

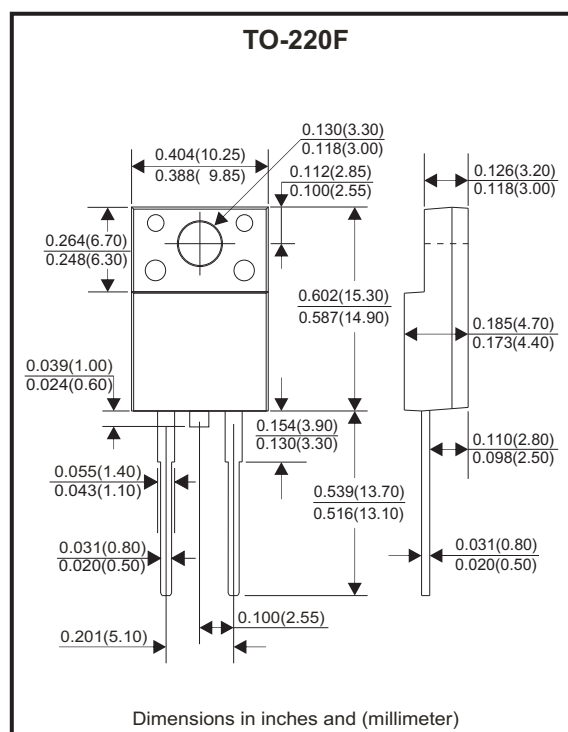
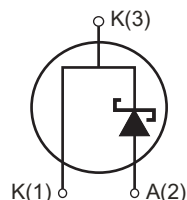
# CDBJFSC3650-G

**Reverse Voltage: 650 V**
**Forward Current: 3 A**
**RoHS Device**


## Features

- Rated to 650V at 3 Amps
- Short recovery time.
- High speed switching possible.
- High frequency operation.
- High temperature operation.
- Temperature independent switching behaviour.
- Positive temperature coefficient on VF.

## Circuit diagram



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

| Parameter                                 | Conditions                                                                    | Symbol          | Value      | Unit                 |
|-------------------------------------------|-------------------------------------------------------------------------------|-----------------|------------|----------------------|
| Repetitive peak reverse voltage           |                                                                               | $V_{RRM}$       | 650        | V                    |
| Surge peak reverse voltage                |                                                                               | $V_{RSM}$       | 650        | V                    |
| DC blocking voltage                       |                                                                               | $V_{DC}$        | 650        | V                    |
| Typical continuous forward current        | $T_C = 150^{\circ}\text{C}$                                                   | $I_F$           | 3          | A                    |
| Repetitive peak forward surge current     | $T_C = 25^{\circ}\text{C}$ , $t_p = 10\text{ms}$<br>Half sine wave, $D = 0.3$ | $I_{FRM}$       | 15         | A                    |
| Non-repetitive peak forward surge current | $T_C = 25^{\circ}\text{C}$ , $t_p = 10\text{ms}$<br>Half sine wave            | $I_{FSM}$       | 30         | A                    |
| Power dissipation                         | $T_C = 25^{\circ}\text{C}$                                                    | $P_{TOT}$       | 53.2       | W                    |
|                                           | $T_C = 110^{\circ}\text{C}$                                                   |                 | 23         |                      |
| Typical thermal resistance                | Junction to case                                                              | $R_{\theta JC}$ | 7.83       | $^{\circ}\text{C/W}$ |
| Operating junction temperature range      |                                                                               | $T_J$           | -55 ~ +175 | $^{\circ}\text{C}$   |
| Storage temperature range                 |                                                                               | $T_{STG}$       | -55 ~ +175 | $^{\circ}\text{C}$   |

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

| Parameter               | Conditions                                                                       | Symbol | Typ | Max | Unit          |
|-------------------------|----------------------------------------------------------------------------------|--------|-----|-----|---------------|
| Forward voltage         | $I_F = 3\text{ A}$ , $T_J = 25^\circ\text{C}$                                    | $V_F$  | 1.4 | 1.7 | V             |
|                         | $I_F = 3\text{ A}$ , $T_J = 175^\circ\text{C}$                                   |        | 1.8 |     |               |
| Reverse current         | $V_R = 650\text{ V}$ , $T_J = 25^\circ\text{C}$                                  | $I_R$  | 10  | 100 | $\mu\text{A}$ |
|                         | $V_R = 650\text{ V}$ , $T_J = 175^\circ\text{C}$                                 |        | 20  |     |               |
| Total capacitive charge | $V_R = 400\text{ V}$ , $T_J = 150^\circ\text{C}$<br>$Q_C = \int_0^{V_R} C(V) dv$ | $Q_C$  | 11  | -   | nC            |
| Total capacitance       | $V_R = 0\text{ V}$ , $T_J = 25^\circ\text{C}$ , $f = 1\text{ MHz}$               | $C$    | 190 |     | pF            |
|                         | $V_R = 200\text{ V}$ , $T_J = 25^\circ\text{C}$ , $f = 1\text{ MHz}$             |        | 23  |     |               |

## Typical Characteristics (CDBJFSC3650-G)

Fig.1 - Forward Characteristics

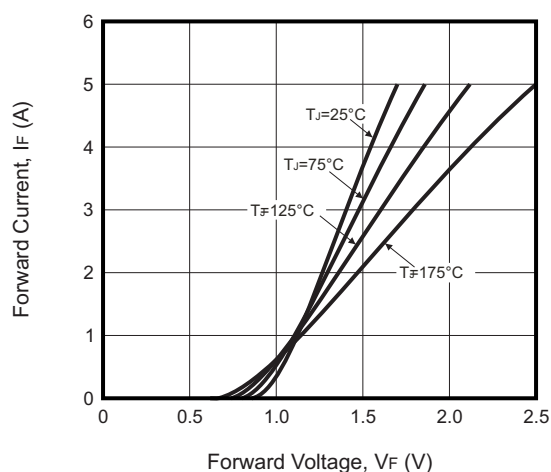


Fig.2 - Reverse Characteristics

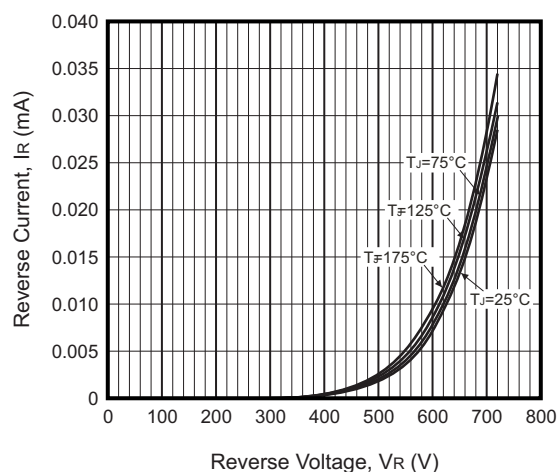


Fig.3 - Current Derating

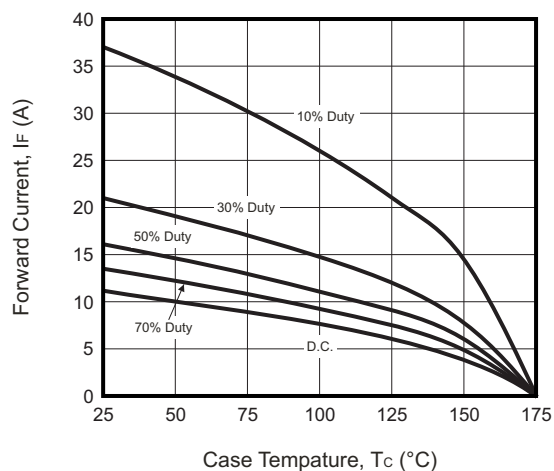
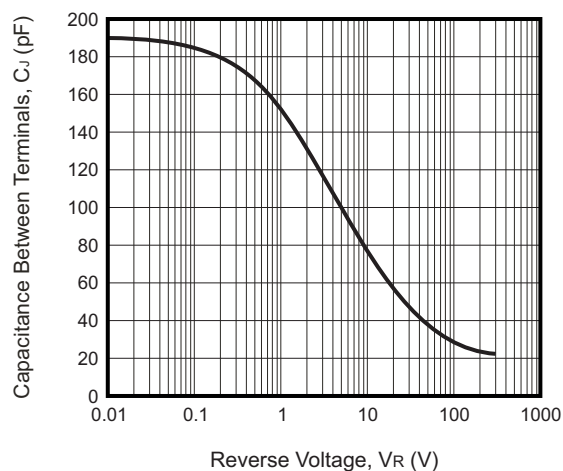
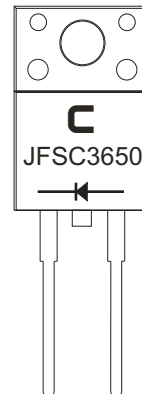


Fig.4 - Capacitance vs. Reverse Voltage



## Marking Code

| Part Number   | Marking Code |
|---------------|--------------|
| CDBJFSC3650-G | JFSC3650     |



## Standard Packaging

| Case Type | TUBE PACK       |                |
|-----------|-----------------|----------------|
|           | TUBE<br>( pcs ) | BOX<br>( pcs ) |
| TO-220F   | 50              | 1,000          |