

Features

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

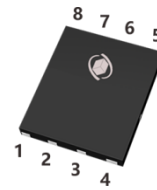
| | |
|---------------------------------|------|
| V_{RRM} | 650V |
| $I_F (T_C = 152^\circ\text{C})$ | 4A |
| Q_c | 10nC |

Benefits

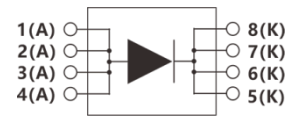
- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Applications

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



DFN5x6



Inner Circuit



G = GPT
5 = Gen5
S = SiC Schottky Diode
65 = Voltage Rating 650V
04 = Current Rating 4A
Z = DFN5x6
DDDDDD = Traceable Code





Maximum Ratings (at $T_j = 25\text{ }^\circ\text{C}$, 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 $T_c = 25\text{ }^\circ\text{C}$ $T_c = 135\text{ }^\circ\text{C}$ $T_c = 152\text{ }^\circ\text{C}$ | I_F | 12 5.7 4 | A |
| Repetitive Peak Forward Surge Current $T_c = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse | I_{FRM} | 16 | A |
| Non-Repetitive Forward Surge Current $T_c = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse | I_{FSM} | 24 | A |
| i^2t Value $T_c = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Pulse | $\int i^2 dt$ | 2.88 | A^2s |
| Power Dissipation $T_c = 25\text{ }^\circ\text{C}$ $T_c = 110\text{ }^\circ\text{C}$ | P_{tot} | 52 22 | W |
| Operating Junction Range | T_j | -55 to +175 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +175 | $^\circ\text{C}$ |



Electrical Characteristics (at $T_J = 25^\circ\text{C}$, unless otherwise specified)

| Parameter | Symbol | Test Condition | Value | | | Unit |
|---------------------------|----------|---|-------|------|------|---------------|
| | | | min. | typ. | max. | |
| DC Blocking Voltage | V_{DC} | | 650 | - | - | V |
| Forward Voltage | V_F | $I_F = 4\text{A}$ $T_J = 25^\circ\text{C}$ | - | 1.42 | 1.6 | V |
| | | $T_J = 175^\circ\text{C}$ | - | 1.93 | 2.5 | |
| Reverse Current | I_R | $V_R = 650\text{V}$ $T_J = 25^\circ\text{C}$ | - | 0.09 | 50 | μA |
| | | $T_J = 175^\circ\text{C}$ | - | 0.79 | 100 | |
| Total Capacitance | C | $f = 1\text{MHz}$ $V_R = 0\text{V}$ | - | 175 | - | pF |
| | | $V_R = 200\text{V}$ | - | 19.3 | - | |
| | | $V_R = 400\text{V}$ | - | 19 | - | |
| Total Capacitive Charge | Q_C | $V_R = 400\text{V}$ $T_J = 25^\circ\text{C}$ | - | 10 | - | nC |
| Capacitance Stored Energy | E_C | $V_R = 400\text{V}$ | - | 2 | - | μJ |

Thermal Characteristics

| Parameter | Symbol | Test Condition | Value | | | Unit |
|--------------------------------------|---------------|----------------|-------|------|------|---------------------------|
| | | | min. | typ. | max. | |
| Thermal Resistance, junction-case | $R_{th(j-c)}$ | | - | 2.9 | - | $^\circ\text{C}/\text{W}$ |



Typical Characteristics Curves

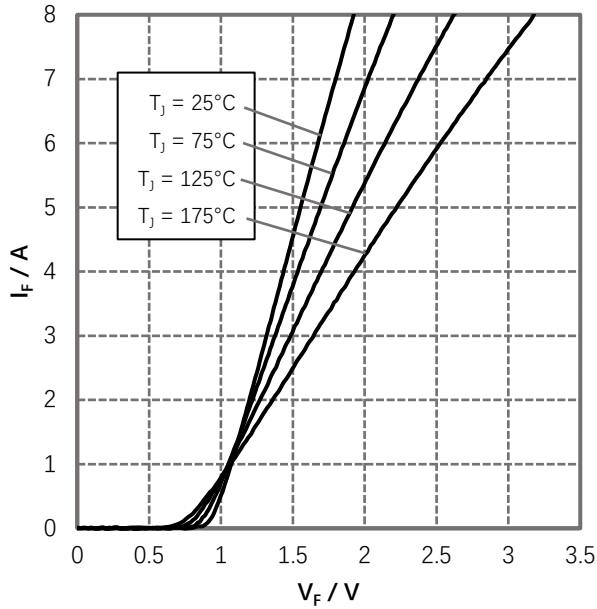


Figure 1. Forward Characteristics

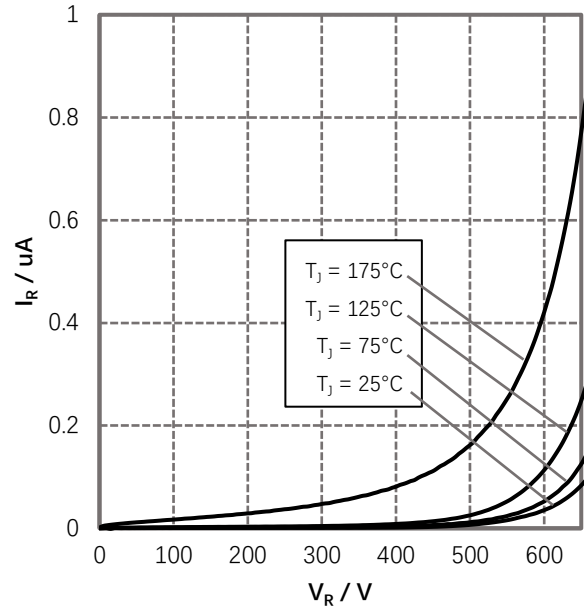


Figure 2. Reverse Characteristics

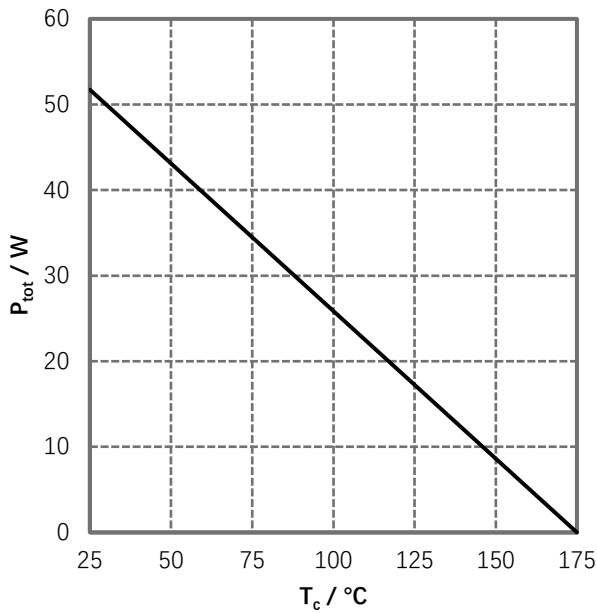


Figure 3. Power Derating

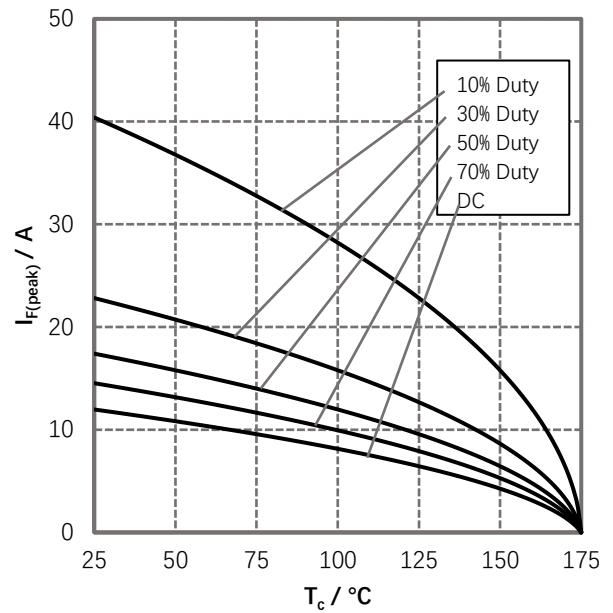


Figure 4. Current Derating



Typical Characteristics Curves

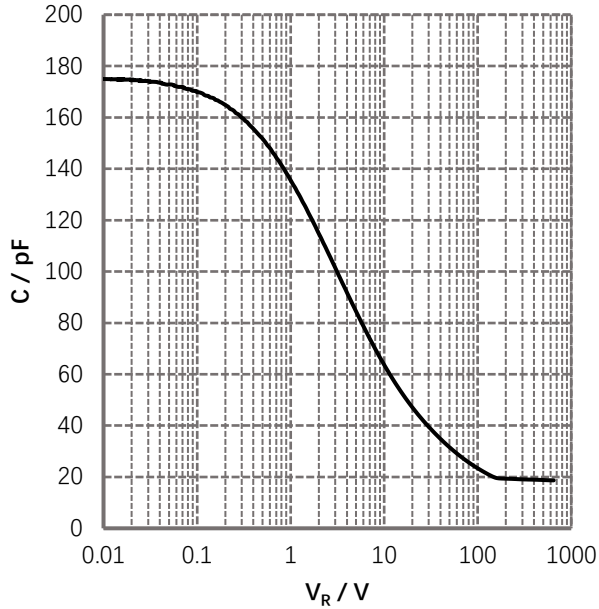


Figure 5. Capacitance vs. Reverse Voltage

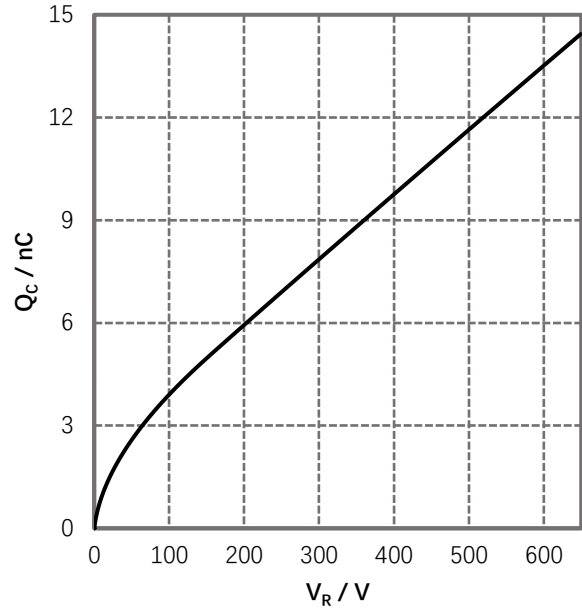


Figure 6. Reverse Charge vs. Reverse Voltage

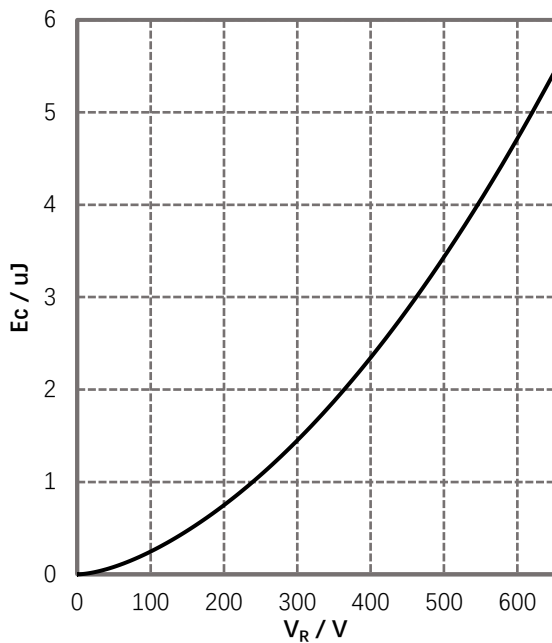


Figure 7. Capacitance Stored Energy

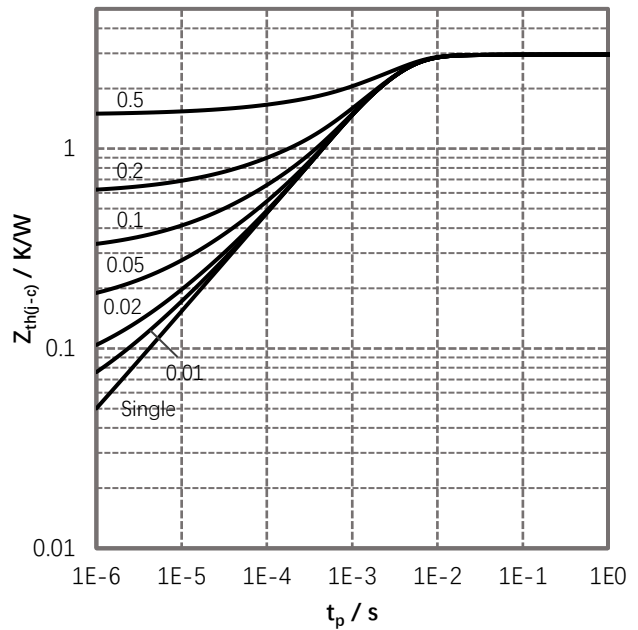
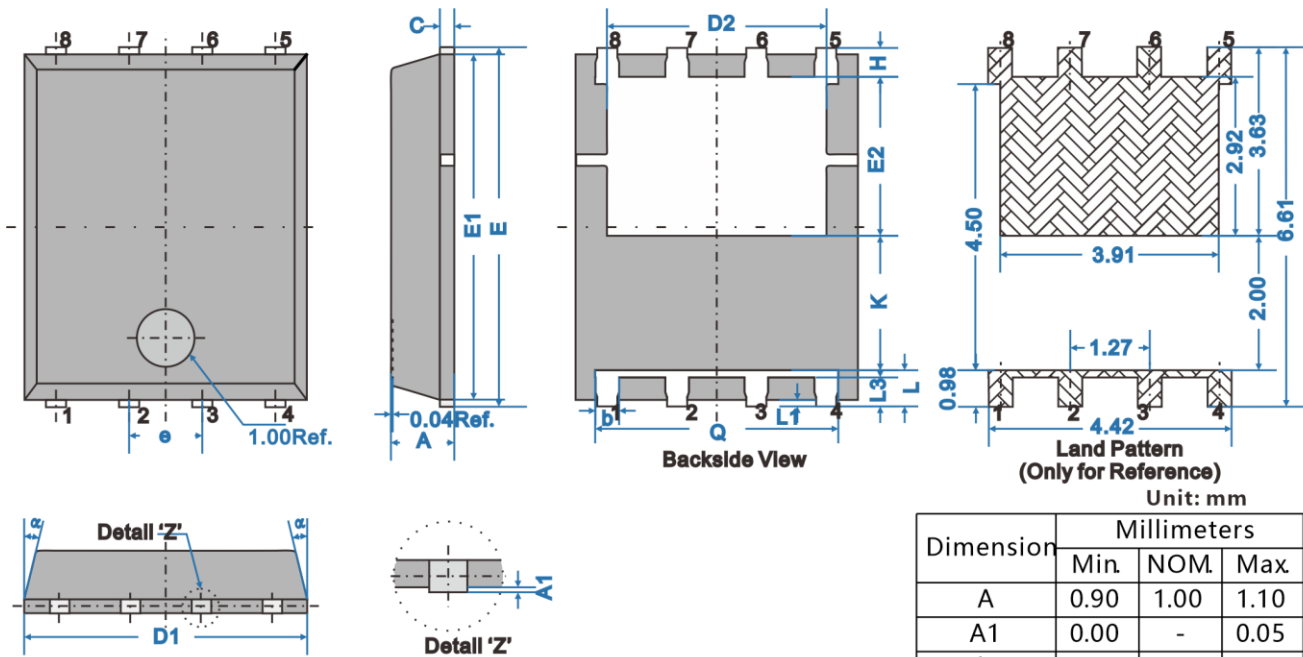


Figure 8. Transient Thermal Impedance



Package Dimensions



- Note:**
1. All Dimensions are in mm.
 2. Package body sizes exclude Mold Flash, Protrusion or Gate Burrs. Mold Flash, Protrusion or Gate Burrs shall not exceed 0.10mm per side.
 3. Package body sizes determined at the outermost extremes of the plastic. Body exclusive of Mold Flash, Tie Bar, Tie Bar Burrs, Gate Burrs and Interlead Flash, but including any mismatch between the top and bottom of the plastic body.
 4. The package top may be smaller than the package bottom.

Unit: mm

| Dimension | Millimeters | | |
|-----------|-------------|------|------|
| | Min | NOM | Max |
| A | 0.90 | 1.00 | 1.10 |
| A1 | 0.00 | - | 0.05 |
| b | 0.33 | 0.41 | 0.51 |
| c | 0.20 | 0.25 | 0.30 |
| D1 | 4.80 | 4.90 | 5.00 |
| D2 | 3.61 | 3.81 | 3.98 |
| E | 5.90 | 6.00 | 6.10 |
| E1 | 5.70 | 5.75 | 5.80 |
| E2 | 2.66 | 2.76 | 2.88 |
| e | 1.27 BSC | | |
| H | 0.41 | 0.51 | 0.61 |
| K | 2.00 | 2.10 | 2.20 |
| L | 0.53 | 0.63 | 0.73 |
| L1 | 0.06 | 0.13 | 0.20 |
| L3 | 0.15 | 0.25 | 0.35 |
| Q | 4.12 | 4.22 | 4.32 |
| α | 0° | - | 12° |

Ordering Information

| Part Number | Marking | Package | Packaging Mode |
|-------------|----------|---------|----------------|
| G5S6504Z | G5S6504Z | DFN5x6 | 4000/Reel |

Notes

- Global Power Technology reserves the right to change or modify any of the products and their inherent physical and technical specifications without prior notice.
- The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics.

Related Links

- Global Power Technology Website: <http://www.globalpowertech.cn/>
- GPT online store is now open! you can place an order directly online, buy it easily, and send it directly from the factory! For more detailed product, price information and coupon activities, please log in to GPT online store: <http://sc.globalpowertech.cn/>

