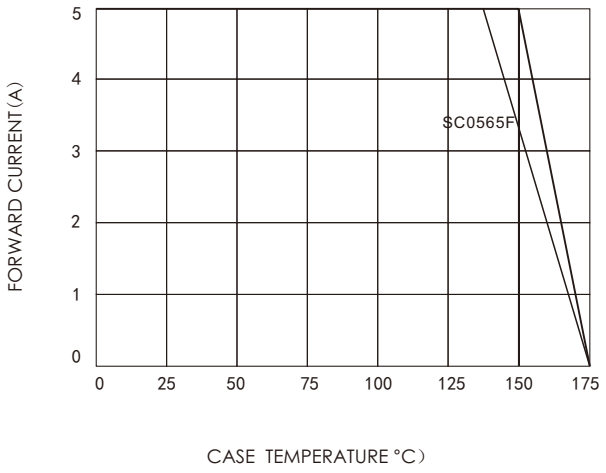
## THERMAL CHARACTERISTCS（$T_A$=25℃ Unless otherwise noted）

| Parameter | Symbol | Sc0565 | SC0565F | SC0565D2 | SC0565M2 | Unit |
|---|---|---|---|---|---|---|
| Typical thermal resistance 2) | $R_{\theta JC}$ | 2. 5 | 4. 5 | 2. 5 | 2. 5 | ℃/W |

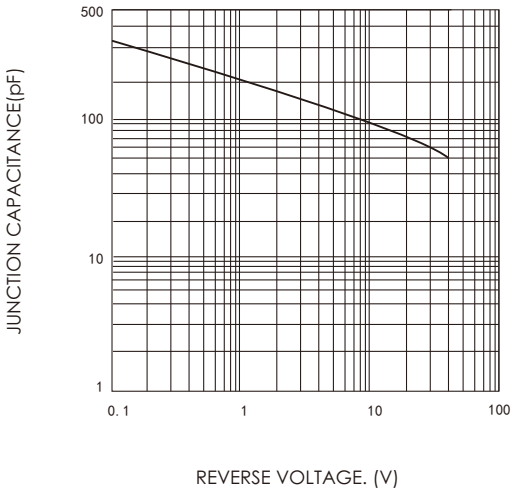
2.Thermal resistance from junction to case

# RATINGS AND CHARACTERISTIC

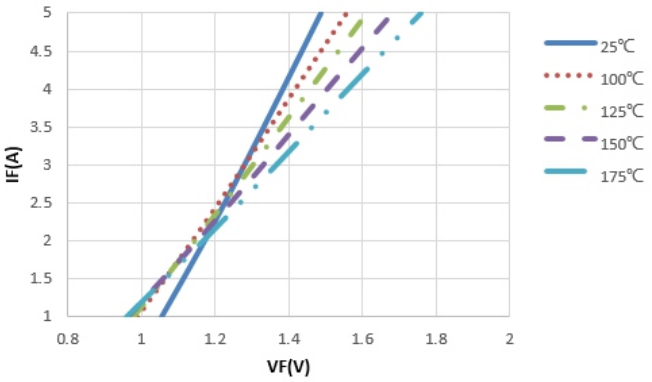
## FIG.1-FORWARD CURRENT DERATING CURVE



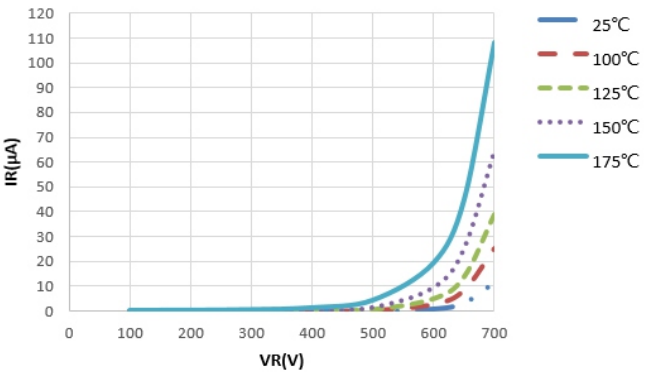

## FIG.2-TYPICAL JUNCTION CAPACITANCE




## FIG.2-FORWARD CHARACTERISTICS

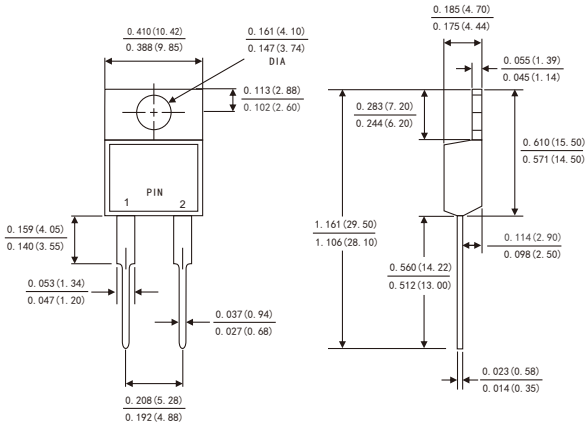



## FIG.4-REVERSE CHARACTERISTICS



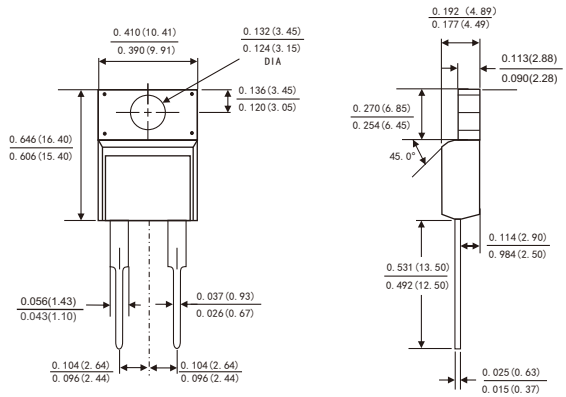
# PACKAGE OUTLINE DIMENSIONS

## TO-220AC



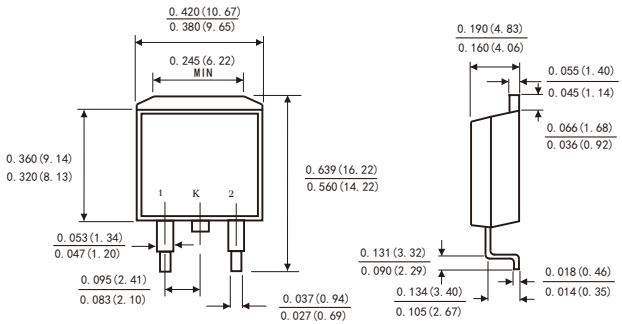

Dimensions in inches and (millimeters)

## ITO-220AC

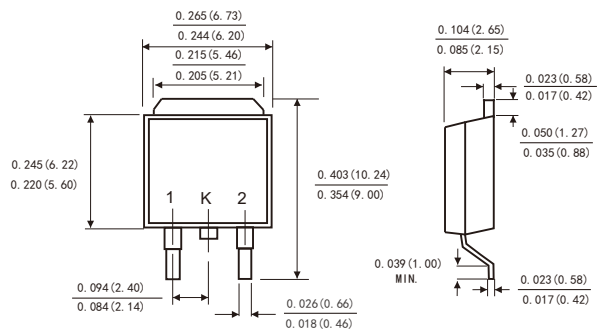



Dimensions in inches and (millimeters)

## TO-263

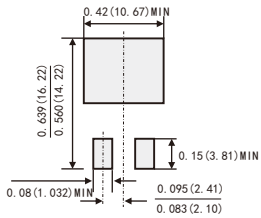



## TO-252




## Suggested Pad Layout

（TO-263）




## Suggested Pad Layout

（TO-252）