

## 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.

## 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-247AB
- 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

## TYPICAL APPLICATIONS

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

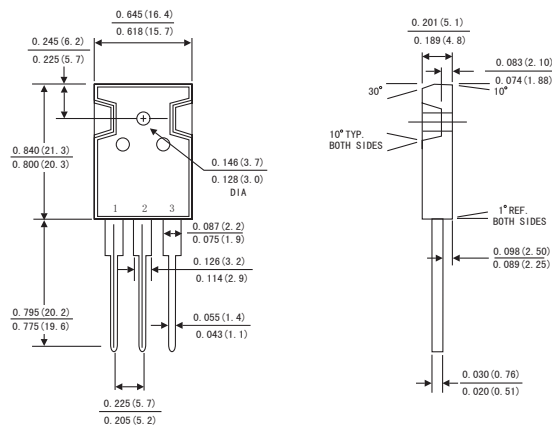
## MAXIMUM RATINGS

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

| Parameter                                | Symbol      | SC40120PT  | Unit |
|------------------------------------------|-------------|------------|------|
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 1200       | V    |
| Continuous Rectified Forward Current     | $I_F$       | 40         | A    |
| Repetitive Forward Surge Current(NOTE 1) | $I_{F, RM}$ | 120        | 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,  $t_p=8.3ms$

## TO-247AB



Dimensions in inches and (millimeters)

## RATINGS AND CHARACTERISTIC OF SC40120PT

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C Unless otherwise noted)

| Parameter                    | Test Conditions               |                       | Symbol         | TYP. | MAX. | Unit |
|------------------------------|-------------------------------|-----------------------|----------------|------|------|------|
| Instaneous forward voltage   | I <sub>F</sub> =40A           | T <sub>A</sub> =25°C  | V <sub>F</sub> | 1.8  | 2.0  | V    |
|                              |                               | T <sub>A</sub> =125°C |                | 2.4  | 2.6  |      |
|                              |                               | T <sub>A</sub> =175°C |                | 3.0  | 3.2  |      |
| Reverse current              | V <sub>R</sub> =1200V         | T <sub>A</sub> =25°C  | I <sub>R</sub> | -    | 10   | μA   |
|                              |                               | T <sub>A</sub> =125°C |                | -    | 50   |      |
|                              |                               | T <sub>A</sub> =175°C |                | -    | 100  |      |
| Typical junction capacitance | V <sub>R</sub> =1V, f=100kHz  |                       | C <sub>j</sub> | 797  | -    | pF   |
|                              | V <sub>R</sub> =4V, f=100kHz  |                       |                | 538  | -    |      |
|                              | V <sub>R</sub> =40V, f=100kHz |                       |                | 201  | -    |      |

### THERMAL CHARACTERISTICS (T<sub>A</sub>=25°C Unless otherwise noted)

| Parameter                                | Symbol           | SC40120PT | Unit |
|------------------------------------------|------------------|-----------|------|
| Typical thermal resistance <sup>2)</sup> | R <sub>θJC</sub> | 0.5       | °C/W |

2.Thermal resistance from junction to case

# RATINGS AND CHARACTERISTIC OF SC40120PT

FIG.1-FORWARD CURRENT DERATING CURVE

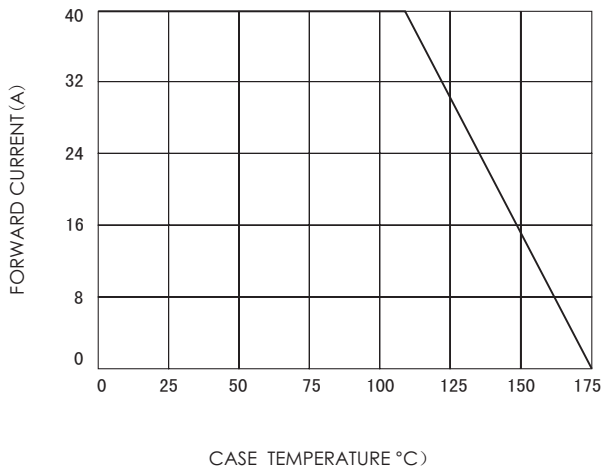


FIG.2-FORWARD CURRENT DERATING CURVE

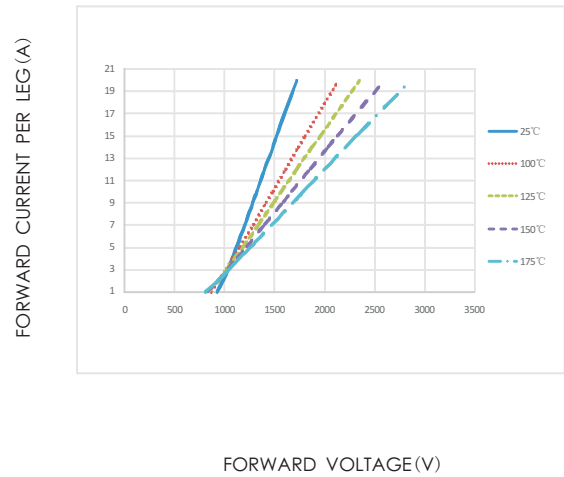


FIG.3-TYPICAL JUNCTION CAPACITANCE

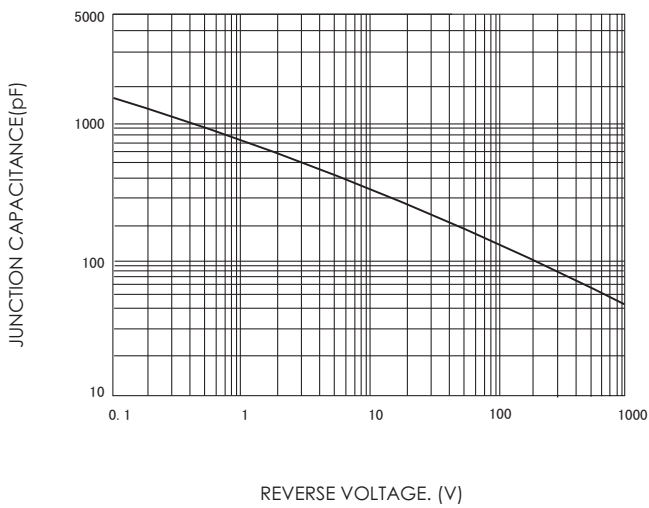


FIG.4-REVERSE CHARACTERISTICS

