# LGE3D06065AF

## Silicon Carbide Schottky Diode

| | | |
|---|---|---|
| $V_{RRM}$ | = | 650 V |
| $I_F$ ( $T_C$ = 146℃) | = | 6 A |
| $Q_C$ | = | 22 nC |

**ITO-220AC**

## Features

- 650 V Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching

## Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- High Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway


## Applications

- Switching Mode Power Supply
- Boost Diodes in PFC
- DC/DC Converters
- AC/DC Converters
- Free Wheeling Diodes in Inverter

| Part Number | Package | Marking |
|---|---|---|
| LGE3D06065AF | ITO-220AC | LGE3D06065AF |

## Maximum Ratings （$T_C$ = 25 ℃ unless otherwise specified）

| Symbol | Parameter | Value | Unit | Test Conditions | Note |
|---|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | 650 | V | | |
| $V_{RSM}$ | Surge Peak Reverse Voltage | 650 | V | | |
| $V_R$ | DC Peak Reverse Voltage | 650 | V | | |
| $I_F$ | Continuous Forward Current | 16.5<br>8.5<br>6 | A | $T_C$ = 25 ℃<br>$T_C$ = 125 ℃<br>$T_C$ = 146 ℃ | Fig. 3 |
| $I_{FSM}$ | Non-Repetitive Forward Surge Current | 66 | A | $T_C$ = 25 ℃, $t_p$ = 10 ms,<br>Half Sine Pulse | |
| $P_{tot}$ | Power Dissipation | 55<br>24 | W | $T_C$ = 25 ℃<br>$T_C$ = 110 ℃ | Fig. 4 |
| $T_J$ | Operating Junction Range | -55 to +175 | ℃ | | |
| $T_{stg}$ | Storage Temperature Range | -55 to +175 | ℃ | | |

## Electrical Characteristics

| Symbol | Parameter | Typ. | Max. | Unit | Test Conditions | Note |
|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | 1.38<br>1.8 | 1.65<br>2.4 | V | $I_F$ = 6 A， $T_J$ = 25°C<br>$I_F$ = 6 A， $T_J$ = 175°C | Fig. 1 |
| $I_R$ | Reverse Current | 2<br>15 | 50<br>180 | μA | $V_R$ = 650 V， $T_J$ = 25°C<br>$V_R$ = 650 V， $T_J$ = 175°C | Fig. 2 |
| $Q_C$ | Total Capacitive Charge | 22 | | nC | $V_R$ = 400 V， $I_F$ = 6 A，<br>$T_J$ = 25 °C | Fig. 6 |
| $C$ | Total Capacitance | 398<br>43<br>33 | | pF | $V_R$ = 0 V， $T_J$ = 25°C， $f$ = 1 MHz<br>$V_R$ = 200 V， $T_J$ = 25°C， $f$ = 1 MHz<br>$V_R$ = 400 V， $T_J$ = 25°C， $f$ = 1 MHz | Fig. 5 |
| $E_C$ | Capacitance Stored Energy | 2.8 | | μJ | $V_R$ = 400 V | Fig. 7 |

Note：This is a majority carrier diode, so there is no reverse recovery charge.

## Thermal Characteristics

| Symbol | Parameter | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case | | 2.7 | | °C/W | Fig.8 |

## Typical Performance

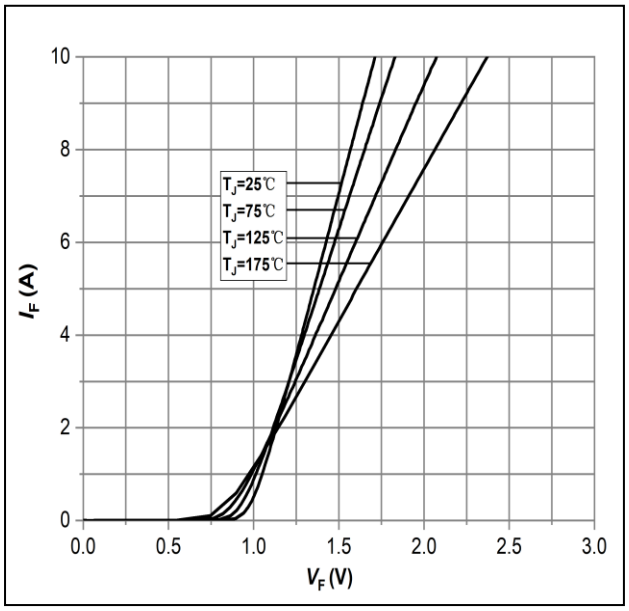



Figure 1: Forward Characteristics

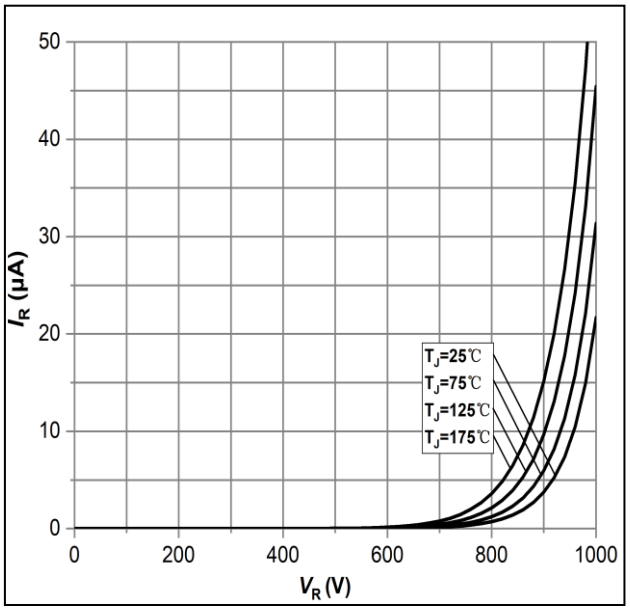



Figure 2: Reverse Characteristics

## Typical Performance

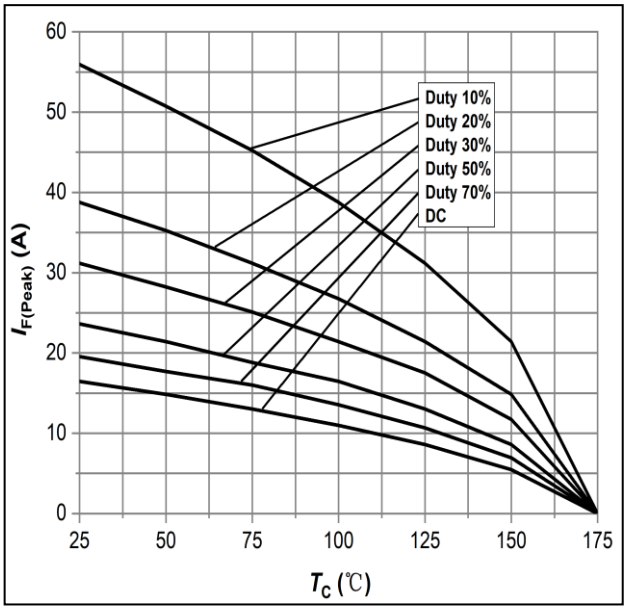



Figure 3: Current Derating

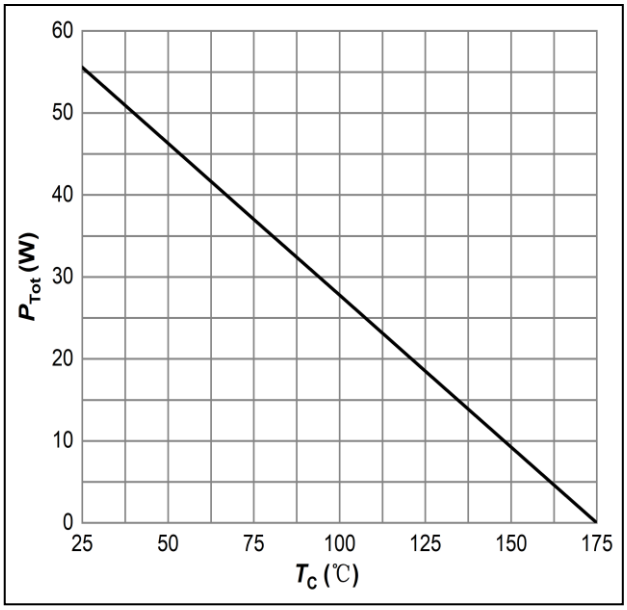



Figure 4: Power Derating

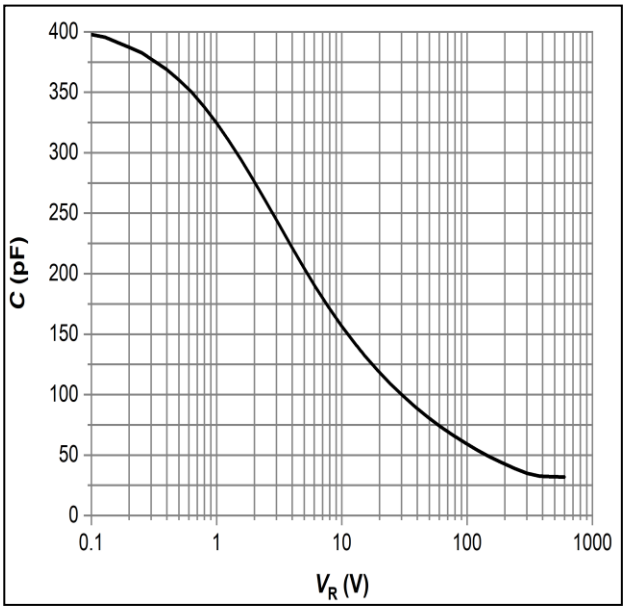



Figure 5: Capacitance vs. Reverse Voltage

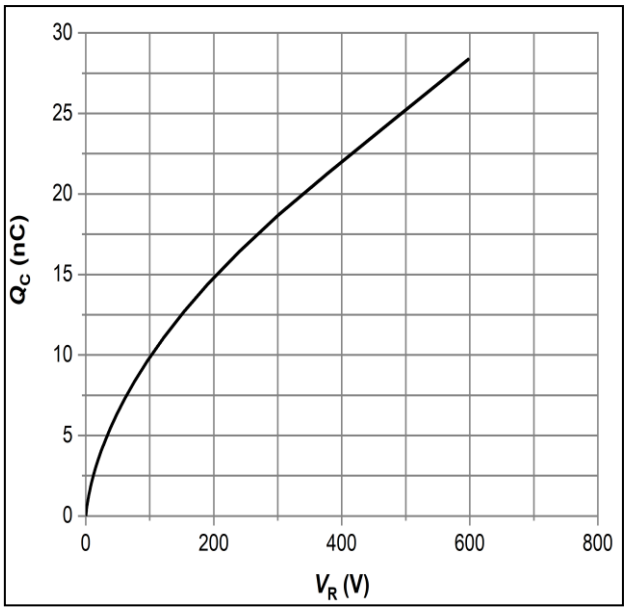



Figure 6: Total Capacitance Charge vs. Reverse Voltage

## Typical Performance

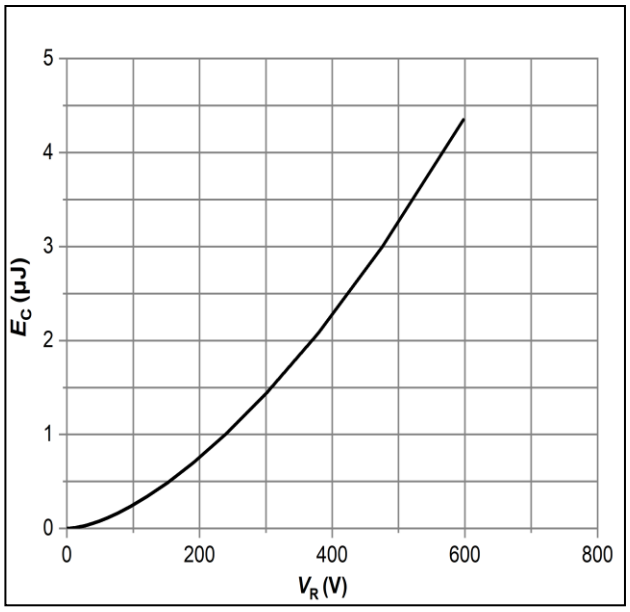



Figure 7:Typical Capacitance Stored Energy

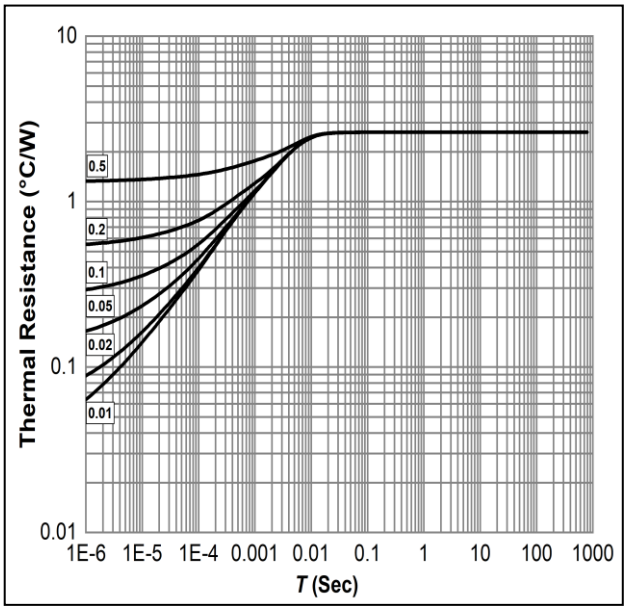
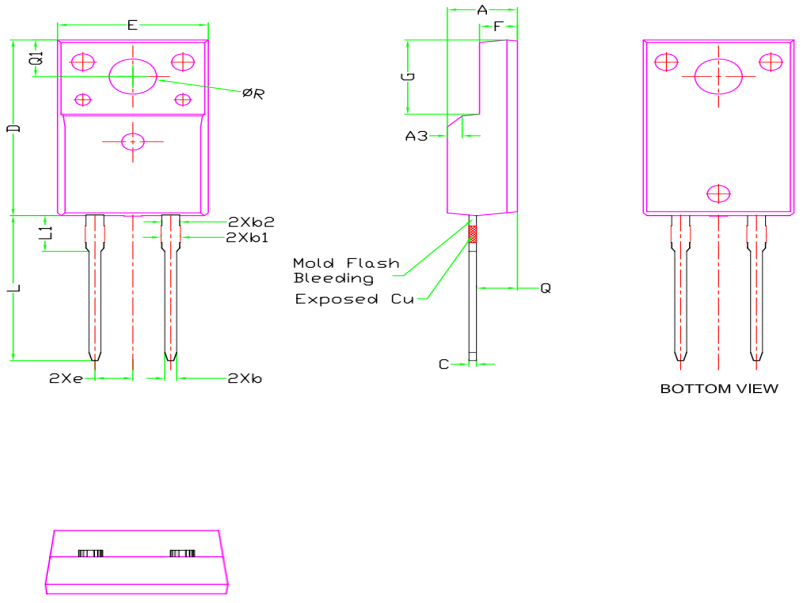



Figure 8: Transient Thermal Impedance

Package： TO-220F




| SYMBOL | DIMENSIONS | | |
|---|---|---|---|
| | Min. | Nom. | Max. |
| A | 4.60 | 4.70 | 4.80 |
| b | 0.70 | 0.80 | 0.91 |
| b1 | 1.20 | 1.30 | 1.47 |
| b2 | 1.10 | 1.20 | 1.30 |
| C | 0.45 | 0.50 | 0.63 |
| D | 15.80 | 15.87 | 15.97 |
| e | | 2.54 | |
| E | 10.00 | 10.10 | 10.30 |
| F | 2.44 | 2.54 | 2.64 |
| G | 6.50 | 6.70 | 6.90 |
| L | 12.90 | 13.10 | 13.30 |
| L1 | 3.13 | 3.23 | 3.33 |
| Q | 2.65 | 2.75 | 2.85 |
| Q1 | 3.20 | 3.30 | 3.40 |
| ΦR | 3.08 | 3.18 | 3.28 |

Note:
1. All Dimension Are In mm.
2. Package Body Sizes Exclude Mold Flash And Burrs Mold Flash Should Be Less Than 6 Mil.

| Packge | Packing | Box Size LxWxH(mm) | Quatity(pcs/box) | Carton Size LxWxH(mm) | Quatity(pcs/carton) |
|---|---|---|---|---|---|
| ITO-220AC | 50pcs/Tube | 558×148×38 | 1000 | 565×225×175 | 5000 |