

Silicon Carbide Schottky Diode Chip

| | | | |
|--------------|---|-----|----|
| V_{RRM} | = | 650 | V |
| $I_{F(AVG)}$ | = | 50 | A |
| Q_C | = | 110 | nC |

Features

- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- Positive Temperature Coefficient on V_F
- Temperature-Independent Switching Behavior

Chip Outline



| Part Number | Die Size | Anode | Cathode |
|-------------|-------------------------|-------|---------|
| H1D50065L | 3.7x4.8 mm ² | Al | Ni/Ag |

Maximum Ratings

| Symbol | Parameter | Value | Unit | Test Conditions | Note |
|--------------|--------------------------------------|------------|------------------|--|------|
| V_{RRM} | Repetitive Peak Reverse Voltage | 650 | V | | |
| V_{DC} | DC Blocking Voltage | 650 | V | | |
| $I_{F(AVG)}$ | Average Forward Current | 50 | A | $T_C \leq 145^\circ\text{C}$ | 1 |
| I_{FSM} | Non-Repetitive Forward Surge Current | 300 | A | $T_C = 25^\circ\text{C}$, $t_p = 8.3\text{ms}$, Half Sine Wave | 1 |
| T_J | Operating Junction Temperature | -55 to 175 | $^\circ\text{C}$ | | |

1. Assumes Thermal Resistance of 0.33 $^\circ\text{C}/\text{W}$ or less

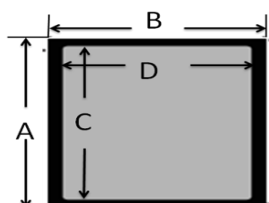
Electrical Characteristics

| Symbol | Parameter | Typ. | Max. | Unit | Test Conditions | Note |
|--------|-------------------------|--------------------|------------|---------|--|-------|
| V_F | Forward Voltage | 1.5 1.8 | 1.8 2.3 | V | $I_F = 50A, T_J = 25^\circ C$ $I_F = 50A, T_J = 175^\circ C$ | Fig.1 |
| I_R | Reverse Current | 1 20 | 100 200 | μA | $V_R = 650V, T_J = 25^\circ C$ $V_R = 650V, T_J = 175^\circ C$ | Fig.2 |
| C | Total Capacitance | 2390 256 224 | / | pF | $V_R = 0V, T_J = 25^\circ C, f = 1MHz$ $V_R = 200V, T_J = 25^\circ C, f = 1MHz$ $V_R = 400V, T_J = 25^\circ C, f = 1MHz$ | Fig.3 |
| Q_C | Total Capacitive Charge | 110 | / | nC | $V_R = 650V, I_F = 50A$ $di/dt = 200A/\mu s, T_J = 25^\circ C$ | Fig.4 |

Mechanical Parameters

| Parameter | Typ. | Unit |
|-------------------------------|-----------|-----------------|
| Die Size | 3.7x4.8 | mm ² |
| Anode Pad Opening | 3.2x4.3 | mm ² |
| Thickness | 350±50 | μm |
| Wafer Size | 100 | mm |
| Anode Metallization (Al) | 4 | μm |
| Cathode Metallization (Ni/Ag) | 1.6 | μm |
| Frontside Passivation | Polyimide | |

Chip Dimensions



| Symbol | Dimension |
|--------|-----------|
| A | 3.7mm |
| B | 4.8mm |
| C | 3.2mm |
| D | 4.3mm |

Typical Performance

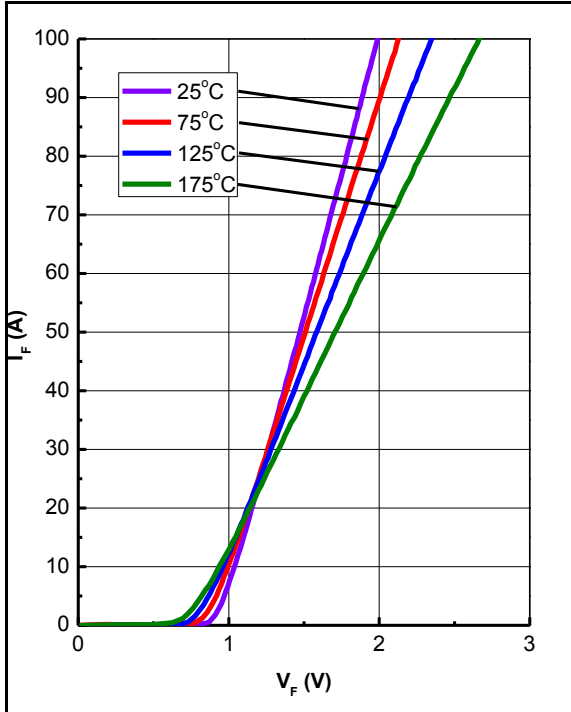


Figure 1. Forward Characteristics

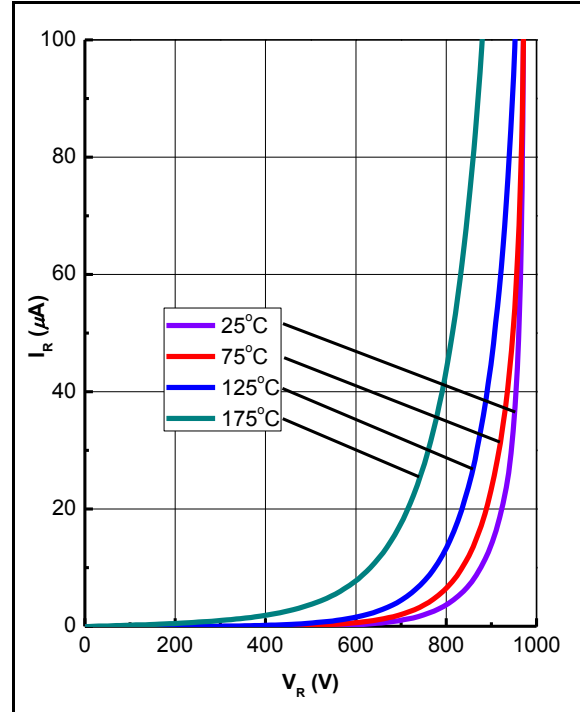


Figure 2. Reverse Characteristics

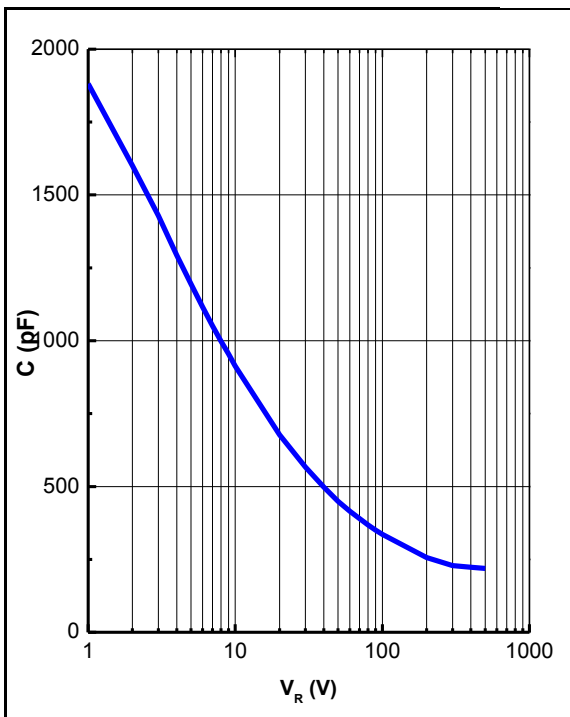


Figure 3. Total Capacitance vs. Reverse Voltage

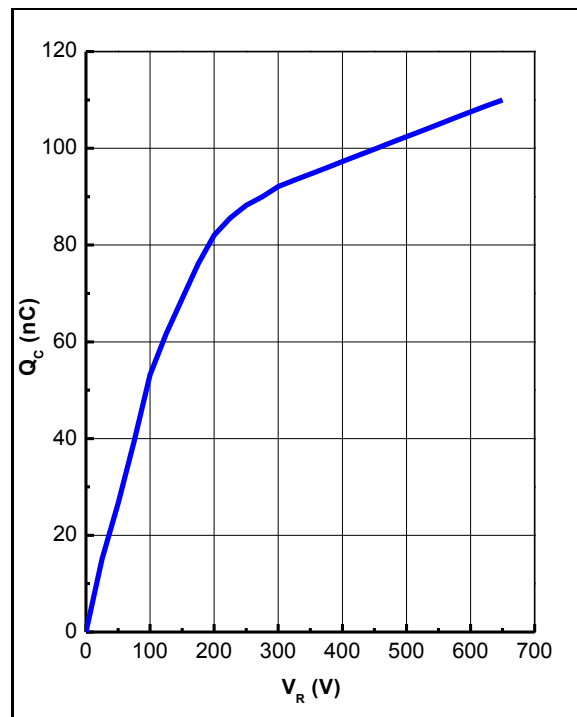


Figure 4. Total Capacitance Charge vs. Reverse Voltage