

## 20A, 650V Silicon Carbide Schottky Diode

### Features

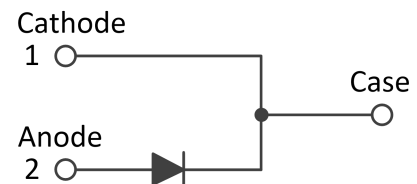
- High-Frequency Operation
- Zero Reverse Recovery Current
- Temperature-Independent Switching
- Extremely Fast Switching
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



TO-247AC

### Applications

- Boost Diodes in PFC or DC/DC stages
- LED Lighting Power Supplies
- Power Factor Correction



### Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 30 units per plastic tube

### Maximum Ratings & Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                                                         | Symbol                | GS20D065SP  | Unit |
|-------------------------------------------------------------------|-----------------------|-------------|------|
| Maximum repetitive peak reverse voltage                           | V <sub>RRM</sub>      | 650         | V    |
| Working peak reverse voltage                                      | V <sub>RWM</sub>      | 650         | V    |
| Maximum DC blocking voltage                                       | V <sub>DC</sub>       | 650         | V    |
| Maximum average forward rectified current                         | T <sub>C</sub> =25°C  | 51          | A    |
|                                                                   | T <sub>C</sub> =135°C | 26          |      |
|                                                                   | T <sub>C</sub> =153°C | 20          |      |
| Peak forward surge current, t <sub>p</sub> =10ms, Half Sine Pulse | I <sub>FSM</sub>      | 150         | A    |
| Power dissipation                                                 | T <sub>C</sub> =25°C  | 150         | W    |
|                                                                   | T <sub>C</sub> =110°C | 65          |      |
| Operating junction temperature range                              | T <sub>J</sub>        | -55 to +175 | °C   |
| Storage temperature range                                         | T <sub>STG</sub>      | -55 to +175 | °C   |

## Electrical Specifications (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                                     | Symbol         | Test Conditions                                                 | Typ  | Max  | Unit |
|-----------------------------------------------|----------------|-----------------------------------------------------------------|------|------|------|
| Forward drop voltage                          | V <sub>F</sub> | I <sub>F</sub> =20A, T <sub>J</sub> =25°C                       | 1.35 | 1.50 | V    |
|                                               |                | I <sub>F</sub> =20A, T <sub>J</sub> =175°C                      | 1.7  | -    |      |
| Reverse leakage current @rated V <sub>R</sub> | I <sub>R</sub> | V <sub>R</sub> =650V, T <sub>J</sub> =25°C                      | 3    | 40   | μA   |
|                                               |                | V <sub>R</sub> =650V, T <sub>J</sub> =175°C                     | 10   | 100  |      |
| Total capacitive charge                       | Q <sub>C</sub> | V <sub>R</sub> =400V, I <sub>F</sub> =20A, T <sub>J</sub> =25°C | 52   | -    | nC   |
| Total capacitance                             | C              | V <sub>R</sub> =400V, T <sub>J</sub> =25°C, f=1MHz              | 89   | -    | pF   |

## Thermal-Mechanical Specifications (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                            | Symbol           | Typ | Max | Unit  |
|--------------------------------------|------------------|-----|-----|-------|
| Thermal Resistance, Junction to Case | R <sub>θJC</sub> | 1.0 | -   | °C /W |

## Ratings and Characteristics Curves

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

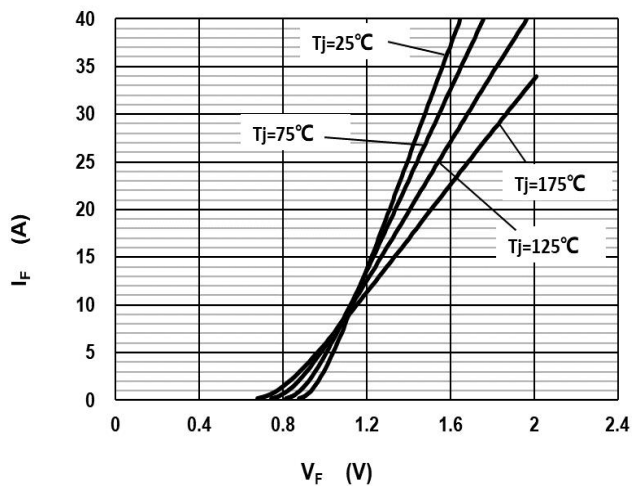


Fig.1 –Forward Characteristics

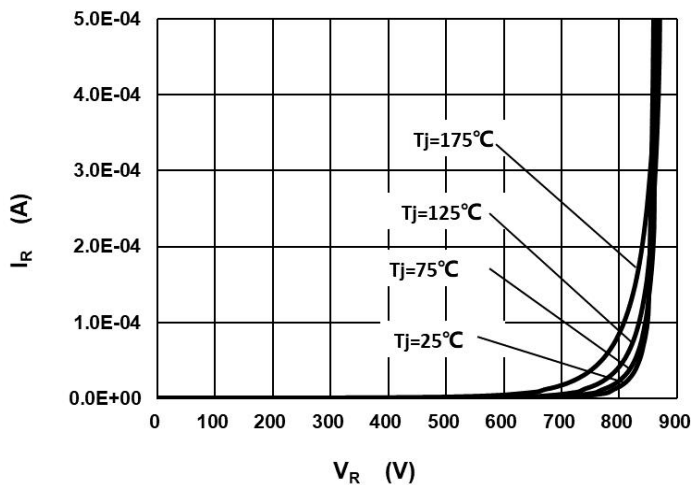


Fig.2 –Reverse Characteristics

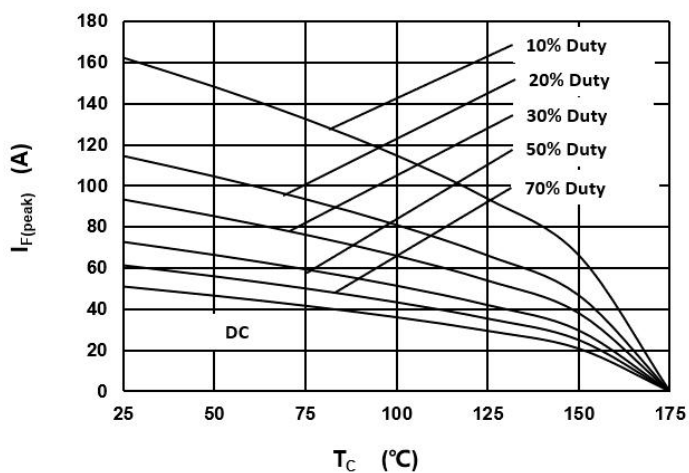


Fig.3 –Current Derating

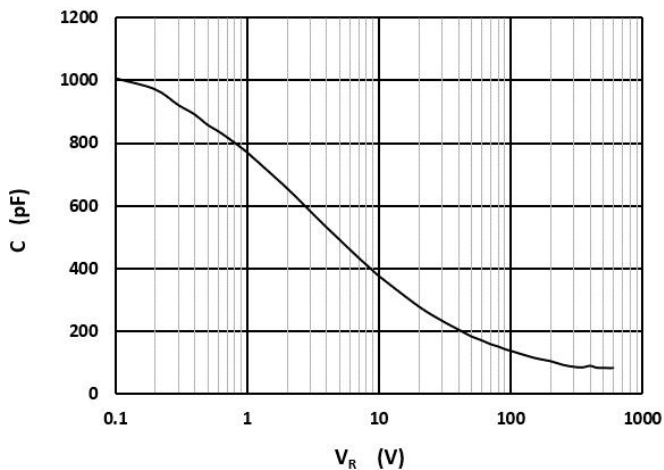


Fig.4 –Capacitance vs. Reverse Voltage

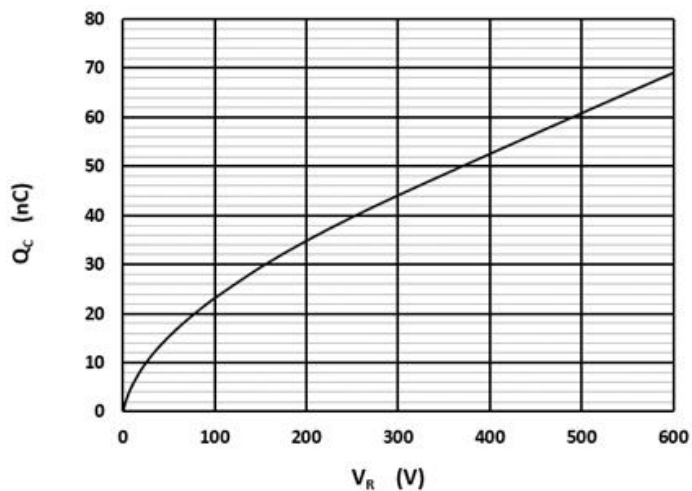


Fig.5 –Total Capacitance Charge vs. Reverse Voltage

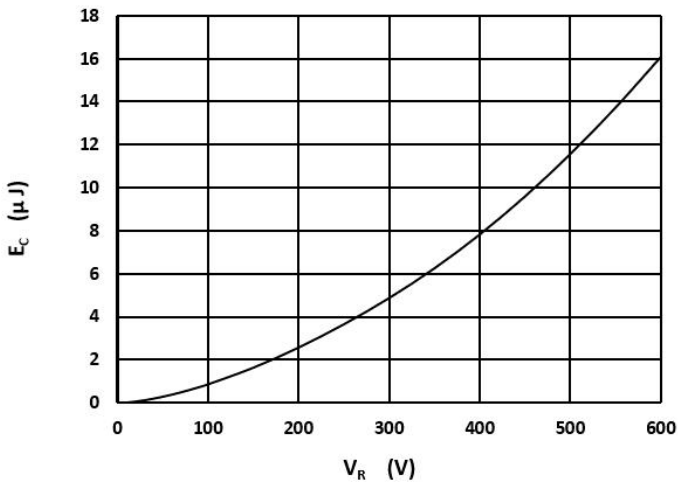
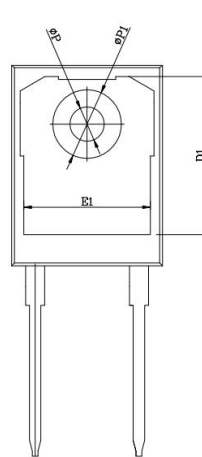
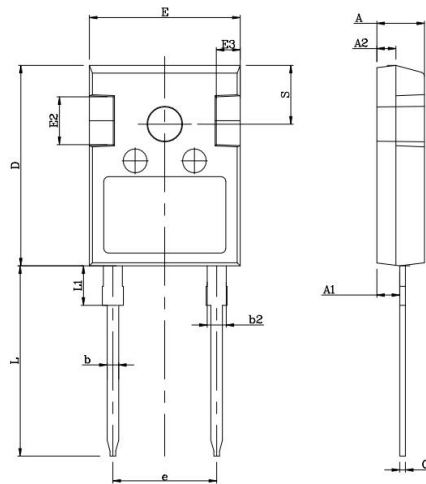


Fig.6 –Typical Capacitance Stored Energy

## Package Outline Dimensions (Unit: millimeters)

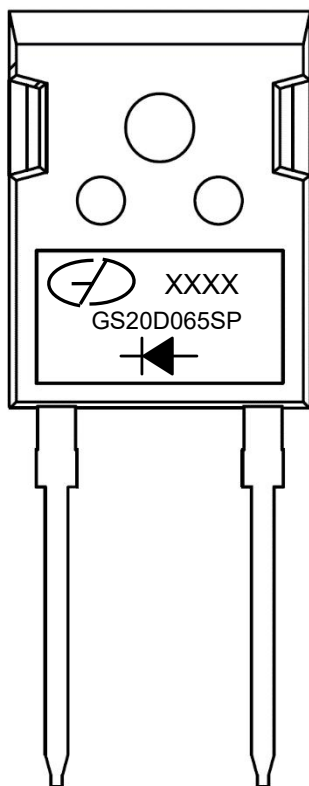
### TO-247AC



COMMON DIMENSIONS

| SYMBOL | mm       |       |       |
|--------|----------|-------|-------|
|        | Min      | Nom   | Max   |
| A      | 4.80     | 5.00  | 5.20  |
| A1     | 2.23     | 2.41  | 2.59  |
| A2     | 1.85     | 2.00  | 2.15  |
| b      | 1.11     | 1.21  | 1.36  |
| b2     | 1.91     | 2.01  | 2.21  |
| c      | 0.51     | 0.61  | 0.75  |
| D      | 20.80    | 21.00 | 21.30 |
| D1     | 16.25    | 16.55 | 16.85 |
| E      | 15.50    | 15.80 | 16.10 |
| E1     | 13.00    | 13.26 | 13.56 |
| E2     | 4.80     | 5.00  | 5.20  |
| E3     | 2.30     | 2.50  | 2.70  |
| e      | 10.88BSC |       |       |
| L      | 19.82    | 19.92 | 20.22 |
| L1     | 3.94     | 4.12  | 4.30  |
| ØP     | 3.66     | 3.68  | 3.75  |
| ØP1    | 7.08     | 7.19  | 7.30  |
| S      | 6.15BSC  |       |       |

## Marking Outline



1. Logo Mark: 
2. Data code: XXXX
3. Part Name: GS20D065SP
4. Polarity : 

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