## Features

- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 2) ("P" Suffix designates RoHS Compliant. See ordering information)

# 4 Amp Silicon Carbide Schottky Diode 650 Volts

## Benefits

- Temperature-Independent Performance
- Essentially No Switching Loss
- Higher Efficiency
- Reduced EMI
- Reduction of Heat Sink Requirements

## Applications

- Switching Power Supply
- Power Factor Correction
- Solar Inverter

## Maximum Ratings

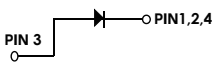
- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 2.5°C/W Junction to Case

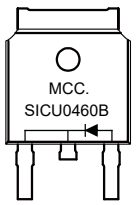
| | | | |
|---|---|---|---|
| Peak Repetitive Reverse Voltage | $V_{RRM}$ | 650V | |
| Surge Peak Reverse Voltage | $V_{RSM}$ | 650V | |
| DC Reverse Voltage | $V_{DC}$ | 650V | |
| Average Forward Current | $I_F$ | 4A | $T_J$=156°C |
| Peak Forward Surge Current | $I_{FSM}$ | 34A | $T_C$=25°C, $t_p$=10ms, Half Sine Pulse |
| Repetitive Peak Forward Current | $I_{FRM}$ | 20A | $T_C$=25°C, $t_p$=10ms, Half Sine Pulse |
| Power Dissipation | $P_D$ | 60W | $T_C$=25°C |

Note:

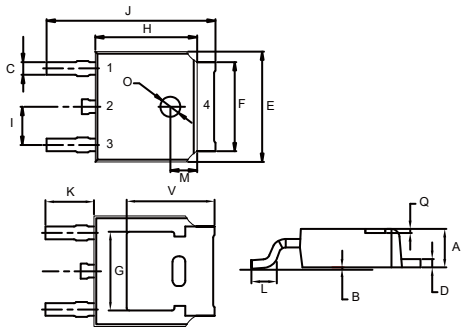
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

**Internal Structure:**




## DPAK




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | 0.087 | 0.094 | 2.20 | 2.40 | |
| B | 0.000 | 0.005 | 0.00 | 0.13 | |
| C | 0.026 | 0.034 | 0.66 | 0.86 | |
| D | 0.018 | 0.023 | 0.46 | 0.58 | |
| E | 0.256 | 0.264 | 6.50 | 6.70 | |
| F | 0.201 | 0.215 | 5.10 | 5.46 | |
| G | 0.190 | | 4.83 | | TYP. |
| H | 0.236 | 0.244 | 6.00 | 6.20 | |
| I | 0.086 | 0.094 | 2.18 | 2.39 | |
| J | 0.386 | 0.409 | 9.80 | 10.40 | |
| K | 0.114 | | 2.90 | | TYP. |
| L | 0.055 | 0.067 | 1.40 | 1.70 | |
| M | 0.063 | | 1.60 | | TYP. |
| O | 0.043 | 0.051 | 1.10 | 1.30 | |
| Q | 0.000 | 0.012 | 0.00 | 0.30 | |
| V | 0.211 | | 5.35 | | TYP. |

### Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Conditions | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | $I_F$=4A, $T_J$=25°C | 1.6 | 1.8 | V |
| | | $I_F$=4A, $T_J$=175°C | 2 | 2.5 | V |
| Reverse Leakage Current | $I_R$ | $V_R$=650V, $T_J$=25°C | 2 | 15 | μA |
| | | $V_R$=650V, $T_J$=175°C | 15 | 100 | μA |
| Total Capacitive Charge | $Q_C$ | $V_R$=400V | 12.1 | | nC |
| Total capacitance | C | $V_R$=0V, f=1MHz | 200 | | pF |
| | | $V_R$=200V, f=1MHz | 23.8 | | pF |
| | | $V_R$=400V, f=1MHz | 20.9 | | pF |
| Capacitance Stored Energy | $E_C$ | $V_R$=400V | 1.92 | | μJ |

## Curve Characteristics

Fig. 1 - Typical Instantaneous Forward Characteristics

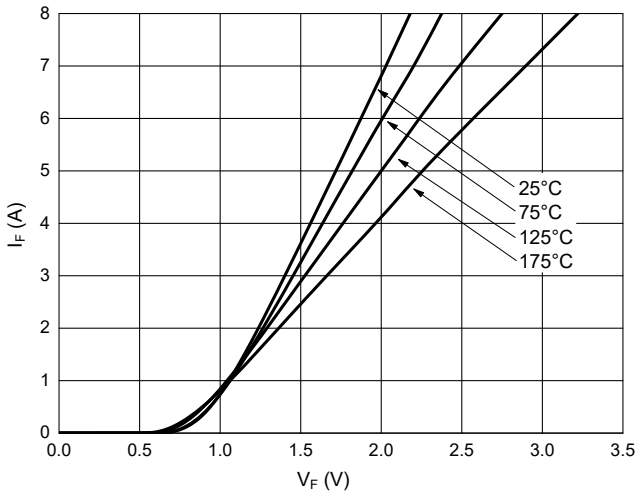
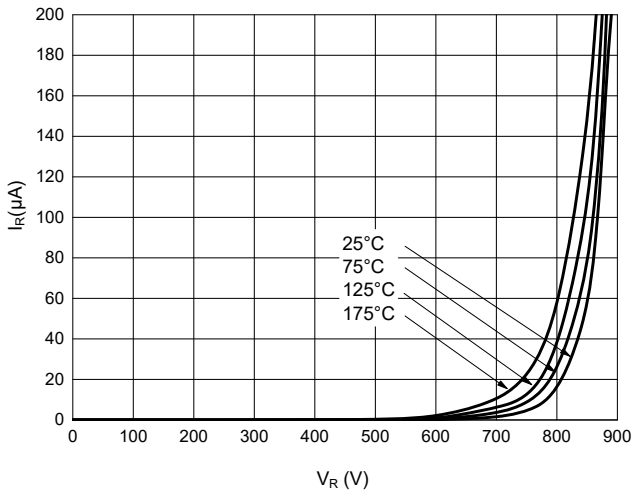



Fig. 2 - Typical Reverse Leakage Characteristics



## Curve Characteristics

Fig. 3 - Capacitance vs Reverse Voltage

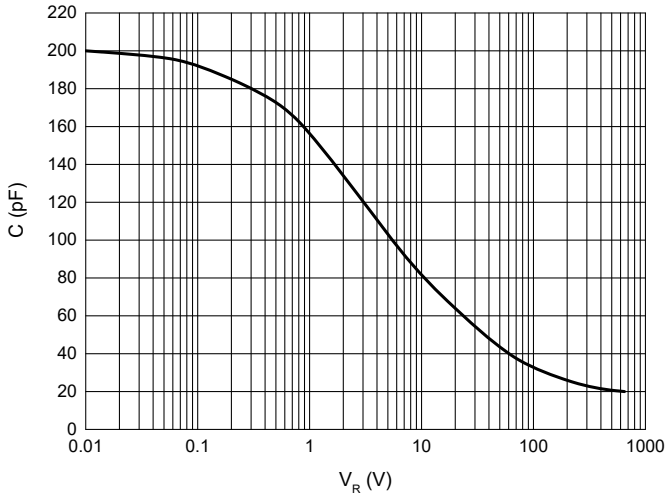



Fig. 4 - Capacitive Charge vs Reverse Voltage

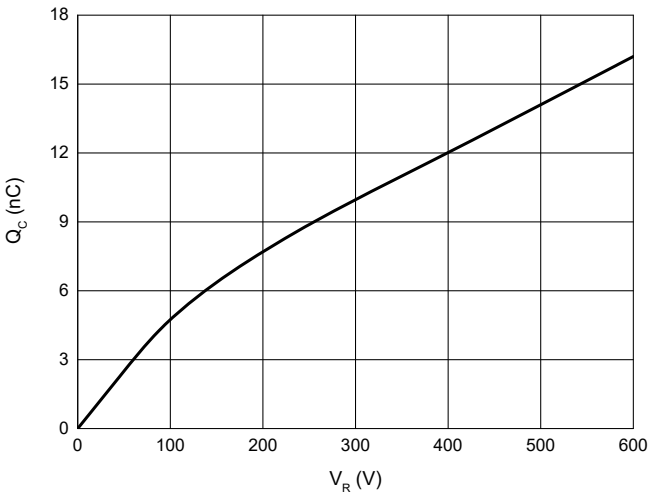



Fig. 5 - Capacitance Stored Energy

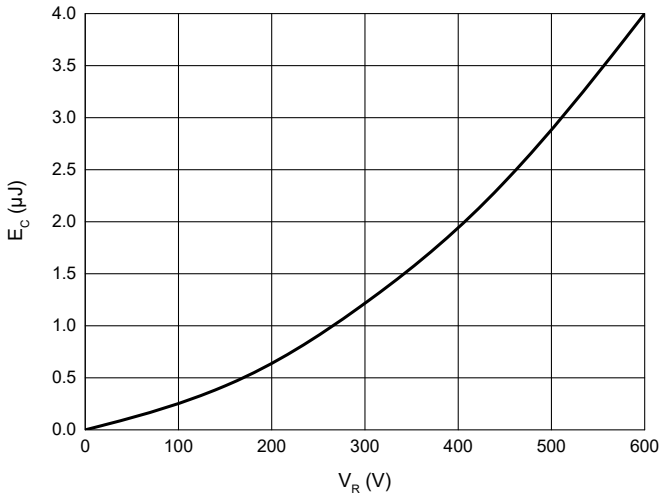



Fig. 6 - Power Derating

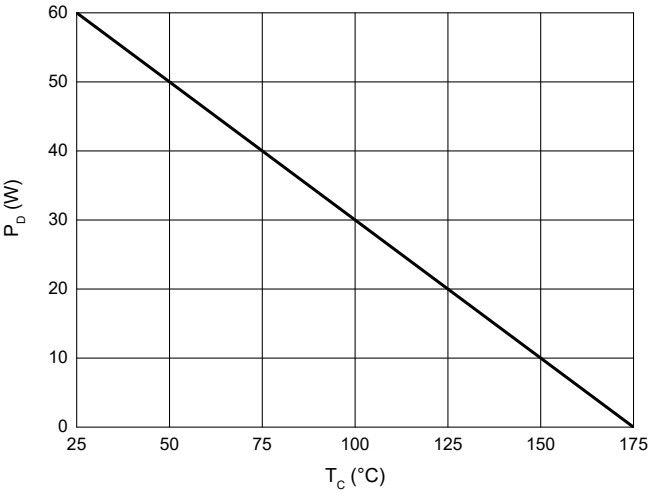



Fig. 7 - Current Derating

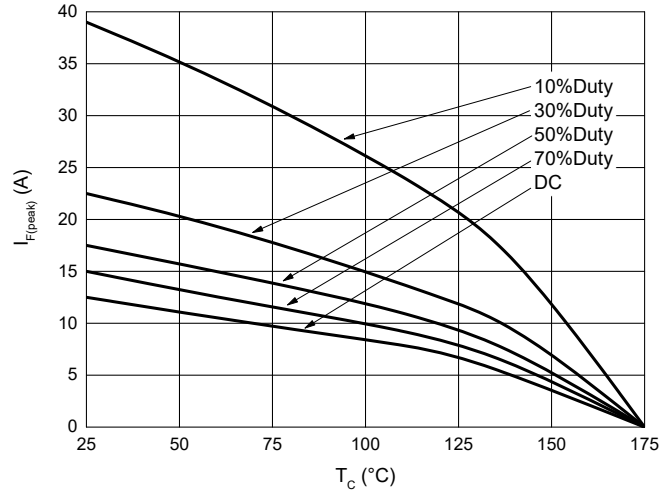
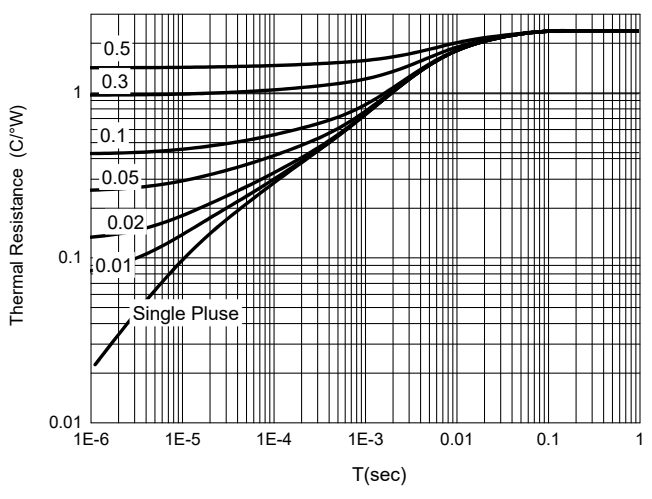



Fig. 8 - Transient Thermal Impedance



## Ordering Information

| Device | Packing |
|---|---|
| Part Number-TP | Tape&Reel: 2.5Kpcs/Reel |