



SiC04A065NS

SILICON CARBIDE SCHOTTKY DIODE

Voltage 650 V **Current** 4 A

Features

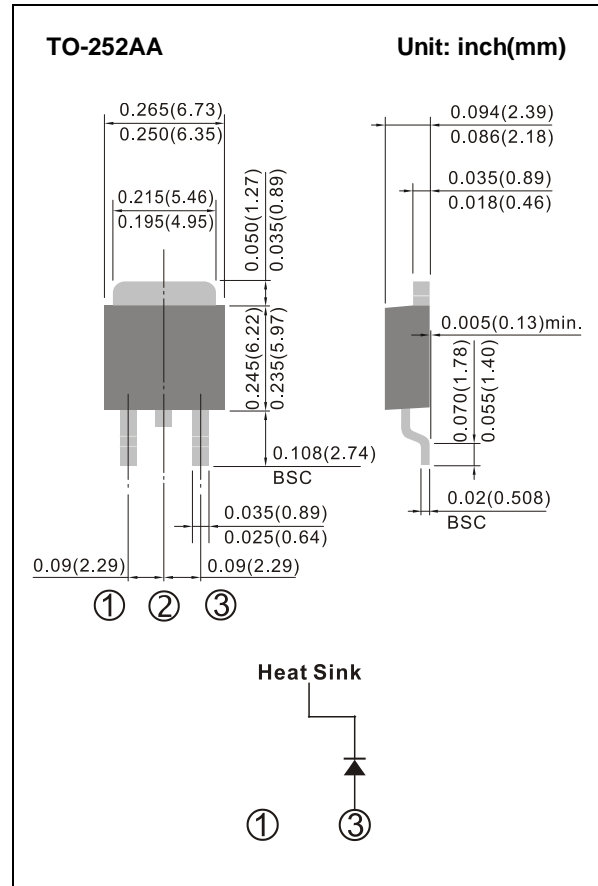
- Temperature Independent Switching Behavior
- Low Conduction and Switching Loss
- High Surge Current Capability
- Positive Temperature Coefficient on V_F
- Fast Reverse Recovery

Mechanical Data

- Case: Molded plastic, TO-252AA
- Marking: 04A065NS

Benefits

- High Frequency Operation
- Higher System Efficiency
- Environmental Protection
- Parallel Device Convenience
- Hard Switching & High Reliability
- High Temperature Application



Maximum Ratings

| PARAMETER | SYMBOL | TEST CONDITIONS | VALUE | UNITS |
|---|-------------|--------------------|-------|-------|
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | $T_J=25^{\circ}C$ | 650 | V |
| Maximum RMS Voltage | V_{RSM} | $T_J=25^{\circ}C$ | 650 | V |
| Maximum DC Blocking Voltage | V_R | $T_J=25^{\circ}C$ | 650 | V |
| Continuous Forward Current | $I_{F(AV)}$ | $T_C=25^{\circ}C$ | 11 | A |
| | | $T_C=125^{\circ}C$ | 6 | A |
| | | $T_C=150^{\circ}C$ | 4 | A |
| Repetitive Peak Forward Surge Current ($T_P=10mS$, Half Sine Wave, $D=0.1$) | I_{FRM} | $T_C=25^{\circ}C$ | 26 | A |
| | | $T_C=125^{\circ}C$ | 23 | A |



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Maximum Ratings

| PARAMETER | SYMBOL | TEST CONDITIONS | VALUE | UNITS |
|--|-----------------|-------------------------|------------|--------------------|
| Non-Repetitive Peak Forward Surge Current ($T_P=10\text{mS}$, Half Sine Wave) | I_{FSM} | $T_C=25^\circ\text{C}$ | 29 | A |
| | | $T_C=125^\circ\text{C}$ | 24 | A |
| Non-Repetitive Peak Forward Surge Current ($T_P=10\mu\text{S}$, Pulse) | | $T_C=25^\circ\text{C}$ | 127 | A |
| Power Dissipation | P_D | $T_C=25^\circ\text{C}$ | 38 | W |
| | | $T_C=125^\circ\text{C}$ | 13 | W |
| Operating Junction Temperature | T_J | | 175 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | | -55 to 175 | $^\circ\text{C}$ |
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | | 4 | $^\circ\text{C/W}$ |

Electrical Characteristics

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|-------------------------|----------|---|------|------|------|---------------|
| DC Blocking Voltage | V_{DC} | $I_R = 100\mu\text{A}$, $T_J=25^\circ\text{C}$ | 650 | 770 | - | V |
| Forward Voltage | V_F | $I_F = 4\text{A}$, $T_J=25^\circ\text{C}$ | - | 1.5 | 1.8 | V |
| | | $I_F = 4\text{A}$, $T_J=175^\circ\text{C}$ | - | 1.9 | 2.2 | V |
| Reverse Current | I_R | $V_R = 650\text{V}$, $T_J=25^\circ\text{C}$ | - | 1 | 50 | μA |
| | | $V_R = 650\text{V}$, $T_J=175^\circ\text{C}$ | - | 6 | 190 | μA |
| Total Capacitive Charge | Q_C | $I_F = 4\text{A}$, $di/dt=300\text{A}/\mu\text{S}$, $V_R = 400\text{V}$, $T_J=25^\circ\text{C}$ | - | 11 | - | nC |
| Total Capacitance | C | $V_R = 1\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$ | - | 155 | - | pF |
| | | $V_R = 200\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$ | - | 25 | - | pF |
| | | $V_R = 400\text{V}$, $T_J=25^\circ\text{C}$, $f=1\text{MHz}$ | - | 25 | - | pF |



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TYPICAL CHARACTERISTIC CURVES

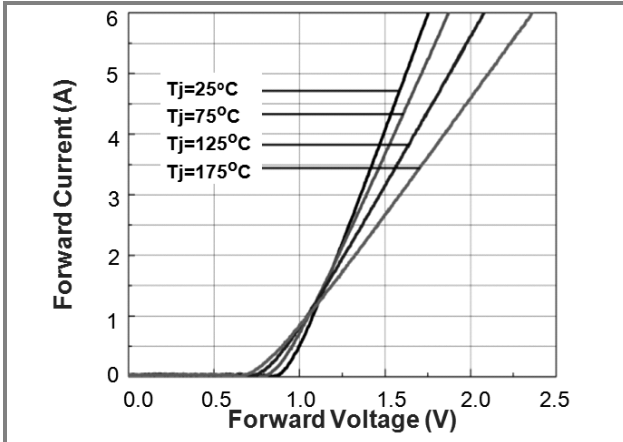


Fig.1 Forward Characteristics

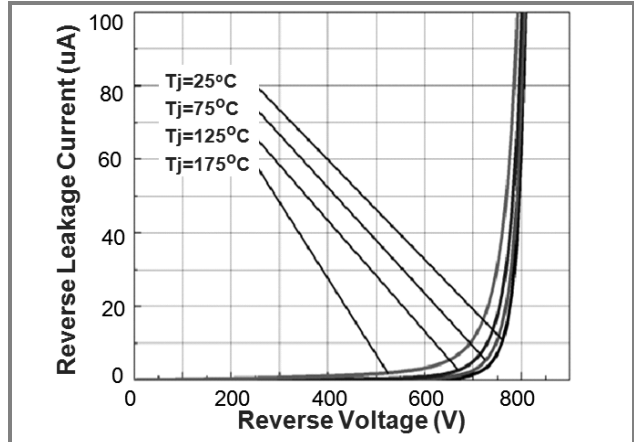


Fig.2 Reverse Characteristics

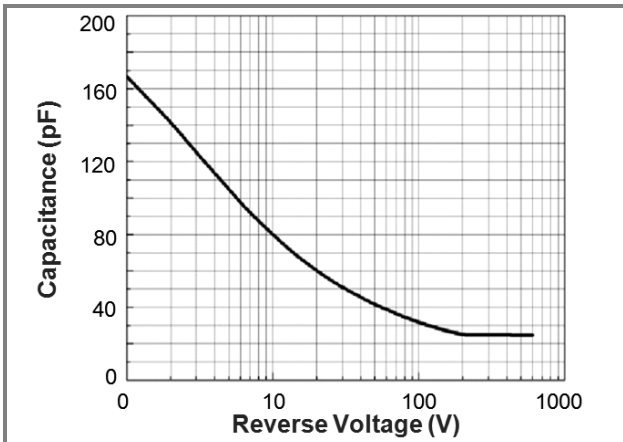


Fig.3 Capacitance vs. Reverse Voltage

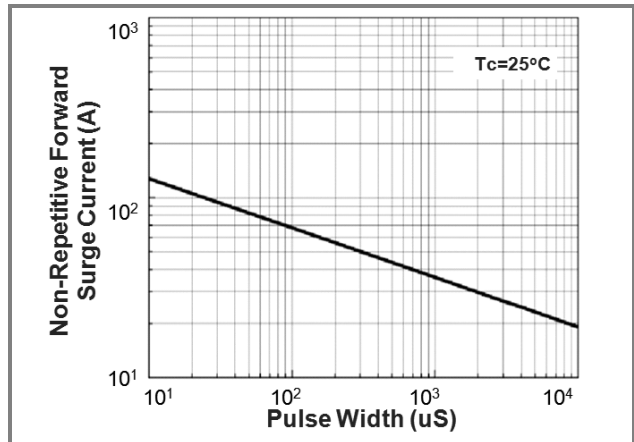


Fig.4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

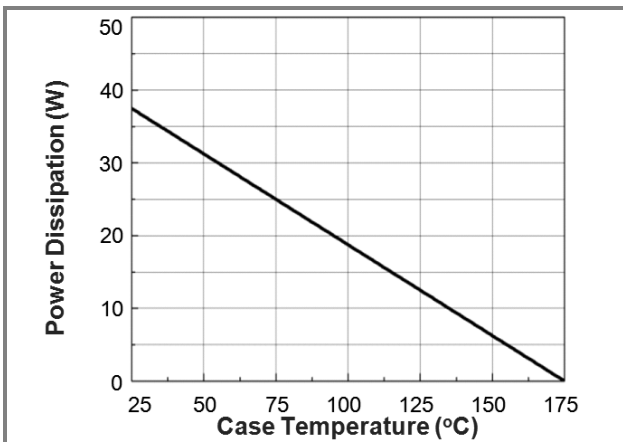


Fig.5 Power Derating

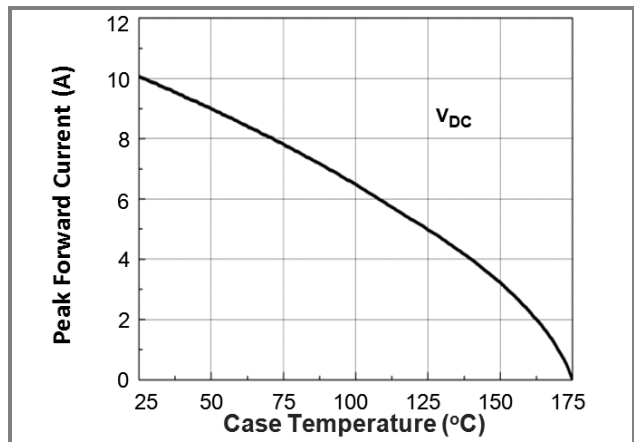


Fig.6 Current Derating

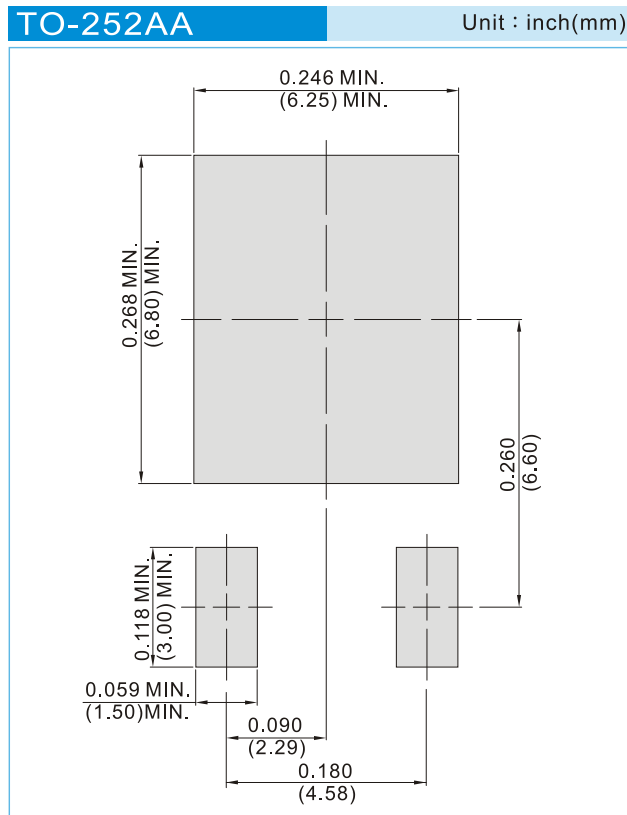


SiC04A065NS

Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|----------------------|--------------|---------------------|----------|--------------|
| SIC04A065NS_L2_00001 | TO-252AA | 3,000pcs / 13" reel | 04A065NS | Halogen free |

Mounting Pad Layout





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