



4A 650V SiC Schottky Diode

■ Applications

- Switch Mode Power Supply
- Power Factor Correction
- Solar Inverter
- Uninterruptible Power Supply

■ Features

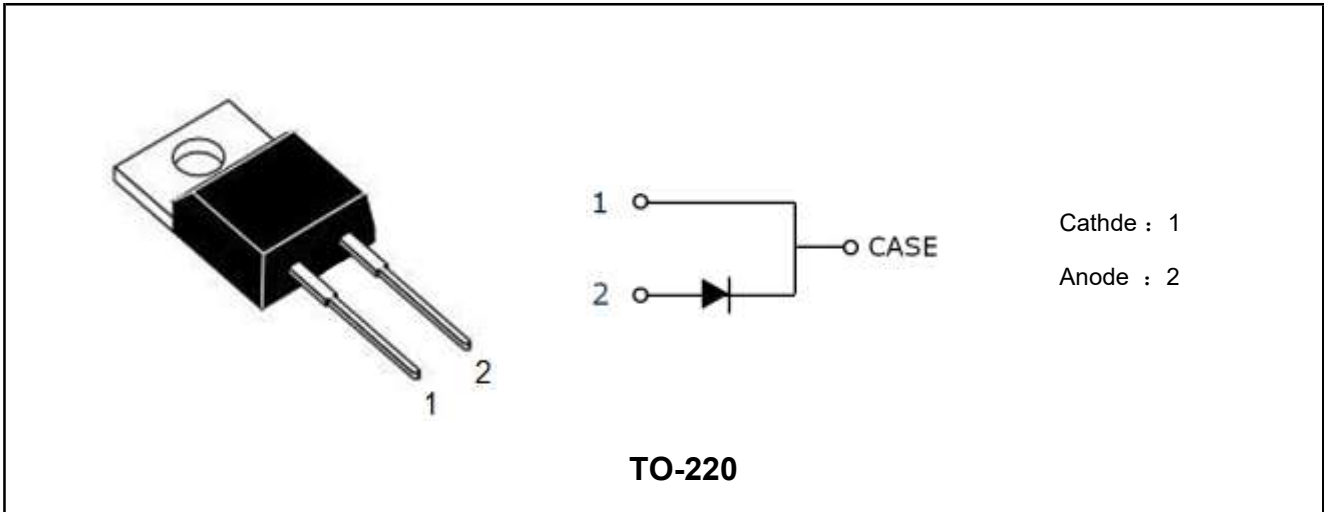
- No Reverse Recovery/ No Forward Recovery
- Temperature Independent Switching Behavior
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery
- High Surge Current Capability
- 100% UIS and RG Tested

■ Product Summary

| | | |
|-----------------------------|-----|----|
| V_{RRM} | 650 | V |
| $I_F@T_c=150^\circ C$ | 4 | A |
| $V_{F,TYP}@T_c=25^\circ C$ | 1.5 | V |
| $V_{F,TYP}@T_c=175^\circ C$ | 1.8 | V |
| Q_c | 8.5 | nC |

■ Benefits

- Higher System Efficiency
- System Cost and Size Savings
- High Frequency Operation
- Higher System Reliability
- Reduced EMI



| Marking | Package | Packaging | Min. package quantity |
|------------|---------|-----------|-----------------------|
| MC3S04C065 | TO-220 | Tube | 1000 |



MC3S04C065

■ Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

| Parameter | Symbol | Ratings | Unit |
|---------------------------------------|-----------|---------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 650 | V |
| Surge Peak Reverse Voltage | V_{RSM} | 650 | V |
| DC Peak Blocking Voltage | V_R | 650 | V |
| Continuous Forward Current | I_F | 4 | A |
| Repetitive Peak Forward Surge Current | I_{FSM} | 35 | A |
| Power Dissipation | P_D | 50 | W |
| Junction Temperature | T_J | 175 | °C |
| Storage Temperature | T_{stg} | -55-175 | °C |

■ Thermal Characteristics

| Parameter | Symbol | Max | Unit |
|-----------------------------|-----------------|-----|------|
| Maximum Junction-to-Case | $R_{\theta JC}$ | 3 | °C/W |
| Maximum Junction-to-Ambient | $R_{\theta JA}$ | 60 | °C/W |

■ Electrical Characteristics (Tc=25°C unless otherwise noted)

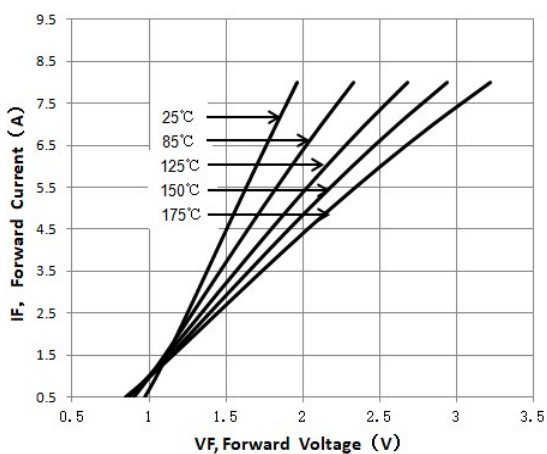
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--------------------------|----------|--|-----|-----|-----|---------|
| Static Parameters | | | | | | |
| DC Blocking Voltage | V_{DC} | $I_R=100\mu A$ | 650 | - | - | V |
| Forward Voltage | V_F | $I_F=4A$ | - | 1.5 | 1.7 | V |
| | | $I_F=4A, T_J=175^\circ C$ | - | 1.8 | 2.3 | V |
| Reverse Current | I_R | $V_R=650V$ | - | 0.5 | 10 | μA |
| | | $V_R=650V, T_J=175^\circ C$ | - | 10 | 50 | μA |
| AC Parameters | | | | | | |
| Total Capacitive Charge | Q_C | $I_F=4A, dI/dt=500A/\mu s, V_R=400V, T_J=25^\circ C$ | - | 8.5 | - | nC |
| Total Capacitive | C | $V_R=1V, f=1MHz$ | - | 135 | - | pF |
| | | $V_R=200V, f=1MHz$ | - | 17 | - | |
| | | $V_R=400V, f=1MHz$ | - | 16 | - | |



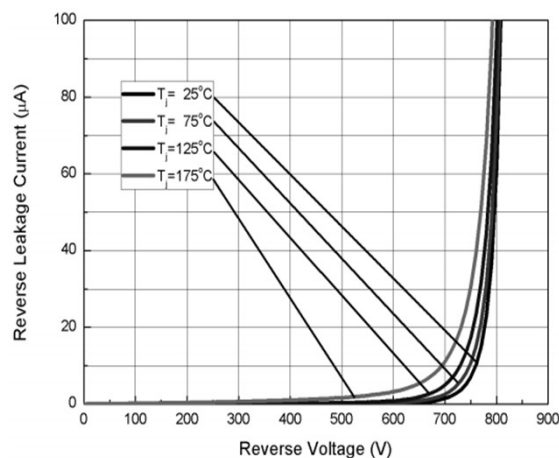
MC-Power

MC3S04C065

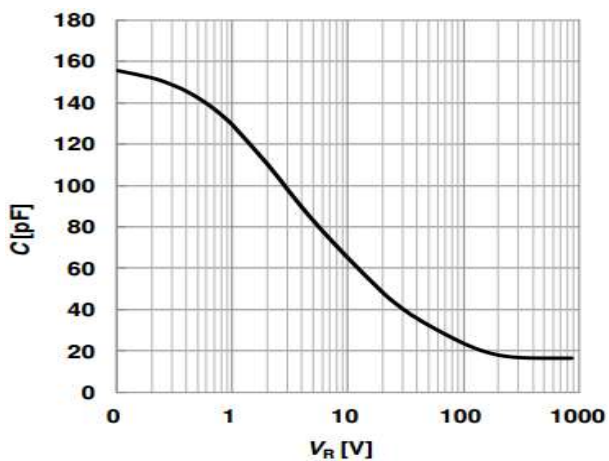
Characteristics Curves



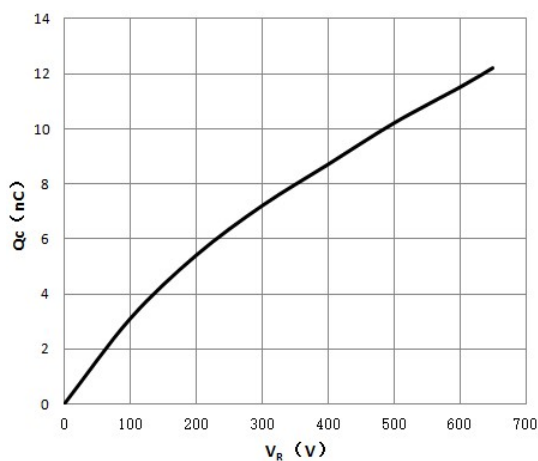
Forward Characteristics



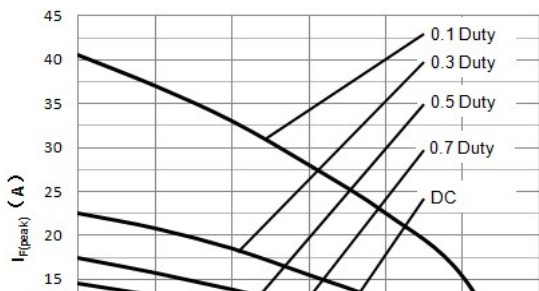
Reverse Characteristics

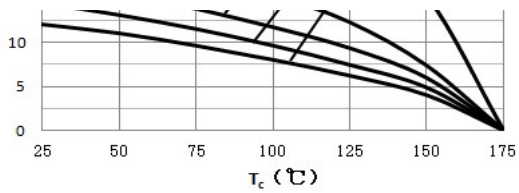


Capacitance



Recovery Charge vs. Reverse Voltage





Current Derating



TO-220 Package Dimensions

Unit: mm

| Symbol | Min | Nom | Max | Symbol | Min | Nom | Max |
|--------|------|-----|------|--------|------|------|------|
| A | 4 | | 4.8 | e | | 2.54 | |
| B | 1.2 | | 1.4 | e1 | 1 | | 1.5 |
| B1 | 1 | | 1.4 | F | 1.1 | | 1.4 |
| b1 | 0.65 | | 1 | L | 12.5 | | 14.5 |
| c | 0.4 | | 0.55 | LI | 3 | 3.5 | 4 |
| D | 15 | | 16.5 | ΦP | | 3.8 | |
| D1 | 5.9 | | 6.9 | Q | 2.5 | | 3 |
| E | 9.9 | | 10.7 | Q1 | 2 | | 2.9 |

