



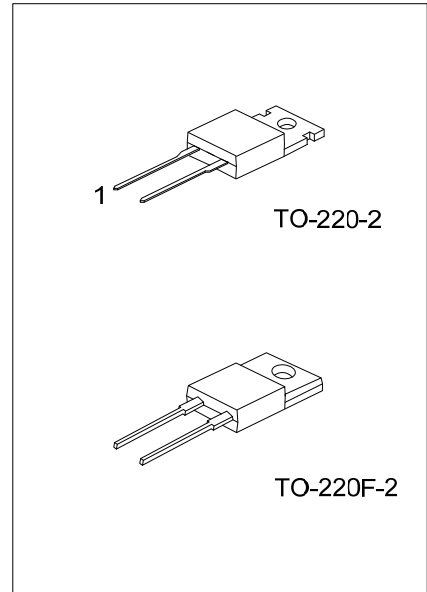
UCBD0665

SiC-SBD DIODE

SILICON CARBIDE SCHOTTKY BARRIER DIODES

DESCRIPTION

The **UCBD0665** is an SiC Schottky barrier diodes (SBDs) feature high reverse voltage ratings. In addition to SBDs with short reverse recovery time (t_{rr}), provides 650V SBDs with a junction barrier Schottky (JBS) structure that provide low leakage current (I_r) and high surge current capability required for switched-mode power supplies. These devices help improve the efficiency of switched-mode power supplies.



FEATURES

- * Negligible reverse recovery
- * High-Frequency Operation
- * Positive Temperature Coefficient
- * Temperature-Independent Switching

SYMBOL



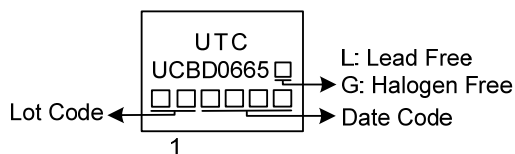
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | Packing |
|------------------|------------------|-----------|----------------|---|---------|
| Lead Free | Halogen Free | | 1 | 2 | |
| UCBD0665L-TA2-T | UCBD0665G-TA2-T | TO-220-2 | K | A | Tube |
| UCBD0665L-TF32-R | UCBD0665G-TF32-R | TO-220F-2 | K | A | Tube |

Note: Pin Assignment: K: Cathode A: Anode

| | |
|---|---|
| <p>UCBD0665G-TA2-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p> | <p>(1) T: Tube</p> <p>(2) TA2: TO-220-2, TF32: TO-220F-2</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|---|---|

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$, unless otherwise specified)

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

| PARAMETER | SYMBOL | RATINGS | UNIT | |
|---|-----------|-------------------------|------------------|---|
| Repetitive Peak Reverse Voltage | V_{RRM} | 650 | V | |
| Surge Peak Reverse Voltage | V_{RSM} | 650 | V | |
| Continuous Forward Current | I_F | $T_C=25^\circ\text{C}$ | 20 | A |
| | | $T_C=135^\circ\text{C}$ | 9 | A |
| | | $T_C=153^\circ\text{C}$ | 6 | A |
| Repetitive Peak Forward Surge Current | I_{FRM} | 60 | A | |
| Non-Repetitive Peak Forward Surge Current | I_{FSM} | 66 | A | |
| Power Dissipation | TO-220-2 | 87 | W | |
| | TO-220F-2 | 40 | W | |
| Operating Junction Temperature | T_J | +150 | $^\circ\text{C}$ | |
| Storage Temperature Range | T_{STG} | -65 ~ +150 | $^\circ\text{C}$ | |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

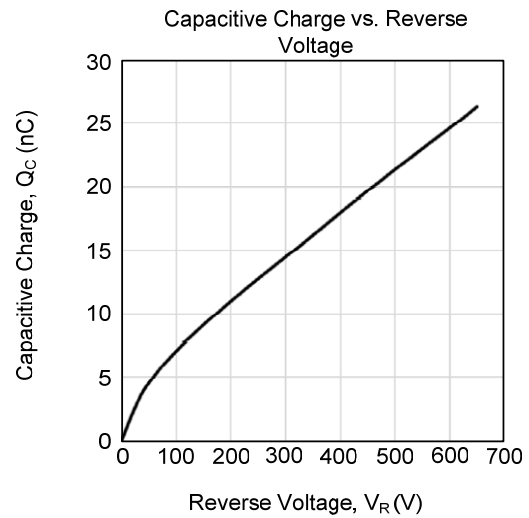
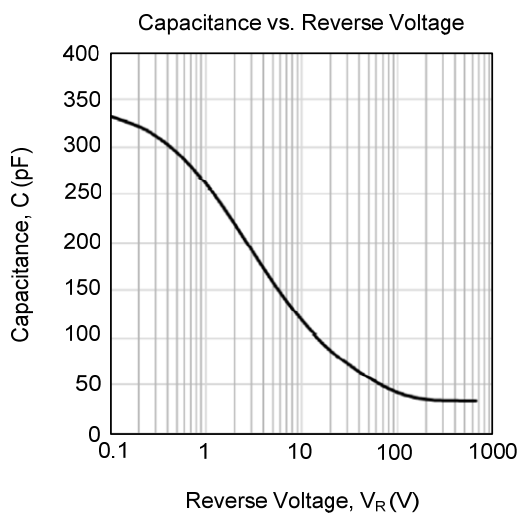
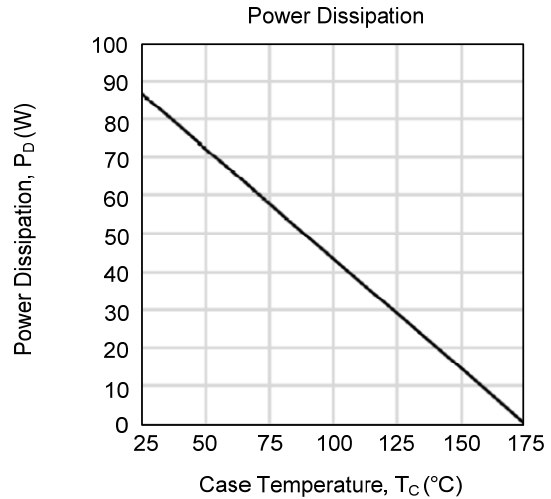
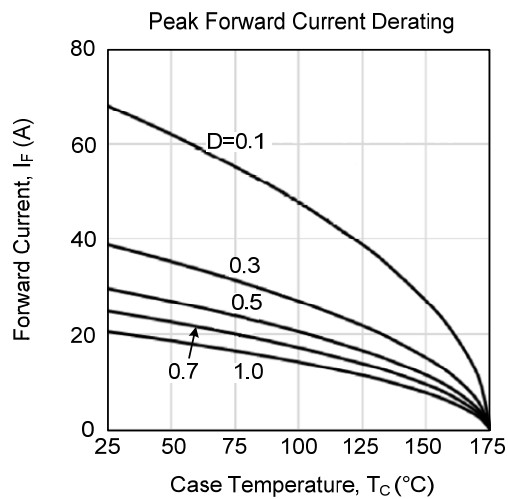
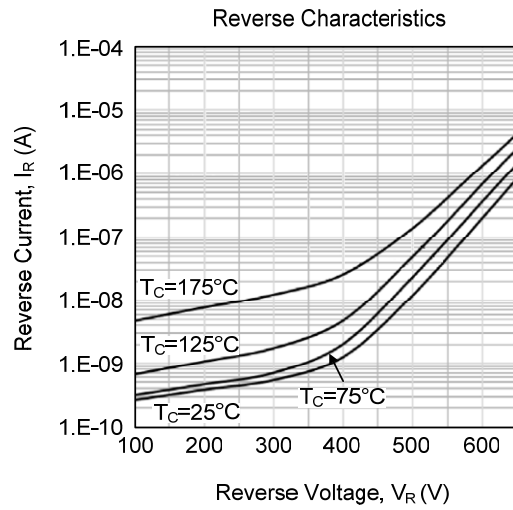
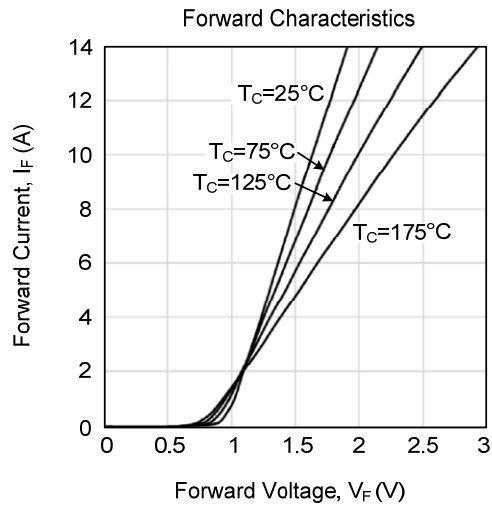
| PARAMETER | SYMBOL | RATINGS | UNIT |
|------------------|-----------|---------|--------------------|
| Junction to Case | TO-220-2 | 1.7 | $^\circ\text{C/W}$ |
| | TO-220F-2 | 3.125 | $^\circ\text{C/W}$ |

■ ELECTRICAL CHARACTERISTICS

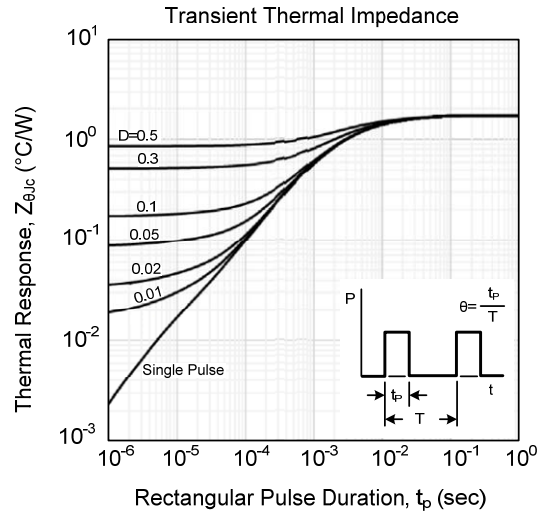
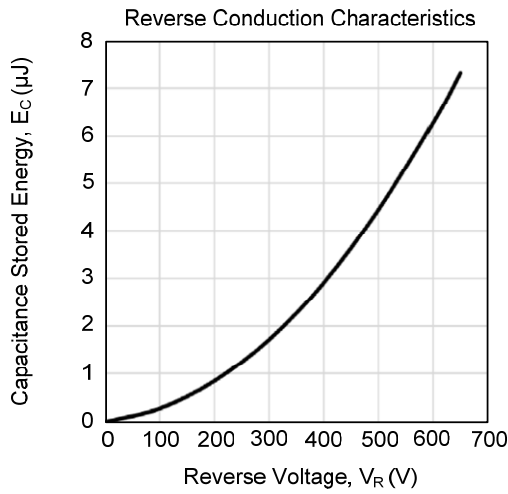
(Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------------|----------|--|-----|------|-----|---------------|
| DC Blocking Voltage | V_{DC} | $T_C=25^\circ\text{C}$ | 650 | | | V |
| Forward Voltage | V_F | $I_F=3.0\text{A}, T_C=25^\circ\text{C}$ | | 1.16 | | V |
| | | $I_F=6.0\text{A}, T_C=25^\circ\text{C}$ | | 1.34 | 1.5 | V |
| | | $I_F=6.0\text{A}, T_C=175^\circ\text{C}$ | | 1.66 | | V |
| Reverse Current | I_R | $V_R=650\text{V}, T_C=25^\circ\text{C}$ | | 1.2 | 50 | μA |
| | | $V_R=650\text{V}, T_C=175^\circ\text{C}$ | | 4.5 | | μA |
| Total Capacitive Charge | Q_C | $V_R=400\text{V}$ | | 18 | | nC |
| Total Capacitance | C | $V_R=1.0\text{V}, T_C=25^\circ\text{C}, f=1\text{MHz}$ | | 261 | | pF |
| | | $V_R=200\text{V}, T_C=25^\circ\text{C}, f=1\text{MHz}$ | | 35 | | pF |
| | | $V_R=400\text{V}, T_C=25^\circ\text{C}, f=1\text{MHz}$ | | 33 | | pF |
| Capacitance Stored Energy | E_C | $V_R=400\text{V}$ | | 2.9 | | μJ |

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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