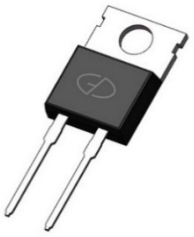
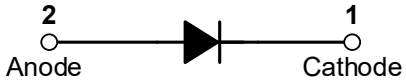
# 10A, 650V Silicon Carbide Schottky Diode

## 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-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 | GS10D065ST | 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 | $I_{F(AV)}$ | 33 | A |
| | $T_C$=135°C | | 15 | |
| | $T_C$=153°C | | 10 | |
| Peak forward surge current，tp=10ms,Half Sine Pulse | | $I_{FSM}$ | 70 | A |
| Power dissipation | $T_C$=25°C | $P_{tot}$ | 117 | W |
| | $T_C$=110°C | | 50 | |
| 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 | $V_F$ | $I_F$=10A, $T_J$=25℃ | 1.40 | 1.70 | V |
| | | $I_F$=10A, $T_J$=175℃ | 1.65 | 2.20 | |
| Reverse leakage current @rated $V_R$ | $I_R$ | $V_R$=650V, $T_J$=25℃ | 2 | 50 | μA |
| | | $V_R$=650V, $T_J$=175℃ | 10 | 200 | |
| Total capacitive charge | $Q_C$ | $V_R$=400V, $I_F$=10A, $T_J$=25℃ | 36 | - | nC |
| Total capacitance | C | $V_R$=400V, $T_J$=25℃, f=1MHz | 52 | - | pF |

| **Thermal-Mechanical Specifications** ($T_A$=25℃ unless otherwise noted) | | | | |
|---|---|---|---|---|
| **Parameter** | **Symbol** | **Typ** | **Max** | **Unit** |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 1.28 | - | ℃ /W |

## Ratings and Characteristics Curves

($T_A$ = 25℃ unless otherwise noted)

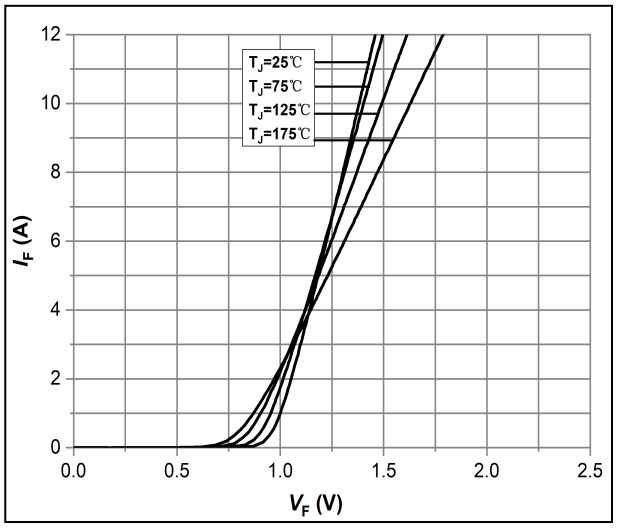



**Fig.1 –Forward Characteristics**

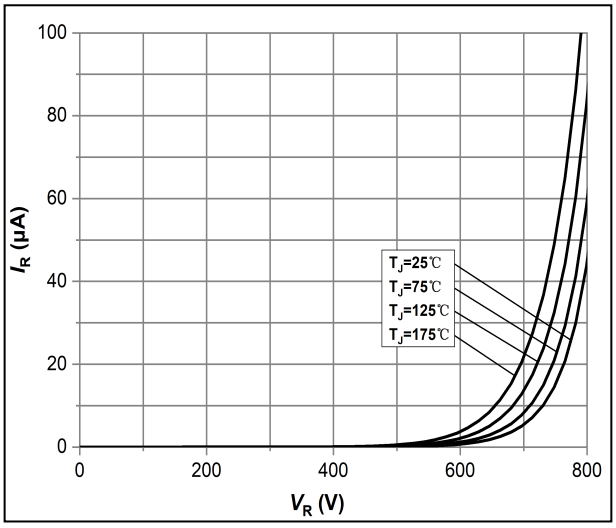



**Fig.2 –Reverse Characteristics**

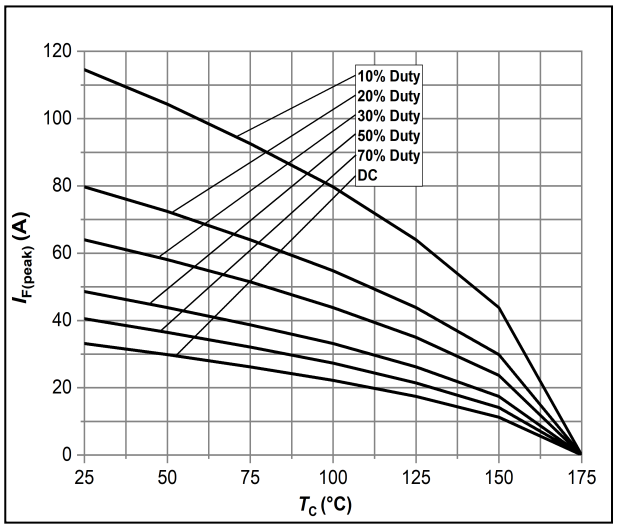



**Fig.3 –Current Derating**

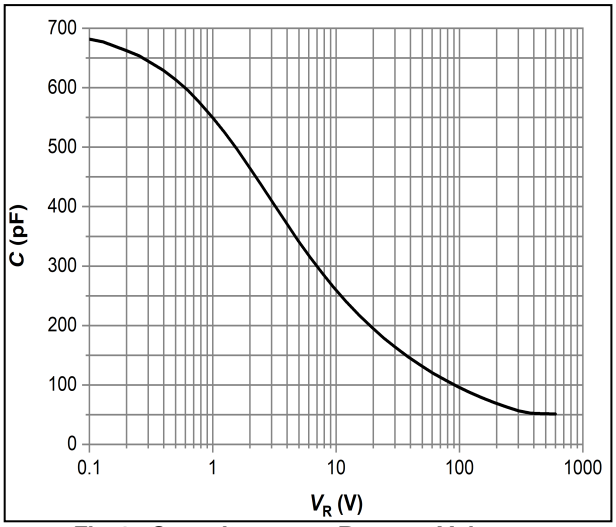



**Fig.4 –Capacitance vs. Reverse Voltage**

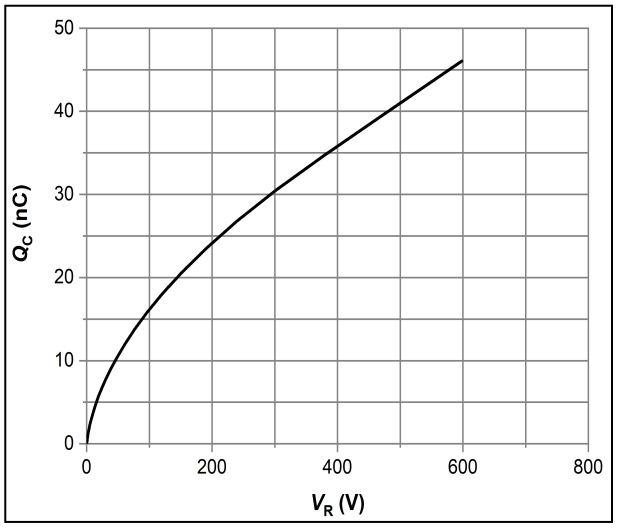



**Fig.5 –Total Capacitance Charge vs. Reverse Voltage**

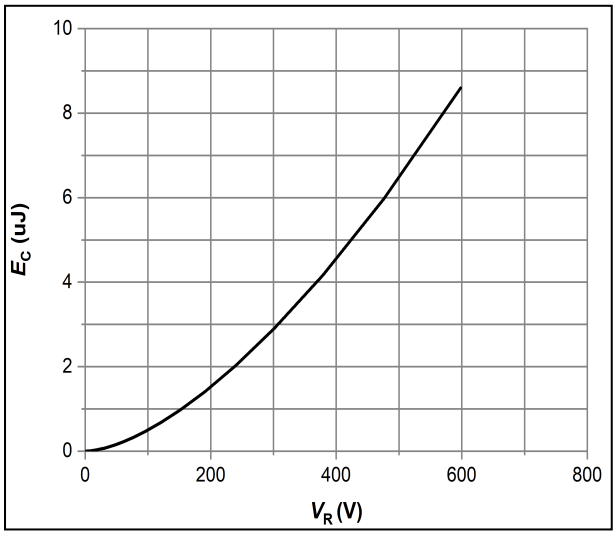
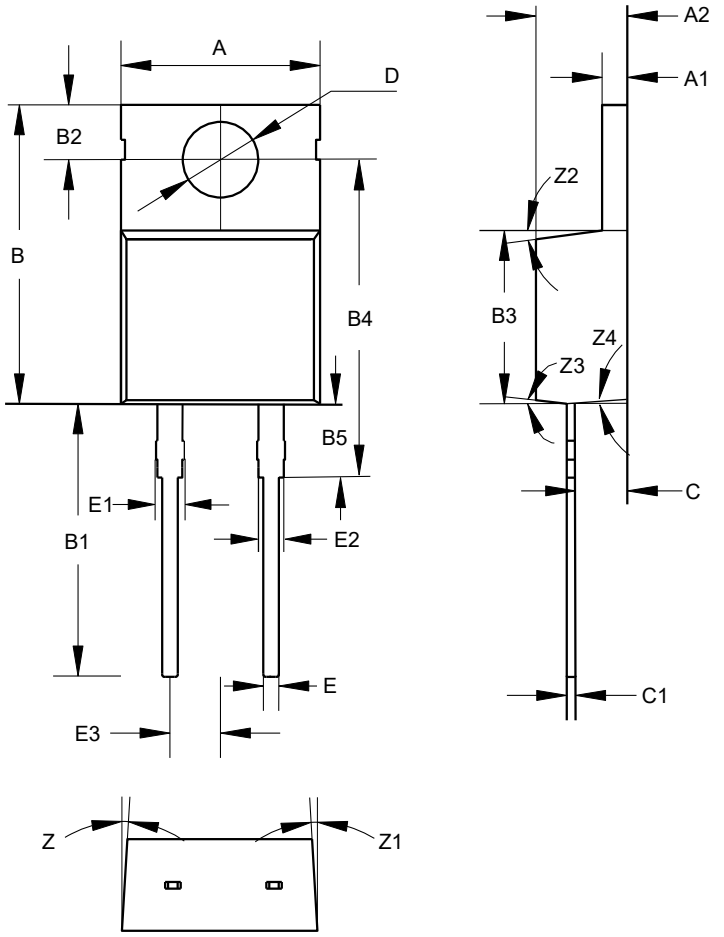



**Fig.6 –Typical Capacitance Stored Energy**

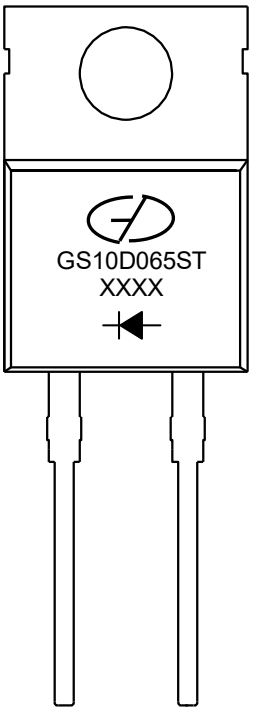
## Package Outline Dimensions (Unit: millimeters)

### TO-220AC




| TO-220AC | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Min. | Nom. | Max. | | Min. | Nom. | Max. |
| A | 9.8 | 10 | 10.2 | D | 3.7 | 3.8 | 3.9 |
| A1 | 1.17 | 1.27 | 1.37 | E | 0.68 | 0.78 | 0.88 |
| A2 | 4.5 | 4.6 | 4.7 | E1 | 1.2 | 1.4 | 1.6 |
| B | 14.5 | 15 | 15.5 | E2 | 1.17 | 1.27 | 1.37 |
| B1 | 13.2 | 13.7 | 14.2 | E3 | 2.44 | 2.54 | 2.64 |
| B2 | 2.65 | 2.75 | 2.85 | Z | | 3° | |
| B3 | 8.5 | 8.7 | 8.9 | Z1 | | 3° | |
| B4 | 15.5 | 16 | 16.5 | Z2 | | 7° | |
| B5 | 3.4 | 3.7 | 4.0 | Z3 | | 7° | |
| C | 2.3 | 2.6 | 2.9 | Z4 | | 1.5° | |
| C1 | 0.28 | 0.38 | 0.48 | | | | |

## Marking Outline




1. Logo Mark:
2. Part Name: GS10D065ST
3. Date Code: XXXX
4. Polarity :

## Revision History

| Document Version | Date of release | Description of changes |
|---|---|---|
| Rev.A | 2022.06.17 | Preliminary Datasheet |
| | | |
| | | |

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