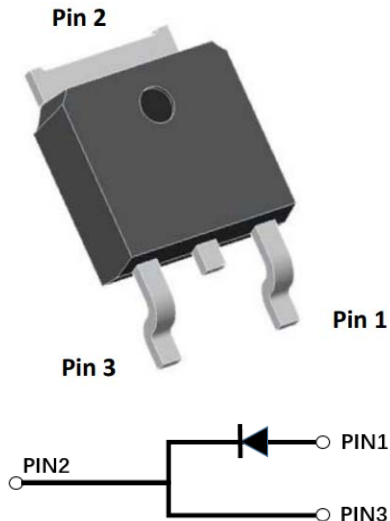


Silicon Carbide Schottky Diode

| | |
|-------------|-------|
| V_{RRM} | 650V |
| I_F 135°C | 3.5A |
| Q_C | 5.2nC |



Features

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero forward recovery voltage
- 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-252

Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free

Terminals: Tin plated leads

Polarity: As marked

Maximum Ratings ($T_c=25$ Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|--|----------------|----------------------|-------------|
| Device marking code | | | D106502DQG3 |
| Reverse voltage (repetitive peak) @ $T_j=25^\circ\text{C}$ | V_{RRM} | V | 650 |
| Reverse voltage (Surge Peak) @ $T_j=25^\circ\text{C}$ | V_{RSM} | V | 650 |
| Reverse voltage (DC) @ $T_j=25^\circ\text{C}$ | V_{DC} | V | 650 |
| Continuous forward current @ $T_c=25^\circ\text{C}$ | I_F | A | 7.2 |
| Continuous forward current @ $T_c=135^\circ\text{C}$ | | | 3.5 |
| Continuous forward current @ $T_c=160^\circ\text{C}$ | | | 2 |
| Non-repetitive peak forward surge current @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave | I_{FSM} | A | 20 |
| Power Dissipation @ $T_c=25^\circ\text{C}$ | P_{TOT} | W | 42 |
| Power Dissipation @ $T_c=110^\circ\text{C}$ | | | 18 |
| i^2t Value @ $T_c=25^\circ\text{C}$, $t_p=10\text{ms}$ | i^2t | A^2S | 2 |
| Operating junction and Storage temperature range | T_j, T_{stg} | $^\circ\text{C}$ | -55 to +175 |



Electrical Characteristics

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | Typ. | Max. |
|---------------------------|--------|---------|--|------|------|
| Forward voltage drop | V_F | V | $I_F=2A, T_J=25^{\circ}C$ | 1.5 | 1.6 |
| | | | $I_F=2A, T_J=175^{\circ}C$ | 2.2 | - |
| Reverse leakage current | I_R | μA | $V_R=650V, T_J=25^{\circ}C$ | 0.1 | 10 |
| | | | $V_R=650V, T_J=175^{\circ}C$ | 1 | - |
| Total capacitive charge | Q_C | nC | $V_R=400V, T_J=25^{\circ}C, Q_C=\int_0^{V_R} I_C(V)dV$ | 5.2 | - |
| Total capacitance | C | pF | $V_R=0V, f=1MHZ$ | 84 | - |
| | | | $V_R=200V, f=1MHZ$ | 9.8 | - |
| | | | $V_R=400V, f=1MHZ$ | 9.4 | - |
| Capacitance Stored Energy | E_C | μJ | $V_R=400V$ | 0.6 | - |

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

| PARAMETER | SYMBOL | UNIT | Value |
|--------------------|-----------|---------------|-------|
| Thermal resistance | R_{J-C} | $^{\circ}C/W$ | 3.62 |

Typical Characteristics

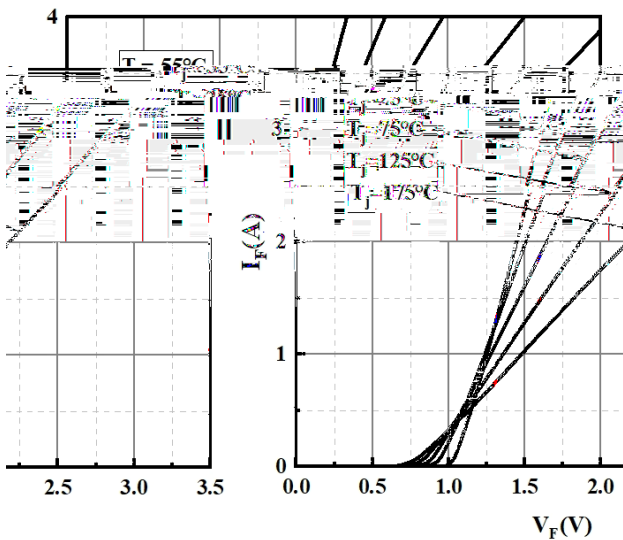


Figure 1. Forward Characteristics

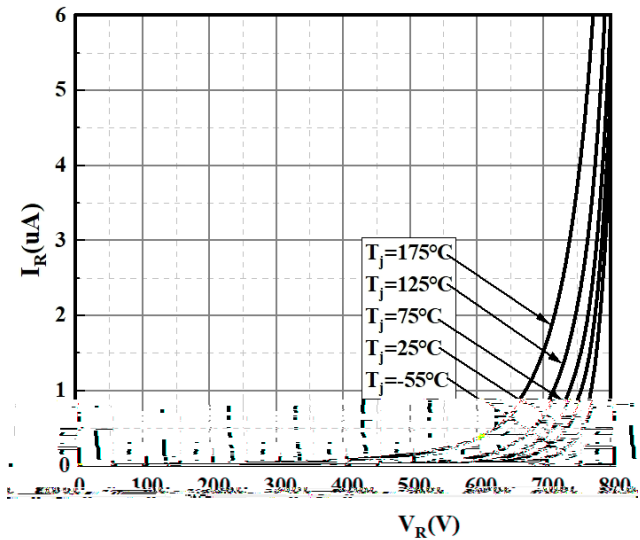


Figure2. Reverse Characteristic

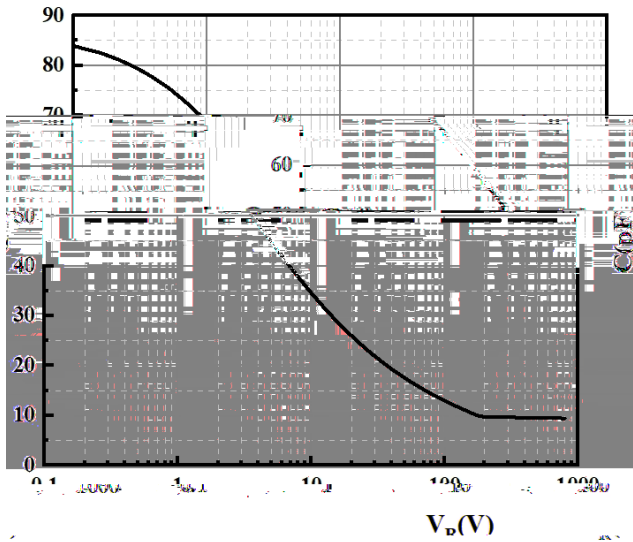


Figure 3. Capacitance vs. Reverse Voltage

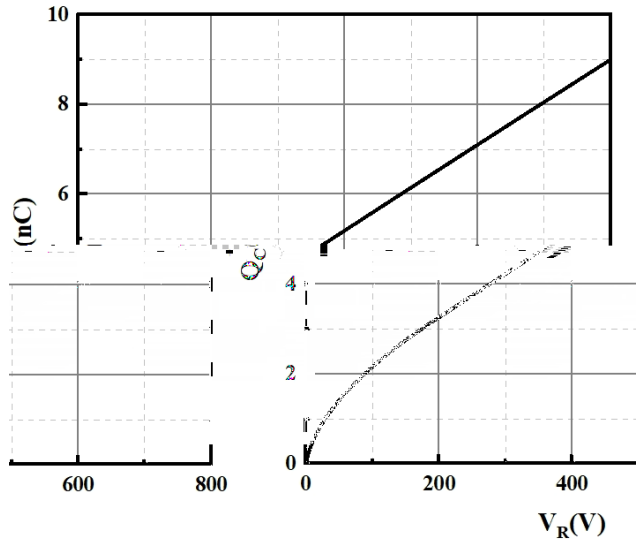


Figure 4. Total Capacitance Charge vs. Reverse Voltage

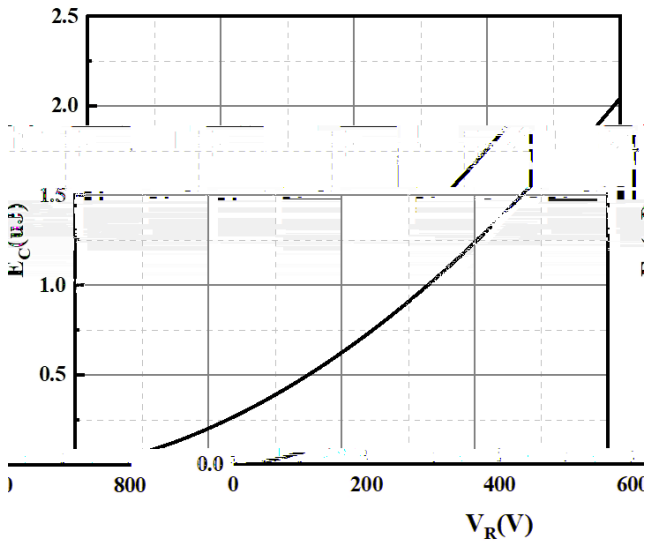


Figure 5. Capacitance Stored Energy

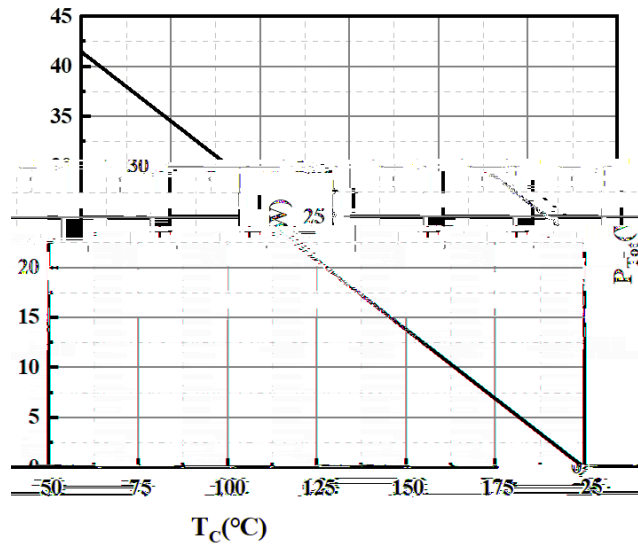


Figure 6. Power Derating

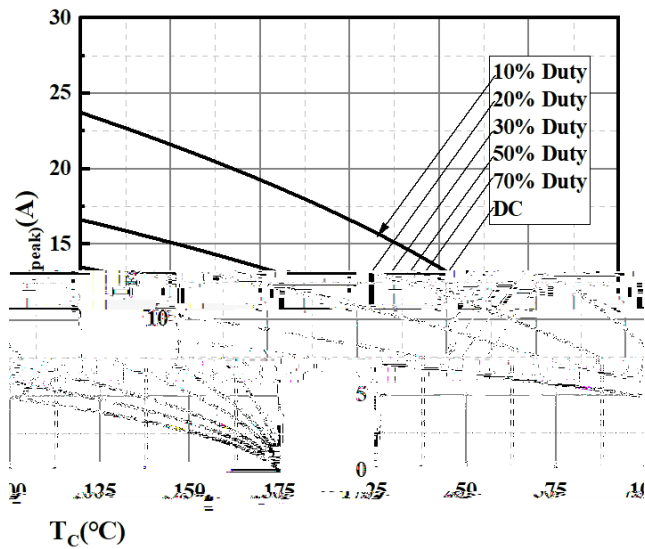


Figure 7. Current Derating

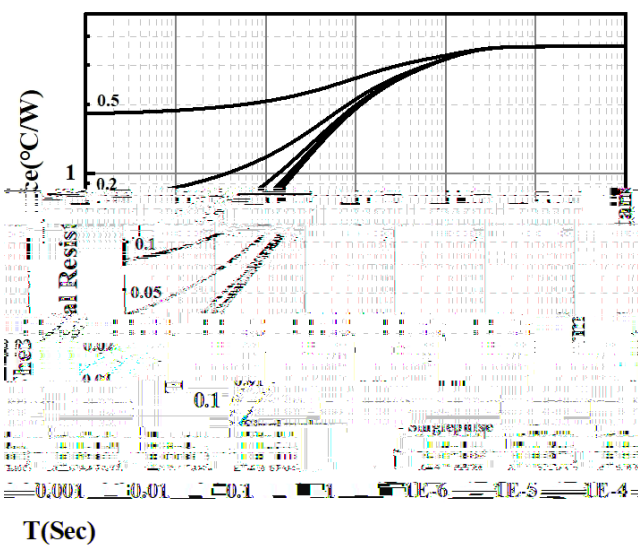
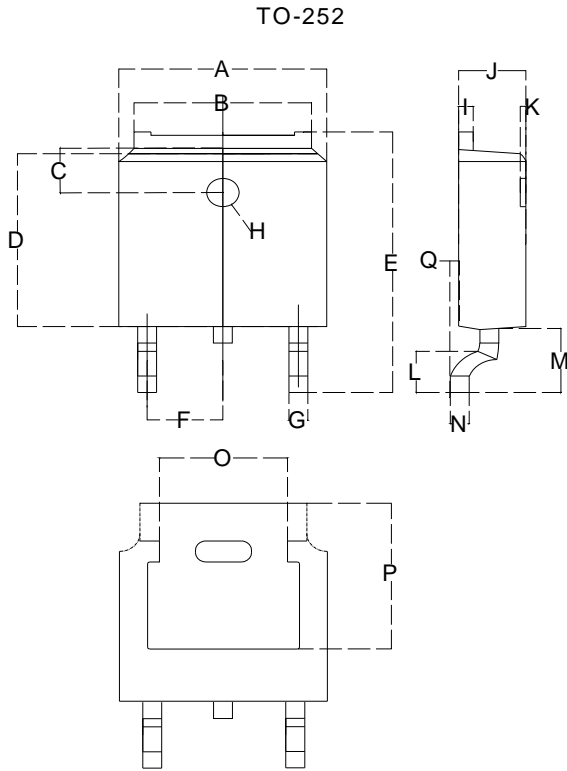


Figure 8. Transient Thermal Impedance



YJD106502DQG3

Outline Dimensions



| TO-252 | | |
|--------|--------|--------|
| Dim | Min | Max |
| A | 6.500 | 6.700 |
| B | 5.100 | 5.460 |
| C | 1.400 | 1.800 |
| D | 6.000 | 6.200 |
| E | 10.000 | 10.400 |
| F | 2.166 | 2.366 |
| G | 0.660 | 0.860 |
| H | 1.050 | 1.350 |
| I | 0.460 | 0.580 |
| J | 2.200 | 2.400 |
| K | 0 | 0.300 |
| L | 0.890 | 2.290 |
| M | 2.730 | 3.080 |
| N | 0.430 | 0.580 |
| O | 4.20 | 4.95 |
| P | 5.15 | 5.45 |
| Q | 0 | 0.2 |

Dimensions in millimeters



Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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