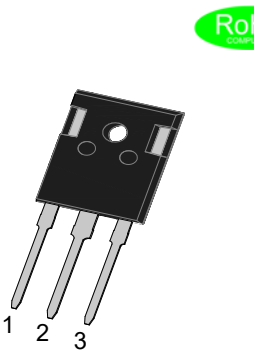
# JCD60SJ65BCT

## SiC Schottky Diode

Rev.1.1

## DESCRIPTION

- ✧ 650V Schottky diode
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage ($V_F$)

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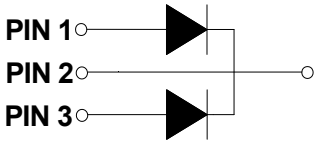



Symbol

## BENEFIT

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent

## APPLICATION

- ✧ Switch mode power supplies(SMPS)
- ✧ Boost diodes in PFC or DC/DC stages
- ✧ Free wheeling diodes in inverter stages
- ✧ AC/DC converters

## ABSOLUTE MAXIMUM RATING (Rating at 25℃ junction temperature unless otherwise specified.)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 650 | V |
| Maximum DC blocking voltage | | $V_{DC}$ | 650 | V |
| Average forward current | $T_C$=147℃ | $I_{F(AV)}$ | 30*<br>60** | A |
| Repetitive peak forward surge current | $t_P$=10ms,$T_C$=25℃ | $I_{FRM}$ | 80* | A |
| Non-repetitive peak forward surge current | $t_P$=10ms,$T_C$=25℃ | $I_{FSM}$ | 160* | A |
| Power dissipation | $T_C$=25℃<br>$T_C$=110℃ | $P_{tot}$ | 283*<br>122* | W |
| Operating junction temperature range | | $T_j$ | -55 to+175 | ℃ |
| Storage temperature range | | $T_{stg}$ | -55 to+175 | ℃ |

**Note: *per leg, **per device**

## ELECTRICAL CHARACTERISTICS(Rating at 25℃ junction temperature unless otherwise specified.)

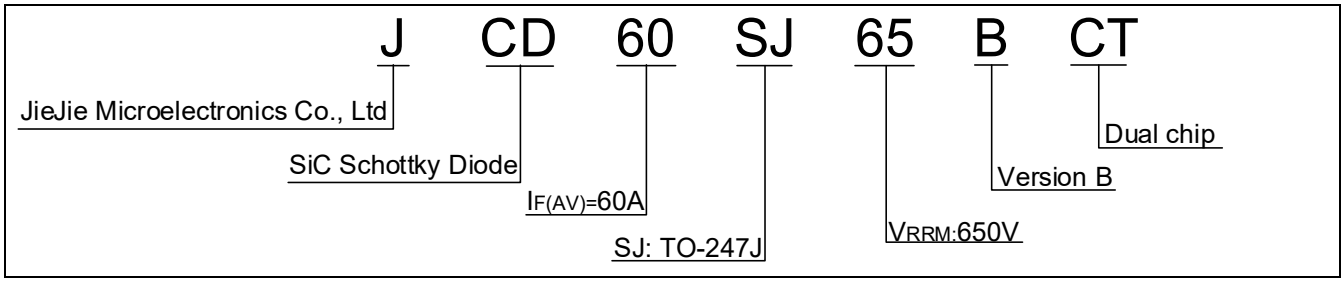
| Parameter | Conditions | Symbol | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Forward voltage | $I_F$=30A,$T_j$=25℃ | $V_F$ | - | 1.36 | 1.63 | V |
| | $I_F$=30A,$T_j$=175℃ | | - | 1.65 | - | |
| Reverse current | $V_R$=650V,$T_j$=25℃ | $I_R$ | - | 3 | 80 | μA |
| | $V_R$=650V,$T_j$=175℃ | | - | 14 | - | |
| Total capacitance | $V_R$=1V,f=1MHz | C | - | 1285 | - | pF |
| | $V_R$=200V,f=1MHz | | - | 185 | - | |
| | $V_R$=400V,f=1MHz | | - | 132 | - | |
| Total capacitance charge | $V_R$=400V,$T_j$=25℃ | $Q_C$ | - | 94 | - | nC |
| Capacitance stored energy | $V_R$=400V | Ec | - | 14 | - | μJ |

## THERMAL CHARACTERISTICS

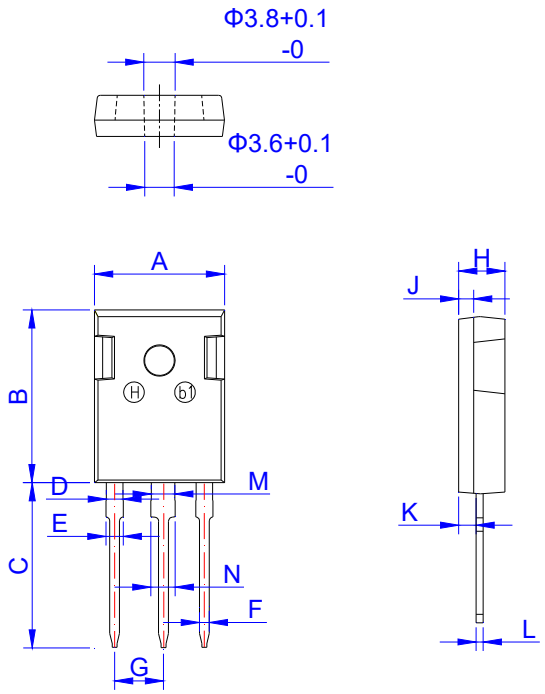
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th(j-c)}$ | Junction to case | 0.53* | ℃/W |

**Note: *per leg**

## ORDERING INFORMATION



## PACKAGE MECHANICAL DATA

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| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 15.50 | 15.80 | 16.10 | 0.610 | 0.622 | 0.634 |
| B | 20.80 | 21.00 | 21.20 | 0.819 | 0.827 | 0.835 |
| C | 19.70 | 20.00 | 20.30 | 0.776 | 0.787 | 0.799 |
| D | 1.80 | 2.00 | 2.20 | 0.071 | 0.079 | 0.087 |
| E | 1.90 | 2.10 | 2.30 | 0.075 | 0.083 | 0.091 |
| F | 1.00 | 1.20 | 1.40 | 0.039 | 0.047 | 0.055 |
| G | 5.25 | | 5.65 | 0.207 | | 0.222 |
| H | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| J | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| K | 2.20 | 2.35 | 2.50 | 0.087 | 0.093 | 0.098 |
| L | 0.41 | 0.60 | 0.79 | 0.016 | 0.024 | 0.031 |
| M | 2.80 | 3.00 | 3.20 | 0.110 | 0.118 | 0.126 |
| N | 2.90 | 3.10 | 3.30 | 0.114 | 0.122 | 0.130 |

## CHARACTERITICS CURVE

FIG.1: Forward characteristics

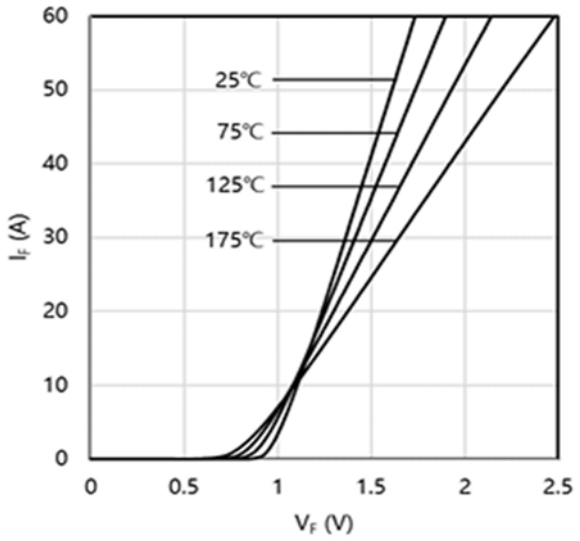
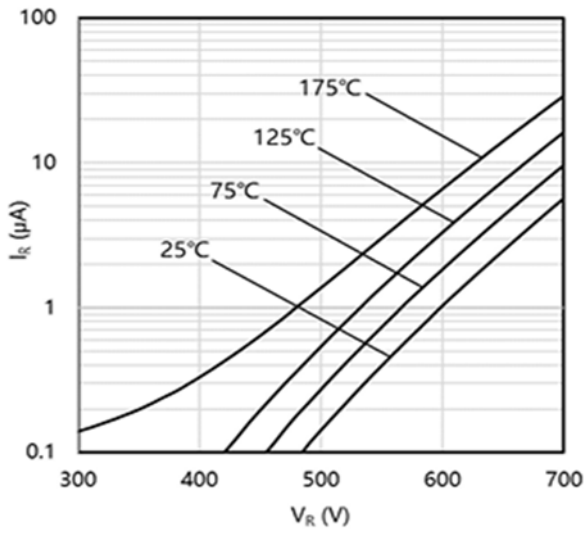



FIG.2: Reverse characteristics



## CHARACTERITICS CURVE

FIG.3: Capacitance vs. reverse voltage

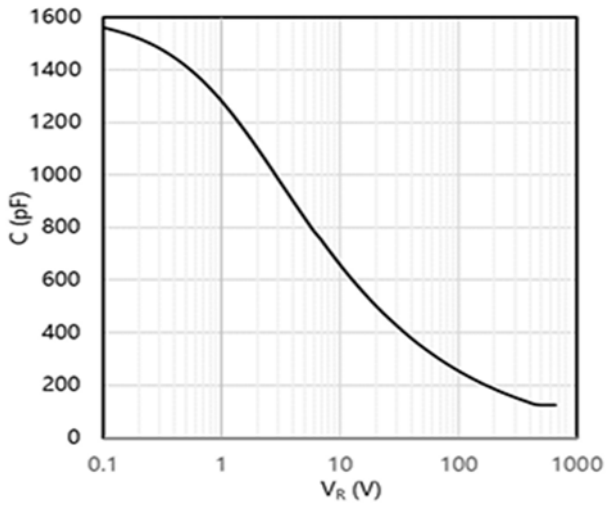



FIG.4: Capacitance charge vs. reverse voltage

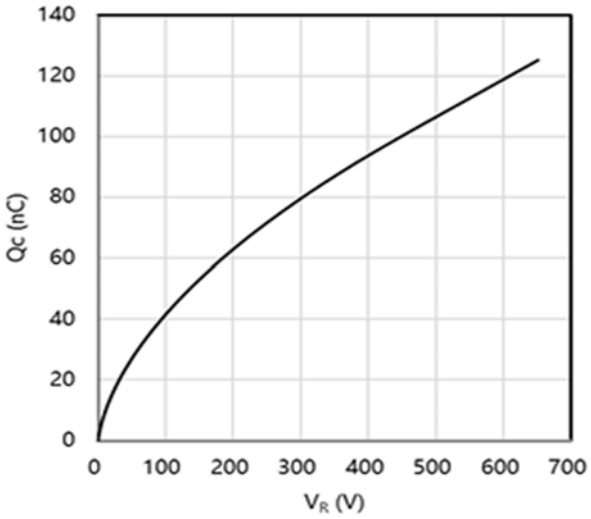



FIG.5: Capacitance stored energy

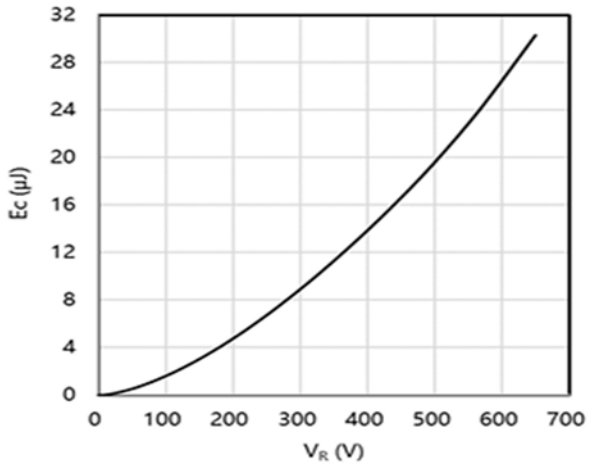



FIG.6: Power derating

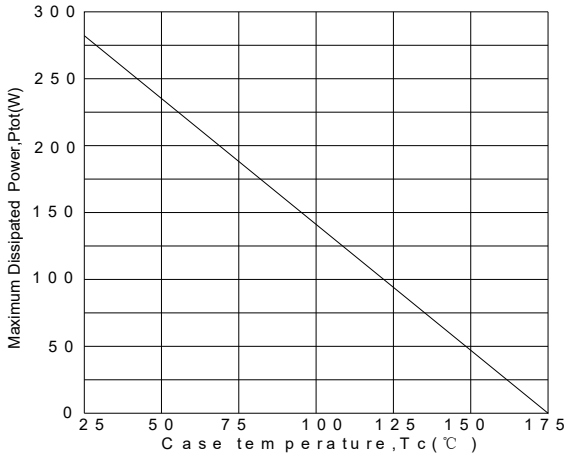



FIG.7: Current derating

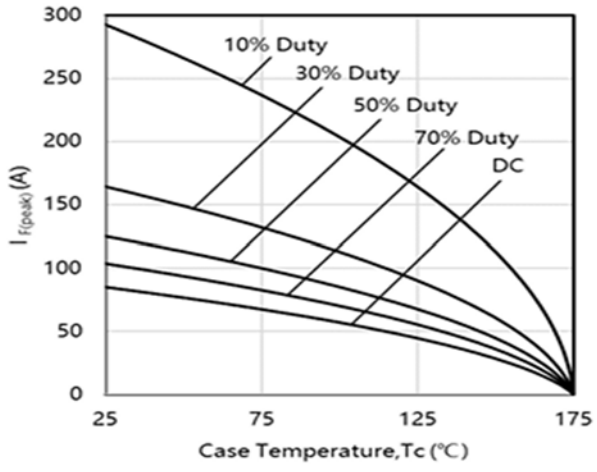
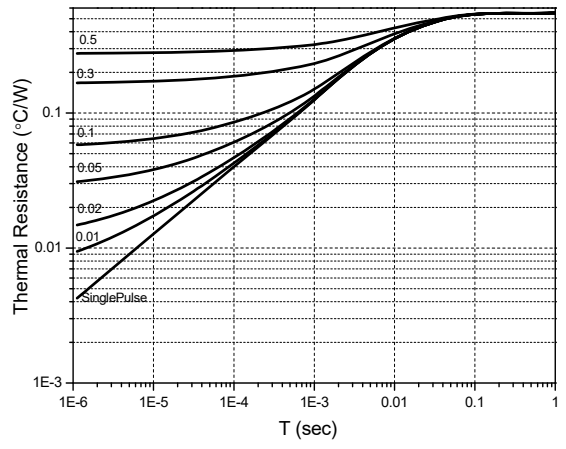



FIG.8: Transient thermal impedance



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