

Transient Voltage Suppressors for ESD Protection

ESD3.3V02D-CKN

Description

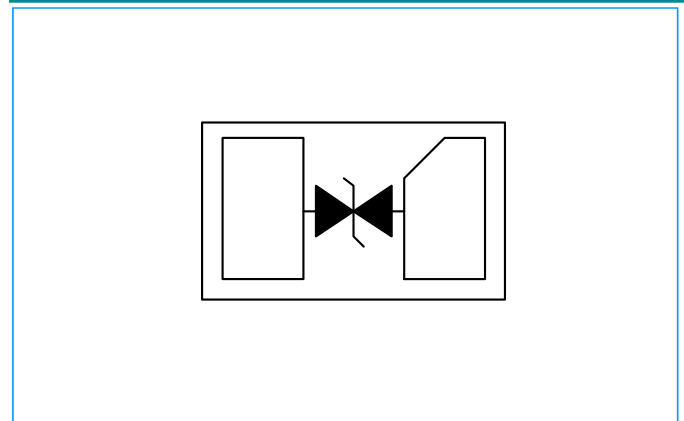
The ESD3.3V02D-CKN is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.



Feature

- ◆ Protects One Bidirectional I/O Line
- ◆ Low Clamping Voltage
- ◆ Surface mount package.
- ◆ Ultra small SMD package.
- ◆ Stand-off Voltage: 3.3 V
- ◆ Low leakage current
- ◆ 125 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ IEC61000-4-5 (LIGHTING) 8.5A (8/20μs)
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 - ±30kV (air discharge)
 - ±30kV (contact discharge);

Functional Diagram



Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ I²C Bus Protection
- ◆ Personal Digital Assistants (PDA)
- ◆ Notebooks, Desktops, and Servers
- ◆ Micro controller Input Protection
- ◆ Peripherals
- ◆ Parallel & Serial Port Protection

Mechanical Data

- ◆ Case: 0201/DFN0603 package,molded plastic.
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 0.3 Milligrams (Approximate)
- ◆ Mounting position: Any

Mechanical characteristics

| Symbol | Parameter | Value | Units |
|------------------|---------------------------------------|---------------|-------|
| P _{PP} | Peak Pulse Power (Tp=8/20μs waveform) | 125 | Watts |
| T _L | Lead Soldering Temperature | 260 (10 sec.) | °C |
| T _{STG} | Storage Temperature Range | -55 to +150 | °C |
| T _J | Operating Junction Temperature Range | -40 to +125 | °C |

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Electrical Characteristics (@25°C Unless Otherwise Specified)

| Characteristics | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------|-----------|---------------------------------|------|------|------|---------|
| Reverse Working Voltage | V_{RWM} | -- | -- | -- | 3.3 | V |
| Reverse Breakdown Voltage | V_{BR} | $I_T=1mA$ | 3.8 | -- | -- | V |
| Reverse Leakage Current | I_R | $V_{RWM}=3.3V$; $T=25^\circ C$ | -- | -- | 0.1 | μA |
| Junction capacitance | C_J | $V_R=0V$, $f=1MHz$; | -- | 10 | -- | pF |
| Positive Clamping Voltage | V_C | $I_{PP}=8.5A$ $T_P=8/20\mu s$; | -- | 9.5 | 15 | V |
| TLP Clamping Voltage | V_{CL} | $I_{PP}=1A$ | -- | 5.0 | -- | V |
| | | $I_{PP}=8A$ | -- | 7.7 | -- | V |
| | | $I_{PP}=16A$ | -- | 10.0 | -- | V |

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

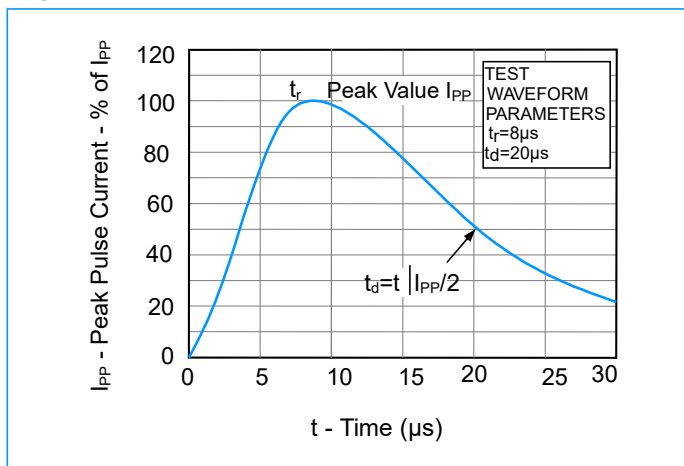


Fig2. Power Rating Derating Curve

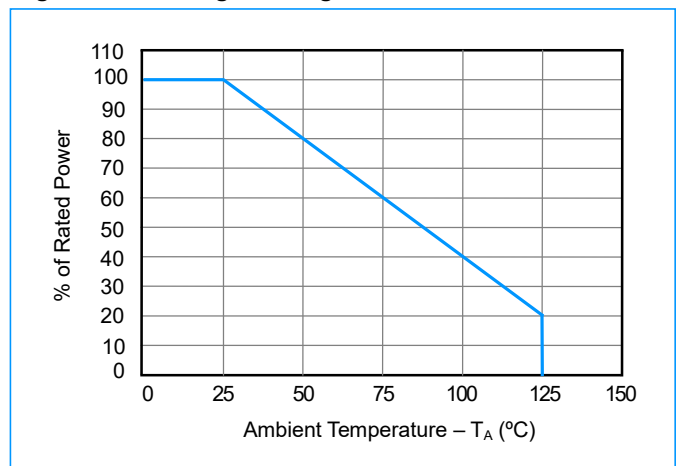


Fig3. Clamping Voltage vs. Peak Pulse Current

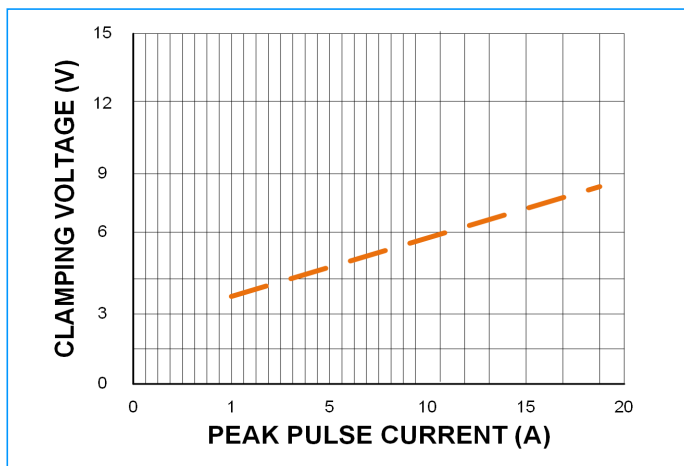
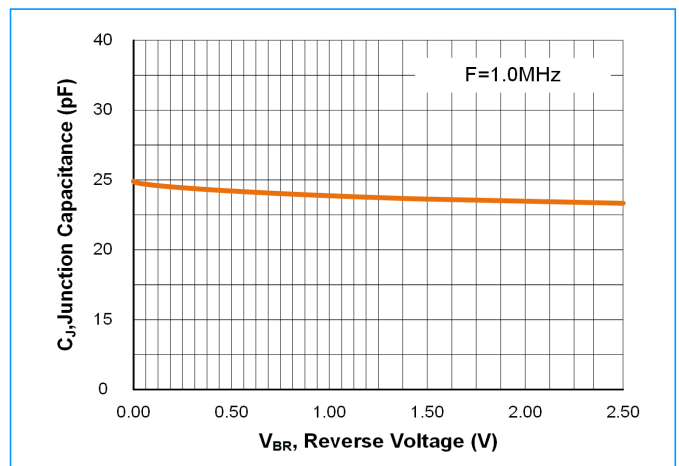


Fig4. Typical Capacitance vs. Reverse Voltage

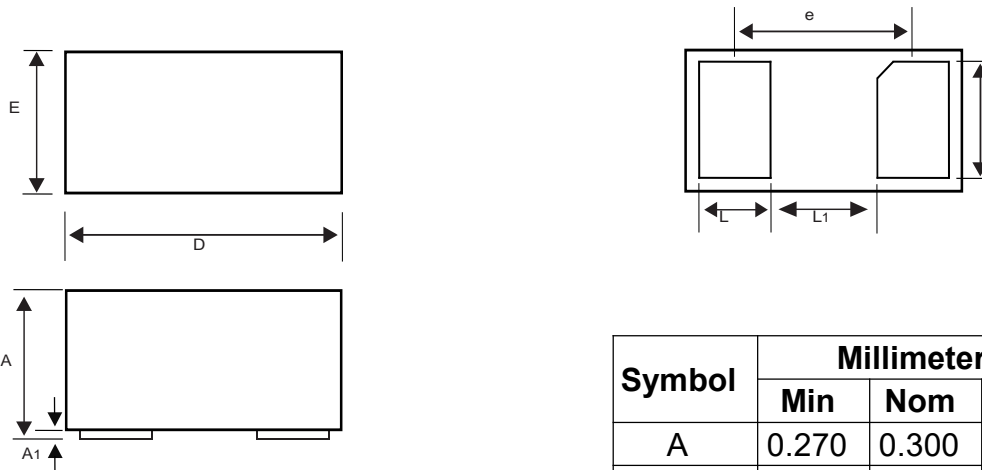


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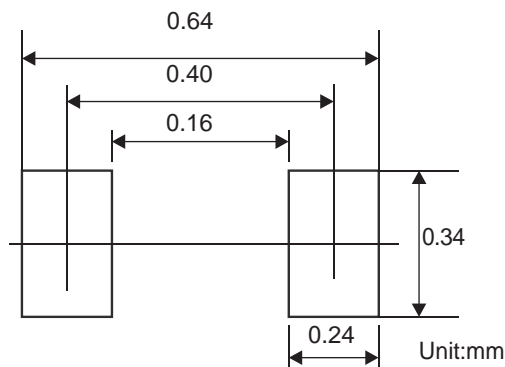
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0201/DFN0603 Package Outline&Dimensions

0201/DFN0603



Suggested PAD Layout



| Symbol | Millimeters | | |
|--------|-------------|-------|-------|
| | Min | Nom | Max |
| A | 0.270 | 0.300 | 0.340 |
| A1 | 0 | 0.020 | 0.050 |
| D | 0.550 | 0.600 | 0.650 |
| E | 0.250 | 0.300 | 0.350 |
| e | 0.340REF | | |
| L | 0.140 | 0.180 | 0.240 |
| b | 0.200 | 0.250 | 0.300 |
| L1 | 0.150REF | | |

Ordering Information

| Device | Marking | Package | Quantity | Reel Size |
|----------------|---------|--------------|----------------|-----------|
| ESD3.3V02D-CKN | F | 0201/DFN0603 | 12,000pcs/Reel | 7 inch |