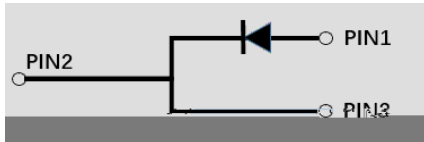
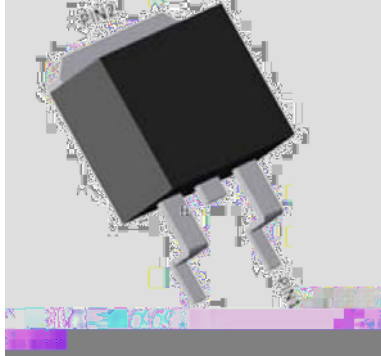


## Silicon Carbide Schottky Diode

|             |      |
|-------------|------|
| $V_{RRM}$   | 650V |
| $I_F$ 135°C | 14A  |
| $Q_C$       | 30nC |



### Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero forward recovery current
- Essentially no switching losses
- Reduction of heat sink requirements
- High-frequency operation
- Reduction of EMI

### Typical Applications

Typical applications are in power factor correction(PFC), solar inverter, uninterruptible power supply, motor drives, photovoltaic inverter, electric car and charger.

### Mechanical Data

- **Package:** TO-263  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads
- **Polarity:** As marked

### ■Maximum Ratings ( $T_c=25^\circ\text{C}$ Unless otherwise specified)

| PARAMETER                                                                                                  | SYMBOL    |                      |     |
|------------------------------------------------------------------------------------------------------------|-----------|----------------------|-----|
|                                                                                                            | $R_{SM}$  | V                    | 650 |
| Reverse voltage (DC)<br>@ $T_F=25^\circ\text{C}$                                                           | $V_{DC}$  | V                    | 650 |
| Continuous forward current @ $25^\circ\text{C}$                                                            | $I_F$     | A                    | 30  |
| Continuous forward current @ $135^\circ\text{C}$                                                           |           |                      | 14  |
| Continuous forward current @ $154^\circ\text{C}$                                                           |           |                      | 10  |
| Non-repetitive peak forward surge current<br>@ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Wave | $I_{FSM}$ | A                    | 80  |
| Power Dissipation @ $T_c=25^\circ\text{C}$                                                                 | $P_{TOT}$ | W                    | 136 |
| Power Dissipation @ $T_c=110^\circ\text{C}$                                                                |           |                      | 59  |
| $I^2t$ Value @ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$                                                  | $I^2t$    | $\text{A}^2\text{s}$ |     |



## YJD106510BQG2

### ■Electrical Characteristics

| PARAMETER                 | SYMBOL | UNIT    | TEST CONDITIONS                                        | Typ. | Max. |
|---------------------------|--------|---------|--------------------------------------------------------|------|------|
| Forward voltage drop      | $V_F$  | V       | $I_F=10A, T_J=25^{\circ}C$                             | 1.35 | 1.55 |
|                           |        |         | $I_F=10A, T_J=175^{\circ}C$                            | 1.8  | -    |
| Reverse leakage current   | $I_R$  | $\mu A$ | $V_R=650V, T_J=25^{\circ}C$                            | 0.5  | 25   |
|                           |        |         | $V_R=650V, T_J=175^{\circ}C$                           | 2    | -    |
| Total capacitive charge   | $Q_C$  | nC      | $V_R=400V, T_J=25^{\circ}C, Q_C=\int_0^{V_R} I_C(V)dV$ | 30   | -    |
| Total capacitance         | C      | pF      | $V_R=0V, f=1MHz$                                       | 543  | -    |
|                           |        |         | $V_R=200V, f=1MHz$                                     | 55   | -    |
|                           |        |         | $V_R=400V, f=1MHz$                                     | 52   | -    |
| Capacitance Stored Energy | $E_C$  | $\mu J$ | $V_R=400V$                                             | 3.7  | -    |

### ■Thermal Characteristics ( $T_a=25$ Unless otherwise specified)

| PARAMETER          | SYMBOL           | UNIT          | Value |
|--------------------|------------------|---------------|-------|
| Thermal resistance | $R_{\theta J-C}$ | $^{\circ}C/W$ | 1.1   |

### ■Typical Characteristics

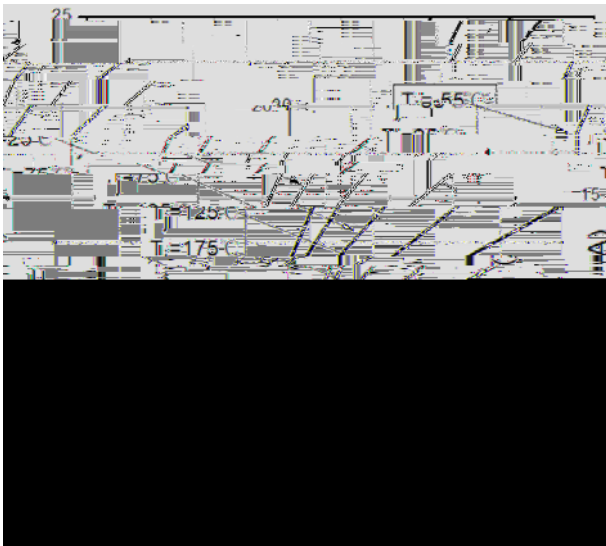


Figure 1. Forward Characteristics

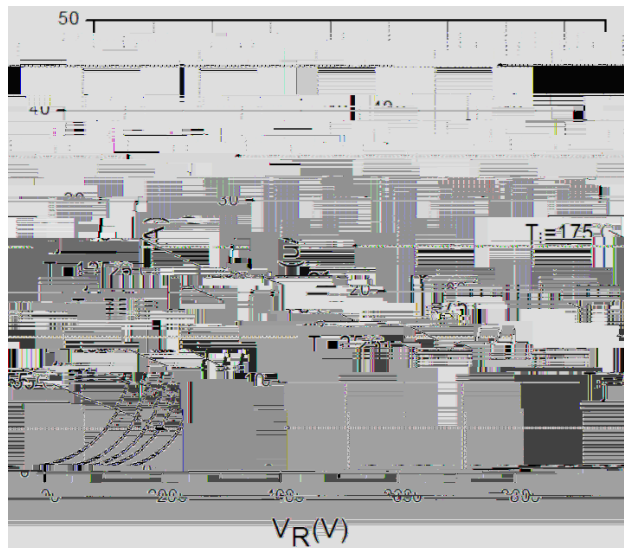


Figure2. Reverse Characteristic

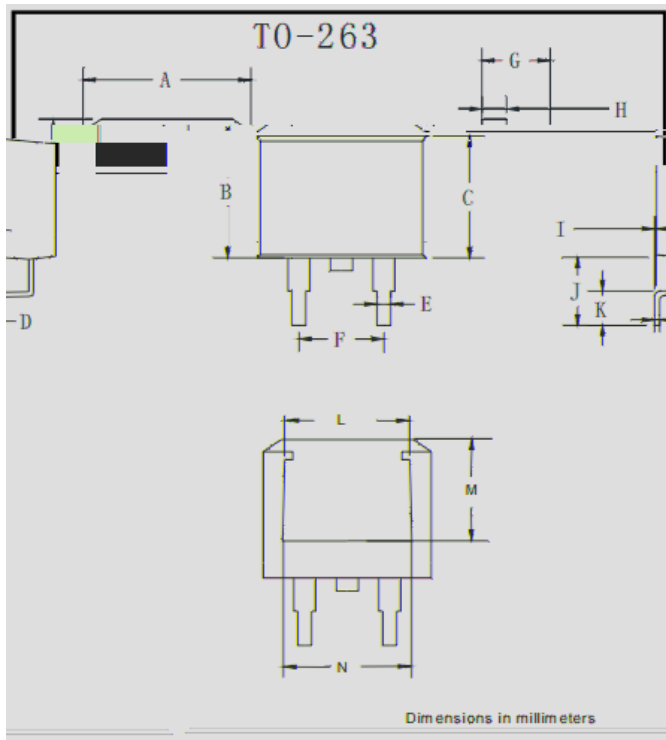


Figure 3. Capacitance vs. Reverse Voltage

Fig. 3. Capacitance vs. Reverse Voltage



## ■Outline Dimensions



| TO-263 |      |      |  |   |
|--------|------|------|--|---|
| Dim    | Min  | Max  |  |   |
| A      | 9.7  | 10.5 |  | A |
| B      | 8.4  | 9.0  |  | B |
| C      | 0.28 | 0.64 |  | C |
| D      | 0.68 | 0.94 |  | D |
| E      | 4.55 | 5.6  |  | E |
| F      | 4.04 | 5.10 |  | F |
| G      | 1.14 | 1.4  |  | G |
| H      | 0    | 0.2  |  | H |
| I      | 4.9  | 6.05 |  | I |
| J      | 1.79 | 2.79 |  | J |
| K      | 7.3  | 7.9  |  | K |
| L      | 6.2  | 6.8  |  | L |
| M      | 7.6  | 8.2  |  | M |



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