# CPW3-0600S002–Silicon Carbide Schottky Diode Chip

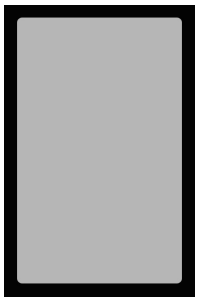
## *Z-Rec™* Rectifier

$V_{RRM}$ = 600 V
$I_{F(AVG)}$ = 2 A
$Q_c$ = 4.8 nC

### Features

- 600-Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Swtitching
- Positive Temperature Coefficient on $V_F$

### Chip Outline



| Part Number | Anode | Cathode | Package | Marking |
|---|---|---|---|---|
| CPW3-0600S002B | Al | NiV/Ag | Sawn on Foil | Wafer # on Foil |

### Maximum Ratings

| Symbol | Parameter | Value | Unit | Test Conditions | Note |
|---|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | 600 | V | | |
| $V_{RSM}$ | Surge Peak Reverse Voltage | 600 | V | | |
| $V_{DC}$ | DC Blocking Voltage | 600 | V | | |
| $I_{F(AVG)}$ | Average Forward Current | 2 | A | $T_J$=175°C | |
| $I_{FRM}$ | Repetitive Peak Forward Surge Current | 12 | A | $T_C$=25°C, $t_p$=10 ms, Half Sine Wave, D=0.3 | 1 |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current | 65 | A | $T_C$=25°C, $t_p$=10 µs, Pulse | 1 |
| $T_J$ , $T_{stg}$ | Operating Junction and Storage Temperature | -55 to +175 | °C | | |

## Electrical Characteristics

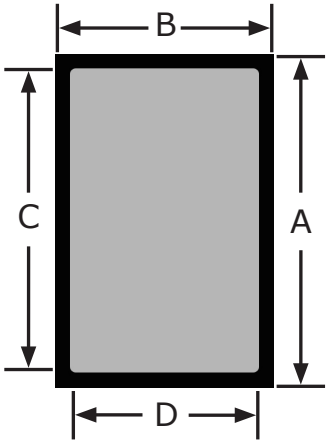
| Symbol | Parameter | Typ. | Max. | Unit | Test Conditions | Note |
|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | 1.5<br>1.8 | 1.8<br>2.4 | V | $I_F$ = 2 A $T_J$=25°C<br>$I_F$ = 2 A $T_J$=175°C | |
| $I_R$ | Reverse Current | 10<br>20 | 50<br>100 | µA | $V_R$ = 600 V $T_J$=25°C<br>$V_R$ = 600 V $T_J$=175°C | |
| $Q_C$ | Total Capacitive Charge | 4.8 | | nC | $V_R$ = 600 V, $I_F$ = 2 A<br>$di/dt$ = 500 A/µs<br>$T_J$ = 25°C | |
| C | Total Capacitance | 120<br>12<br>11 | | pF | $V_R$ = 0 V, $T_J$ = 25°C, f = 1 MHz<br>$V_R$ = 200 V, $T_J$ = 25°C, f = 1 MHz<br>$V_R$ = 400 V, $T_J$ = 25°C, f = 1 MHz | |

Note:
1. Assumes θJC Thermal Resistance of 3.8°C/W or less

## Mechanical Parameters

| Parameter | Typ. | Unit |
|---|---|---|
| Die Size | 1.07 x 0.66 | mm |
| Anode Pad Size | 0.93 x 0.52 | mm |
| Anode Pad Opening | 0.82 x 0.41 | mm |
| Thickness | 377 ± 10% | µm |
| Wafer Size | 100 | mm |
| Anode Metalization (Al) | 4 | µm |
| Cathode Metalization (NiV/Ag) | 1.8 | µm |
| Frontside Passivation | Polyimide | |

## Chip Dimensions




| symbol | dimension | |
|---|---|---|
| | mm | inch |
| A | 1.07 | 0.042 |
| B | 0.66 | 0.026 |
| C | 0.93 | 0.037 |
| D | 0.52 | 0.020 |

| Part Number | Anode | Cathode | Package | Marking |
|---|---|---|---|---|
| CPW3-0600S002B | Al | NiV/Ag | Sawn on Foil | Wafer # on Foil |

The die-on-tape method of delivering these SiC die may be considered a means of temporary storage only. Due to an increase in adhesion over time, die stored for an extended period may affix too strongly to the tape. These die should be stored in a temperature-controlled nitrogen dry box soon after receipt. Cree will further recommend that all die be removed from tape to a waffle pack, to a similar storage medium, or used in production within 2 – 3 weeks of delivery to assure 100% release of all die without issues.



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