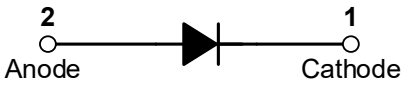
# 6A, 650V Silicon Carbide Schottky Diode

## 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

**ITO-220AC**




## 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 50 units per plastic tube

**Maximum Ratings & Electrical Characteristics** ($T_A$=25℃ unless otherwise noted)

| Parameter | | Symbol | GS06D065SI | Unit |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 650 | V |
| Working peak reverse voltage | | $V_{RWM}$ | 650 | V |
| Maximum DC blocking voltage | | $V_{DC}$ | 650 | V |
| Maximum average forward rectified current | $T_C$=25°C | $I_{F(AV)}$ | 18 | A |
| | $T_C$=135°C | | 8 | |
| | $T_C$=153°C | | 6 | |
| Peak forward surge current，tp=10ms,Half Sine Pulse | | $I_{FSM}$ | 42 | A |
| Power dissipation | $T_C$=25°C | $P_{tot}$ | 37 | W |
| | $T_C$=110°C | | 16 | |
| Operating junction temperature range | | $T_J$ | -55 to +175 | °C |
| Storage temperature range | | $T_{STG}$ | -55 to +175 | °C |

## Electrical Specifications ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Conditions | Typ | Max | Unit |
|---|---|---|---|---|---|
| Forward drop voltage | $V_F$ | $I_F$=6A, $T_J$=25℃ | 1.38 | 1.65 | V |
| | | $I_F$=6A, $T_J$=175℃ | 1.80 | 2.40 | |
| Reverse leakage current @rated $V_R$ | $I_R$ | $V_R$=650V, $T_J$=25℃ | 5 | 50 | μA |
| | | $V_R$=650V, $T_J$=175℃ | 15 | 200 | |
| Total capacitive charge | $Q_C$ | $V_R$=400V, $I_F$=6A, $T_J$=25℃ | 22 | - | nC |
| Total capacitance | C | $V_R$=400V, $T_J$=25℃, f=1MHz | 33 | - | pF |

## Thermal-Mechanical Specifications ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Typ | Max | Unit |
|---|---|---|---|---|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 4.00 | - | ℃ /W |

## Ratings and Characteristics Curves

($T_A$ = 25℃ unless otherwise noted)

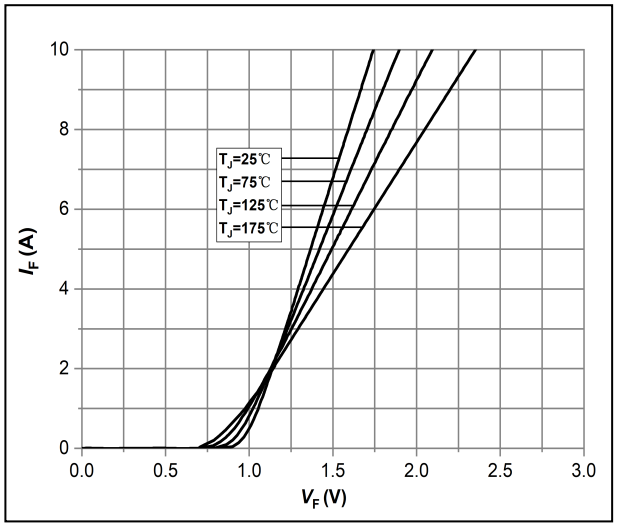



**Fig.1 –Forward Characteristics**

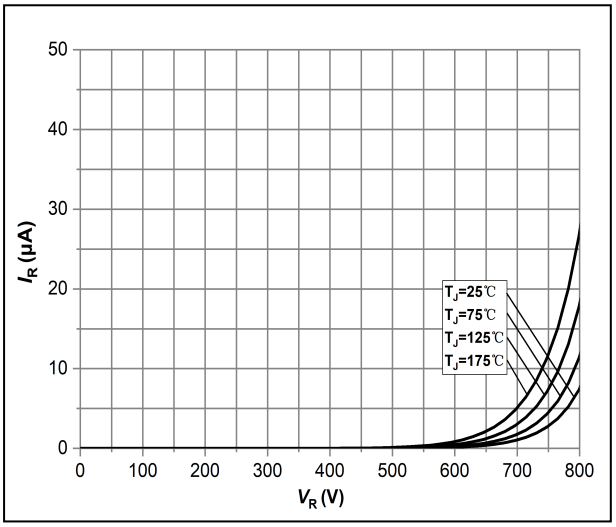



**Fig.2 –Reverse Characteristics**

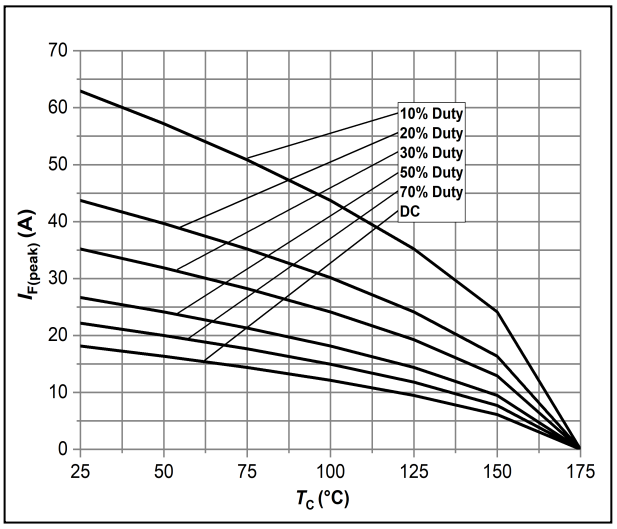



**Fig.3 –Current Derating**

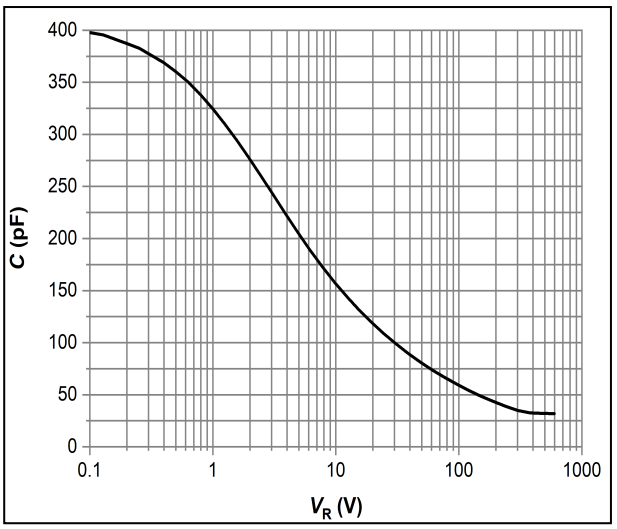



**Fig.4 –Capacitance vs. Reverse Voltage**

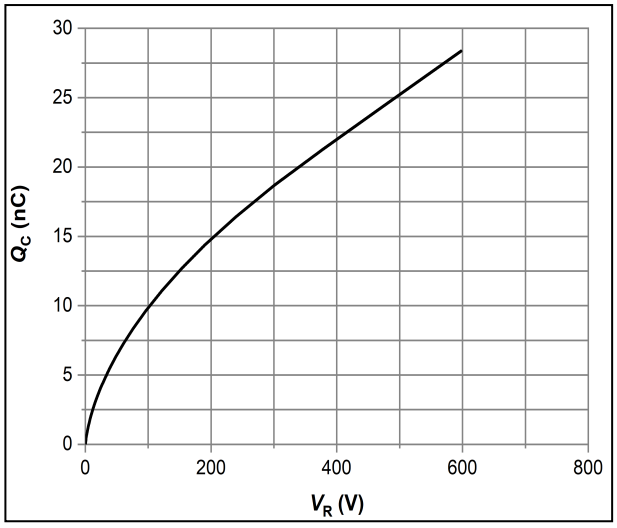



**Fig.5 –Total Capacitance Charge vs. Reverse Voltage**

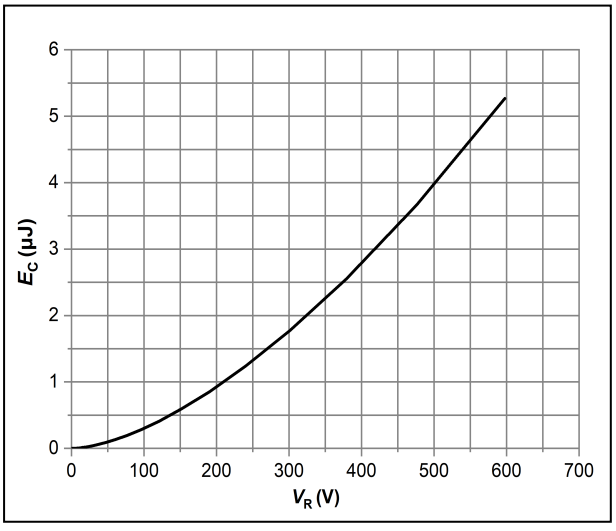
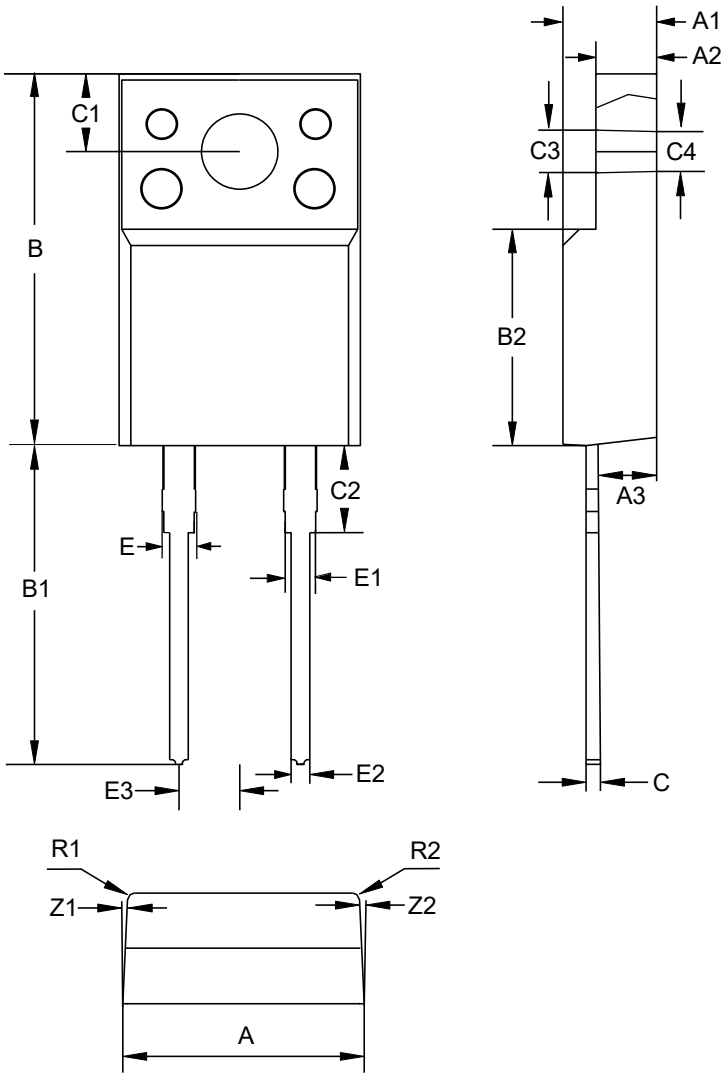



**Fig.6 –Typical Capacitance Stored Energy**

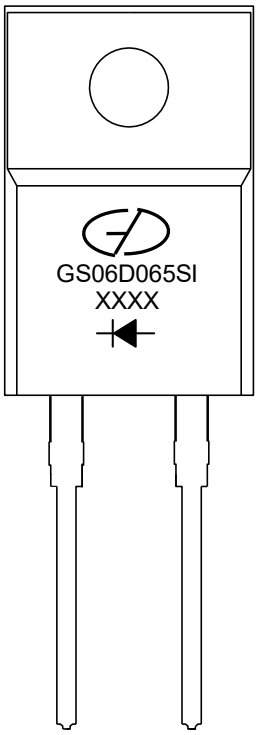
## Package Outline Dimensions (Unit: millimeters)

### ITO-220AC




| ITO-220AC | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Min. | Nom. | Max. | | Min. | Nom. | Max. |
| A | 9.9 | 10.1 | 10.3 | C3 | 3.0 | 3.2 | 3.4 |
| A1 | 4.6 | 4.7 | 4.8 | C4 | 3.0 | | |
| A2 | 2.44 | 2.54 | 2.64 | E | 1.15 | 1.35 | 1.55 |
| A3 | 2.25 | 2.45 | 2.65 | E1 | 1.17 | 1.27 | 1.37 |
| B | 15.5 | 15.8 | 16.1 | E2 | 0.7 | 0.8 | 0.9 |
| B1 | 13.25 | 13.55 | 13.85 | E3 | 2.44 | 2.54 | 2.64 |
| B2 | 9.0 | 9.2 | 9.4 | R1 | | 0.3 | |
| C | 0.5 | 0.6 | 0.7 | R2 | | 0.3 | |
| C1 | 3.1 | 3.3 | 3.5 | Z1 | | 3° | |
| C2 | 3.0 | 3.3 | 3.6 | Z2 | | 3° | |

## Marking Outline




1. Logo Mark:
2. Part Name: GS06D065SI
3. Date Code: XXXX
4. Polarity：

## Revision History

| Document Version | Date of release | Description of changes |
|---|---|---|
| Rev.A | 2022.06.16 | Preliminary Datasheet |
| | | |
| | | |

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