

# SCP860S

## 8A, 600V SiC Schottky Barrier Diode

### Features

- Typical Forward Voltage:  $V_F=1.45V$  @  $I_F=8A$
- Reverse Voltage:  $V_{RRM}=600V$
- Shorter Recovery Time
- Avalanche Energy Rated

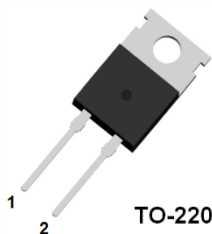
### Applications

- Solar Inverter
- Uninterruptible Power Supply
- Power Factor Correction
- Switch Mode Power Supply

### Description

The SCP860S is a SiC Schottky Barrier diode with higher speed switching behavior over Si diodes. Loading of cooling system will be decreased due to the improved efficiency. This device can be used in UPS, PFC, SMPS and solar inverter.

### Package Type & Internal Circuit



1. Cathode 2. Anode

### Absolute Maximum Ratings

per device at  $T_C=25^{\circ}C$  unless otherwise noted

| Symbol      | Parameter                                 |                             | Ratings  | Unit        |
|-------------|-------------------------------------------|-----------------------------|----------|-------------|
| $V_{RRM}$   | Peak Repetitive Reverse Voltage           |                             | 600      | V           |
| $V_{RWM}$   | Working Peak Reverse Voltage              |                             | 600      | V           |
| $V_R$       | DC Blocking Voltage                       |                             | 600      | V           |
| $I_{F(AV)}$ | Average Rectified Forward Current         | $T_J=125^{\circ}C$          | 8        | A           |
| $I_{FSM}$   | Non-repetitive Peak Forward Surge Current | $t_p=10ms$ , half sine wave | 48       | A           |
|             |                                           | $t_p=200us$ , square wave   | 192      | A           |
| $P_D$       | Power Dissipation                         |                             | 90       | W           |
| $T_J$       | Operating Junction Temperature Range      |                             | -55~+150 | $^{\circ}C$ |
| $T_{STG}$   | Storage Temperature Range                 |                             | -55~+150 | $^{\circ}C$ |

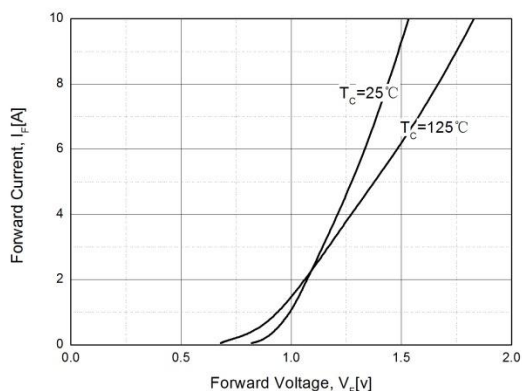
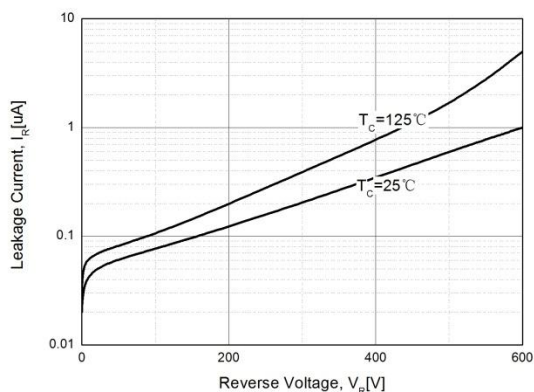
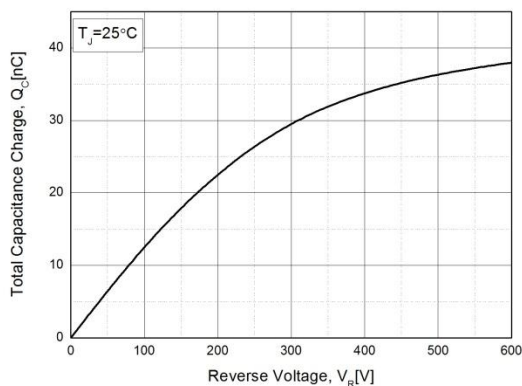
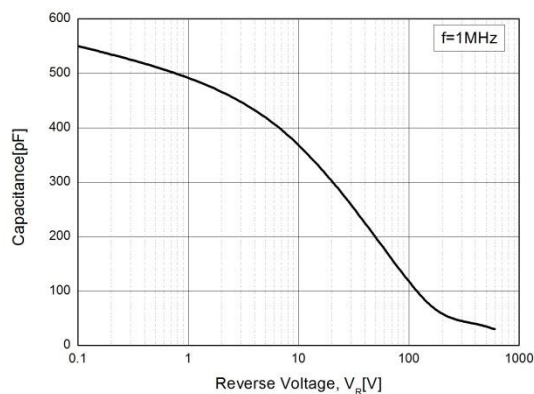
### Thermal Characteristics

| Symbol        | Parameter                            | Ratings | Unit          |
|---------------|--------------------------------------|---------|---------------|
| $R_{th(J-C)}$ | Thermal Resistance, Junction to case | 1.39    | $^{\circ}C/W$ |

## Electrical Characteristics per device @T<sub>c</sub>=25 °C unless otherwise noted

| Symbol         | Parameter               | Conditions                                               | Min. | Typ. | Max. | Unit |
|----------------|-------------------------|----------------------------------------------------------|------|------|------|------|
| V <sub>F</sub> | Forward Voltage Drop    | I <sub>F</sub> =8A                                       | -    | 1.45 | 1.75 | V    |
|                |                         | I <sub>F</sub> =8A, T <sub>j</sub> =125°C                | -    | 1.7  | 2.3  | V    |
| I <sub>R</sub> | Reverse Leakage Current | V <sub>R</sub> =600V,                                    | -    |      | 10   | uA   |
| Q <sub>c</sub> | Total Capacitive Charge | V <sub>R</sub> =300V, I <sub>F</sub> =8A, di/dt=-200A/us | -    | 30   | -    | nC   |
| C              | Total Capacitance       | V <sub>R</sub> =0V, f=1MHz                               | -    | 555  | -    | pF   |
|                |                         | V <sub>R</sub> =200V, f=1MHz                             | -    | 65   | -    |      |
|                |                         | V <sub>R</sub> =400V, f=1MHz                             | -    | 50   | -    |      |

## Typical Performance Characteristics

Fig. 1. Typical Characteristics: V<sub>F</sub> vs. I<sub>F</sub>

Fig. 2. Typical Characteristics: V<sub>F</sub> vs. I<sub>F</sub>

Fig. 3. Typical Characteristics: V<sub>R</sub> vs. I<sub>R</sub>

Fig. 4. Typical Characteristics: V<sub>R</sub> vs. C<sub>t</sub>


# Package Dimensions

## TO-220-2L

(Dimensions in Millimeters)

