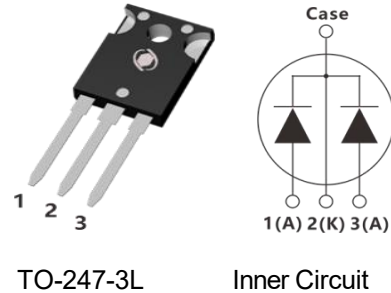


### Silicon Carbide Schottky Diode 650V/30A

| Parameter         | Value | Unit |
|-------------------|-------|------|
| $V_{RRM}$         | 650   | V    |
| $I_F$ (TC = 25°C) | 30    | A    |
| Qc                | 32    | nC   |



### FEATURES

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

### APPLICATIONS

- SMPS, PFC
- Solar application, UPS, EV/HEV
- Motor drives, Wind turbine, Rail traction

### MAXIMUM RATED VALUES (at $T_J = 25^\circ\text{C}$ , unless otherwise specified)

| Parameter                                                                                                     | Symbol        | Value                 | Unit             |
|---------------------------------------------------------------------------------------------------------------|---------------|-----------------------|------------------|
| Repetitive Peak Reverse Voltage                                                                               | $V_{RRM}$     | 650                   | V                |
| Surge Peak Reverse Voltage                                                                                    | $V_{RSM}$     | 650                   | V                |
| Continuous Forward Current<br>TC = 25°C<br>TC = 135°C<br>TC = 142°C                                           | $I_F$         | 35.6*<br>16.9*<br>15* | A                |
| Repetitive Peak Forward Surge Current<br>TC = 25°C, $t_p = 10\text{ms}$ , Half Sine Pulse, D = 0.1, 1000Cycle | $I_{FRM}$     | 60*                   | A                |
| Non-Repetitive Forward Surge Current<br>TC = 25°C, $t_p = 10\text{ms}$ , Half Sine Pulse                      | $I_{FSM}$     | 120*                  | A                |
| $i^2t$ Value<br>TC = 25°C, $t_p = 10\text{ms}$ , Half Sine Pulse                                              | $\int i^2 dt$ | 72*                   | A <sup>2</sup> s |
| Operating Junction Range                                                                                      | $T_J$         | -55 to +175           | °C               |
| Storage Temperature Range                                                                                     | $T_{stg}$     | -55 to +175           | °C               |
| Mounting Torque, M3 Screw                                                                                     | M             | 1                     | Nm               |

### ELECTRICAL CHARACTERISTICS (at $T_J = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                 | Symbol         | Test Condition                                                                    | Value |                 |            | Unit |
|---------------------------|----------------|-----------------------------------------------------------------------------------|-------|-----------------|------------|------|
|                           |                |                                                                                   | min.  | typ.            | max.       |      |
| DC Blocking Voltage       | VDC            |                                                                                   | 650   | -               | -          | V    |
| Forward Voltage           | V <sub>F</sub> | I <sub>F</sub> = 15A<br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 175°C           | -     | 1.5<br>2.1      | 1.7<br>2.5 | V    |
| Reverse Current           | I <sub>R</sub> | V <sub>R</sub> = 650V<br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 175°C          | -     | 0.35<br>2.4     | 50<br>100  | μA   |
| Total Capacitance         | C              | f = 1MHz<br>V <sub>R</sub> = 0V<br>V <sub>R</sub> = 200V<br>V <sub>R</sub> = 400V | -     | 618<br>62<br>56 | -          | pF   |
| Total Capacitive Charge   | Q <sub>C</sub> | V <sub>R</sub> = 400V<br>T <sub>J</sub> = 25°C                                    | -     | 32              | -          | nC   |
| Capacitance Stored Energy | EC             | V <sub>R</sub> = 400V                                                             | -     | 8               | -          | uJ   |

### THERMAL CHARACTERISTICS

| Parameter                            | Symbol               | Test Condition | Value |                 |      | Unit |
|--------------------------------------|----------------------|----------------|-------|-----------------|------|------|
|                                      |                      |                | min.  | typ.            | max. |      |
| Thermal Resistance,<br>junction-case | R <sub>th(j-c)</sub> |                | -     | 1.02*<br>0.51** | -    | °C/W |

### TYPICAL CHARACTERISTICS CURVES

Figure 1. Forward Characteristics

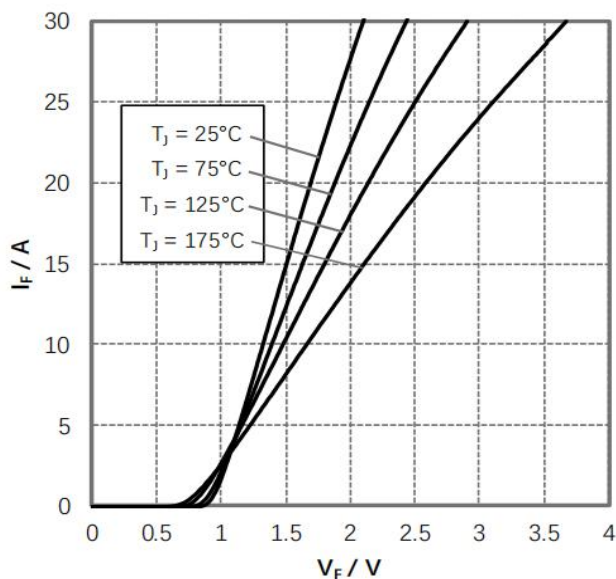


Figure 2. Reverse Characteristics

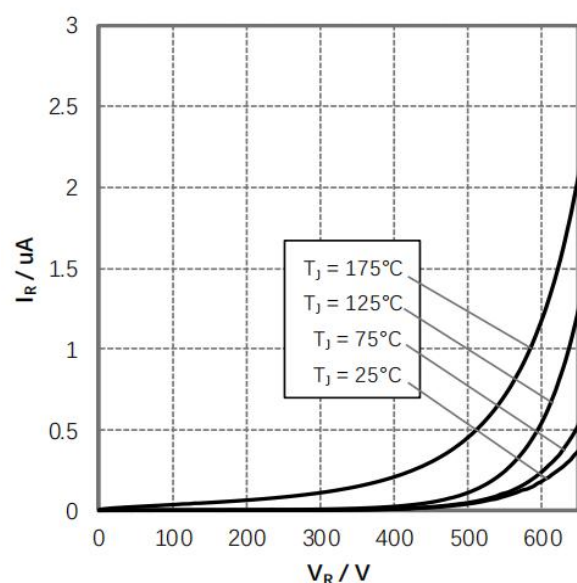


Figure 3. Power Derating

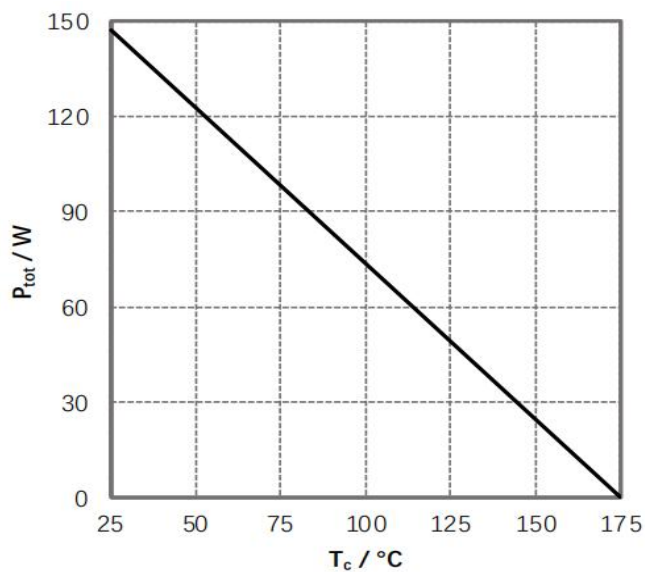


Figure 4. Current Derating Valid for switching of above

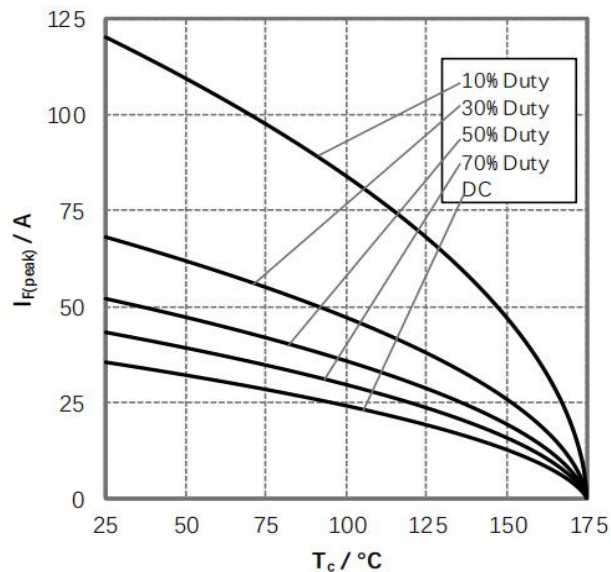


Figure 5. Capacitance vs. Reverse Voltage

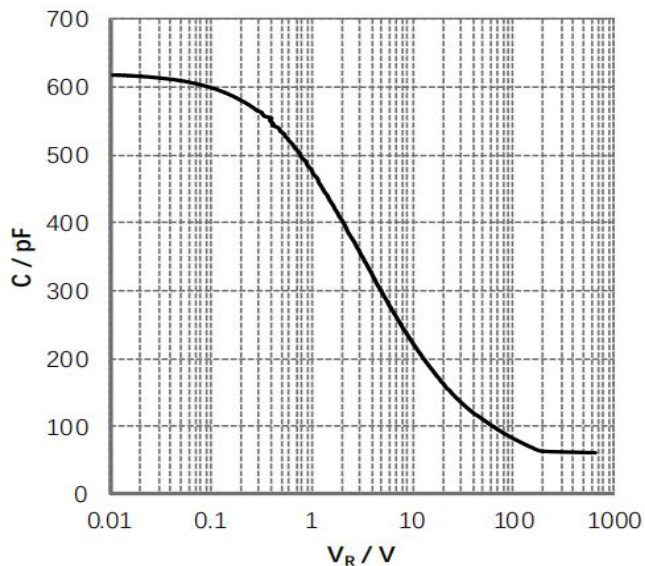


Figure 6. Reverse Charge vs. Reverse Voltage

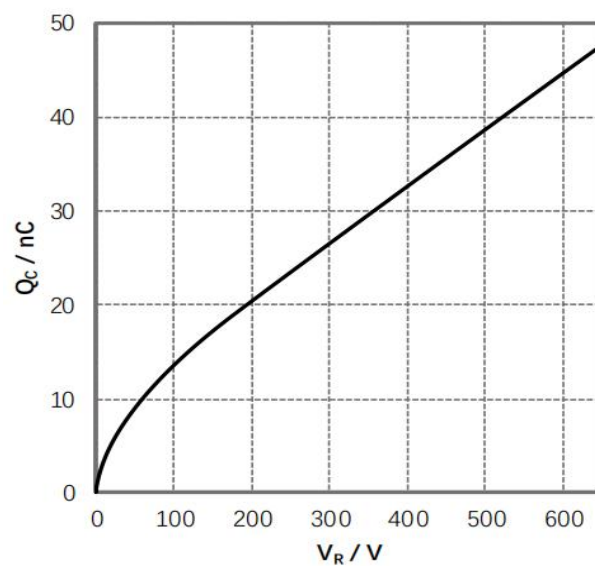


Figure 7. Capacitance Stored Energy

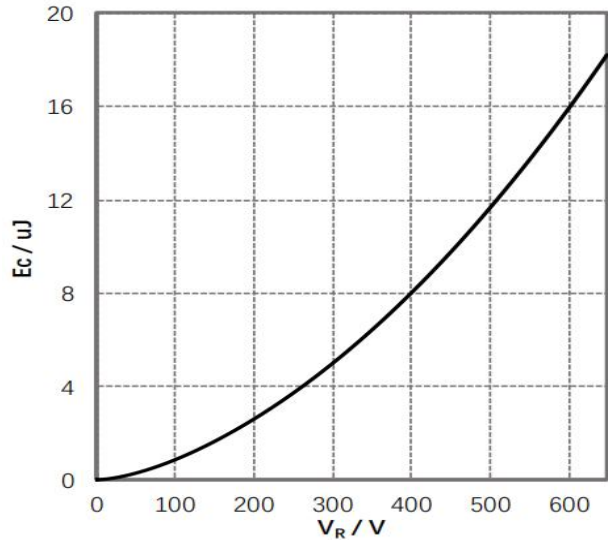
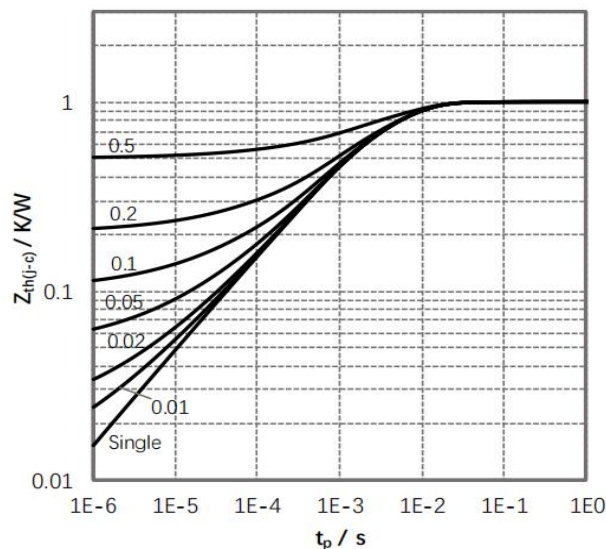
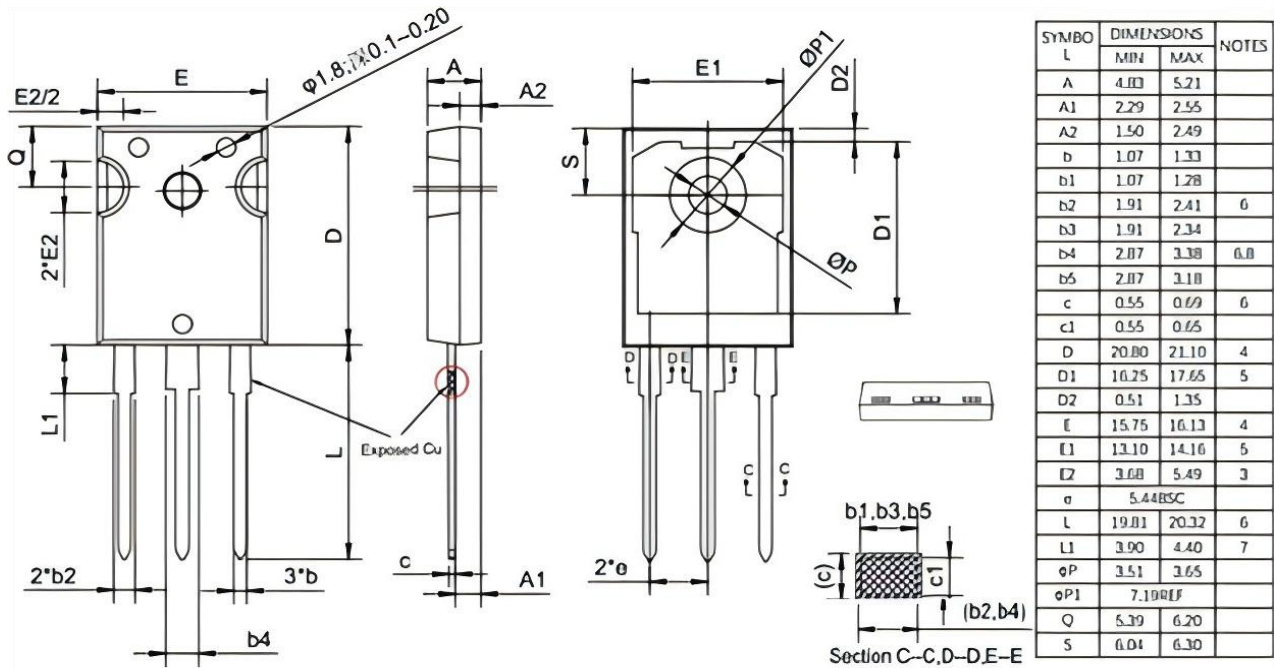


Figure 8. Transient Thermal Impedance



### PACKAGE OUTLINES



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