



## JCD06A065A SiC Schottky Diode

Rev.2.0

### DESCRIPTION:

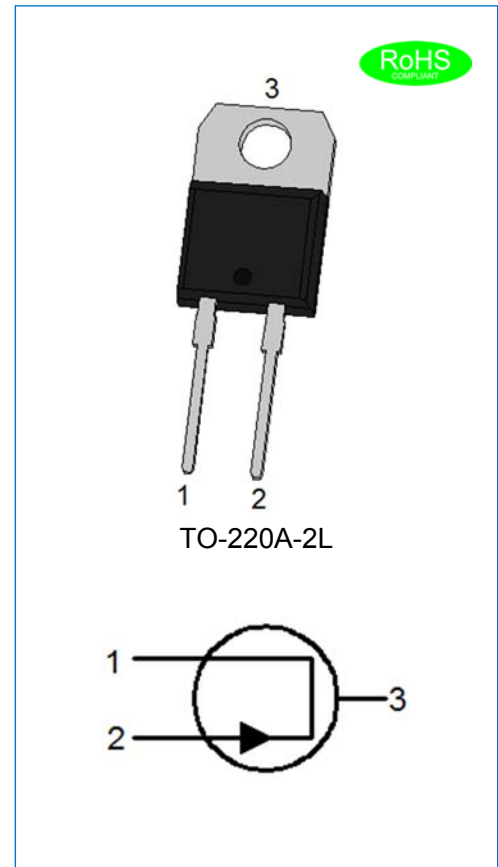
- ✧ 650V Schottky rectifier
- ✧ Zero reverse recovery current
- ✧ Zero forward recovery voltage
- ✧ High frequency operation
- ✧ Switching characteristics independent of temperature
- ✧ Fast switch
- ✧ Positive temperature coefficient of forward voltage ( $V_F$ )

### BENEFIT:

- ✧ Lower switching loss
- ✧ No thermal runaway in parallel devices
- ✧ Lower heatsink dependent
- ✧ Electrically isolated package
- ✧ Ceramic package provides 2.5KV isolation

### APPLICATION:

- ✧ HAVC
- ✧ 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°C 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           |
| Continuous forward current                | $T_C=135^{\circ}C$                           | $I_F$      | 6           | A           |
| Repetitive peak forward surge current     | $t_p=10ms, T_C=25^{\circ}C$                  | $I_{FRM}$  | 30          | A           |
| Non-repetitive peak forward surge current | $t_p=10ms, T_C=25^{\circ}C$                  | $I_{FSM}$  | 54          | A           |
| Non-Repetitive peak forward surge current | $T_C=25^{\circ}C, t_p=10\mu s, \text{Pulse}$ | $I_{FMax}$ | 200         | A           |
| Power dissipation                         | $T_C=25^{\circ}C$                            | $P_{tot}$  | 111         | W           |
|   | $T_C=110^{\circ}C$                           |            | 48          |             |
| Operating junction temperature            |  | $T_j$      | -55 to +175 | $^{\circ}C$ |
| Storage temperature range                 |  | $T_{stg}$  | -55 to +175 | $^{\circ}C$ |

**ELECTRICAL CHARACTERISTICS**

| Parameter                 | Conditions                   | Symbol | Value |      |      | Unit    |
|---------------------------|------------------------------|--------|-------|------|------|---------|
|                           |                              |        | Min.  | Typ. | Max. |         |
| Forward voltage           | $I_F=6A, T_j=25^{\circ}C$    | $V_F$  | -     | 1.35 | 1.5  | V       |
|                           | $I_F=6A, T_j=175^{\circ}C$   |        | -     | 1.7  | 2.0  |         |
| Reverse current           | $V_R=650V, T_j=25^{\circ}C$  | $I_R$  | -     | 5    | 20   | $\mu A$ |
|                           | $V_R=650V, T_j=175^{\circ}C$ |        | -     | 30   | 80   |         |
| Total capacitance         | $V_R=0V, f=1MHz$             | C      | -     | 386  | -    | pF      |
|                           | $V_R=200V, f=1MHz$           |        | -     | 37   | -    |         |
|                           | $V_R=400V, f=1MHz$           |        | -     | 29   | -    |         |
| Total capacitance charge  | $V_R=400V, T_j=25^{\circ}C$  | $Q_C$  | -     | 19   | -    | nC      |
| Capacitance stored energy | $V_R=400V$                   | $E_C$  | -     | 5    | -    | $\mu J$ |

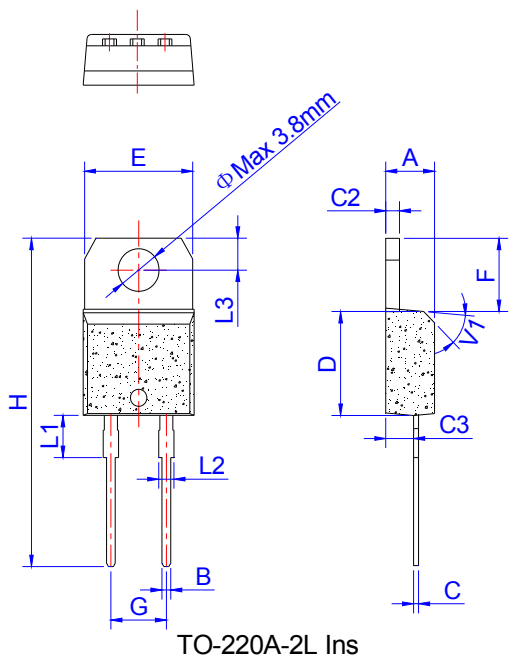
**THERMAL CHARACTERISTICS**

| Symbol        | Parameter        | Value | Unit          |
|---------------|------------------|-------|---------------|
| $R_{th(j-c)}$ | Junction to Case | 2.7   | $^{\circ}C/W$ |

**ORDERING INFORMATION**

|   |
|---|
| <p><b>J</b>      <b>CD</b>      <b>06</b>      <b>A</b>      <b>065</b>      <b>A</b></p> <p>JieJie Microelectronics Co.,Ltd</p> <p>SiC Schottky Diode</p> <p><math>I_F=6A</math></p> <p>A: TO-220A-2L(Ins)</p> <p>Version A</p> <p><math>V_{RRM}:650V</math></p> |
|---|

PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 4.40        |      | 4.60 | 0.173  |       | 0.181 |
| B    | 0.61        |      | 0.88 | 0.024  |       | 0.035 |
| C    | 0.46        |      | 0.70 | 0.018  |       | 0.028 |
| C2   | 1.21        |      | 1.32 | 0.048  |       | 0.052 |
| C3   | 2.40        |      | 2.72 | 0.094  |       | 0.107 |
| D    | 8.60        |      | 9.70 | 0.339  |       | 0.382 |
| E    | 9.80        |      | 10.4 | 0.386  |       | 0.409 |
| F    | 6.55        |      | 6.95 | 0.258  |       | 0.274 |
| G    |             | 5.08 |      |        | 0.2   |       |
| H    | 28.0        |      | 29.8 | 1.102  |       | 1.173 |
| L1   |             | 3.75 |      |        | 0.148 |       |
| L2   | 1.14        |      | 1.70 | 0.045  |       | 0.067 |
| L3   | 2.65        |      | 2.95 | 0.104  |       | 0.116 |
| V1   |             | 45°  |      |        | 45°   |       |

CHARACTERISTICS CURVE

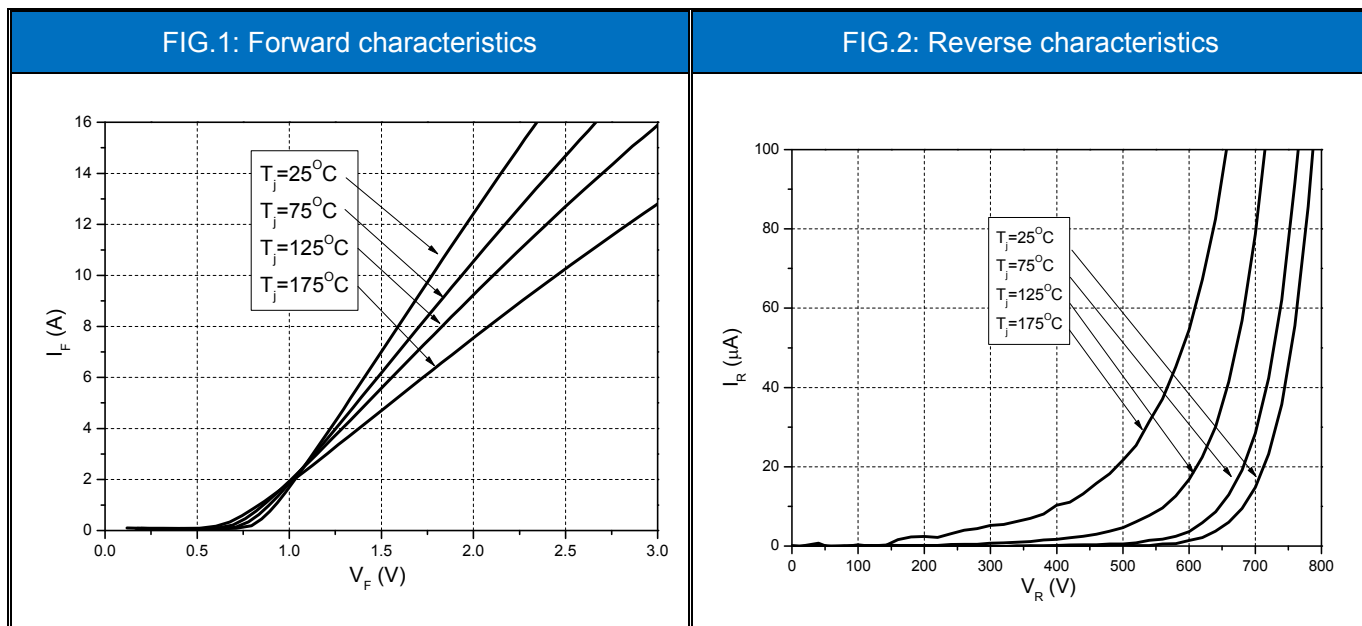


FIG.3: Capacitance vs. reverse voltage

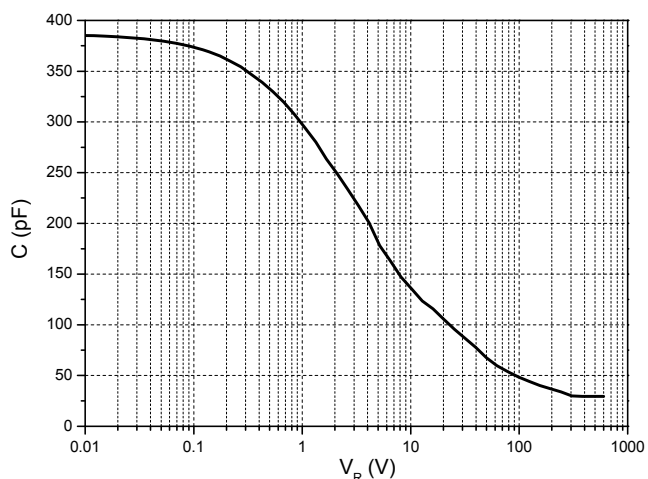
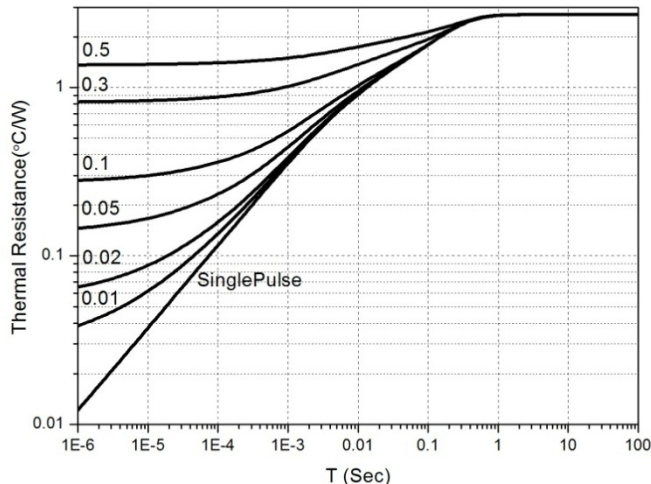


FIG.4: Transient thermal impedance



CHARACTERISTICS CURVE

FIG.5: Capacitance charge vs. reverse voltage

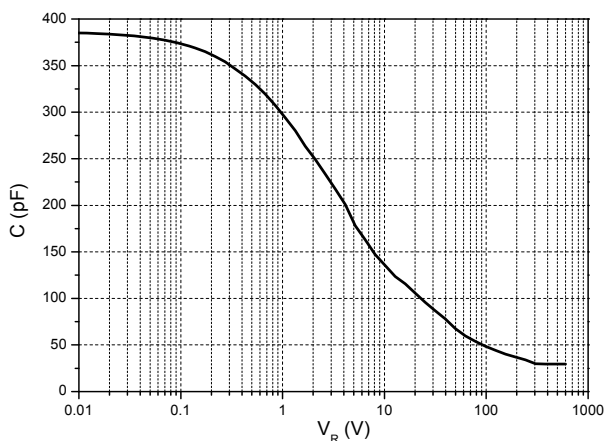


FIG.6: Capacitance stored energy

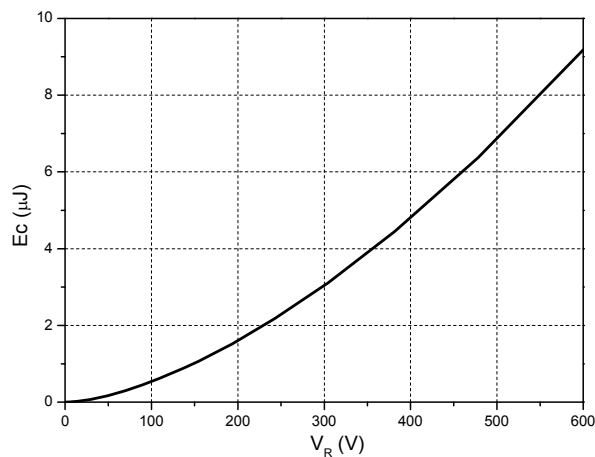


FIG.7: Power derating

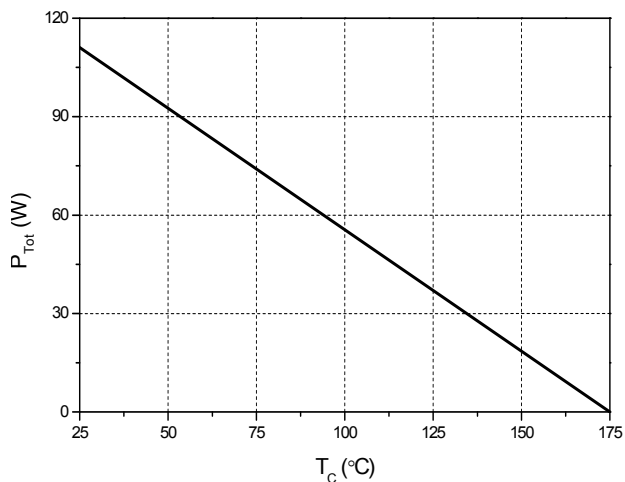
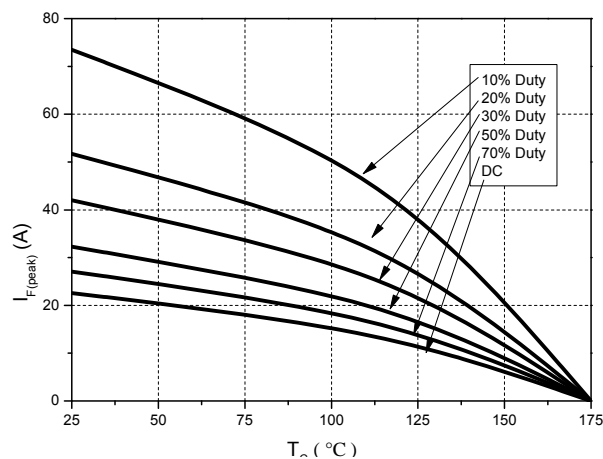


FIG.8: Current derating



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