

Transient Voltage Suppressors for ESD Protection

SE15N9W11GJ

Features

- ◆ Protects one data or power line.
- ◆ Working Voltage: 15V.
- ◆ High peak pulse current capability.
- ◆ Ultra low clamping voltage.
- ◆ 2-pin leadless package.
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-4 (EFT) 80A (5/50ns)
 - IEC 61000-4-5 (Lightning) 50A (8/20 μs)
- ◆ RoHS Compliant.

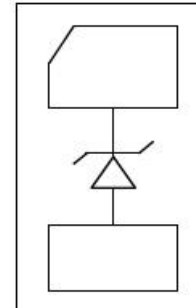
DFN1610-2



Applications

- ◆ Mobile Phones and Accessories.
- ◆ Battery Protection.
- ◆ USB VBus.
- ◆ Power Line Protection.
- ◆ Hand Held Portable Applications.

Circuit and Pin Schematic



Mechanical Characteristics

- ◆ Package: DFN1610-2.
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020.
- ◆ Packaging: 3000 PCS / Tape & Reel.
- ◆ Reel Size: 7 inch.

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Units |
|--|-----------|----------------------|------------------|
| Peak Pulse Current (8/20 μs) | I_{PP} | 50 | A |
| ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | V_{ESD} | ± 30 ± 30 | kV |
| Operating Temperature Range | T_J | -55 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -55 to +150 | $^\circ\text{C}$ |

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Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-------------------------|-----------|--|------|------|------|---------------|
| Reverse Working Voltage | V_{RWM} | -- | -- | -- | 15 | V |
| Breakdown Voltage | V_{BR} | $I_T=1\text{mA}$ | 16.5 | -- | -- | V |
| Reverse Leakage Current | I_R | $V_{RWM}=15\text{V}$ | -- | -- | 0.1 | μA |
| Forward Voltage | V_F | $V_F=10\text{mA}$ | -- | -- | 1.2 | V |
| Peak Pulse Current | I_{PP} | $T_p=8/20\mu\text{s}$ | -- | -- | 50 | A |
| Clamping Voltage | V_C | $I_{PP}=10\text{A}$ (8/20 μs pulse) | -- | 21 | -- | V |
| Clamping Voltage | V_C | $I_{PP}=50\text{A}$ (8/20 μs pulse) | -- | 30 | -- | V |
| Junction Capacitance | C_J | $V_R=0\text{V}$, $f=1\text{MHz}$ | -- | 290 | -- | pF |

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig1. 8/20 μs Pulse Waveform

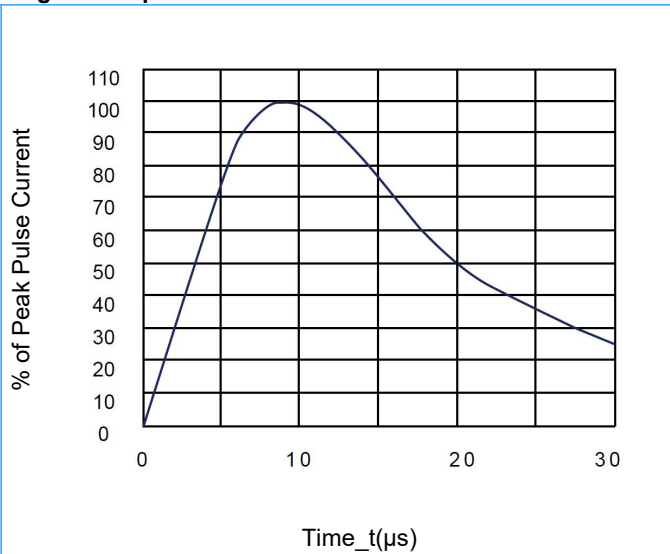
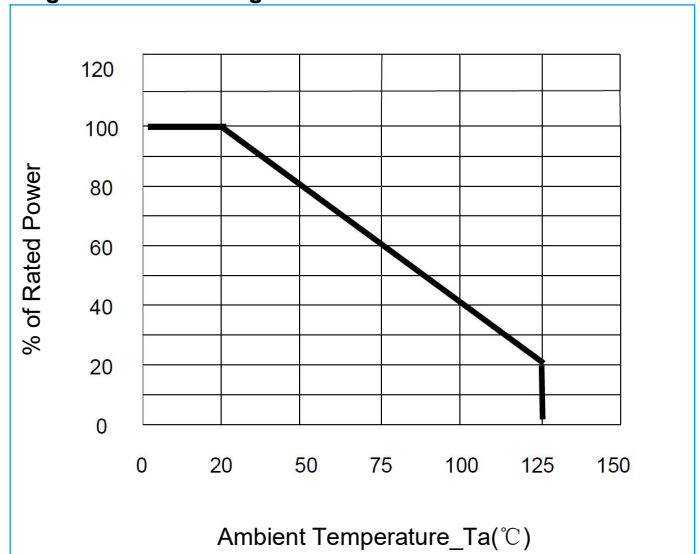


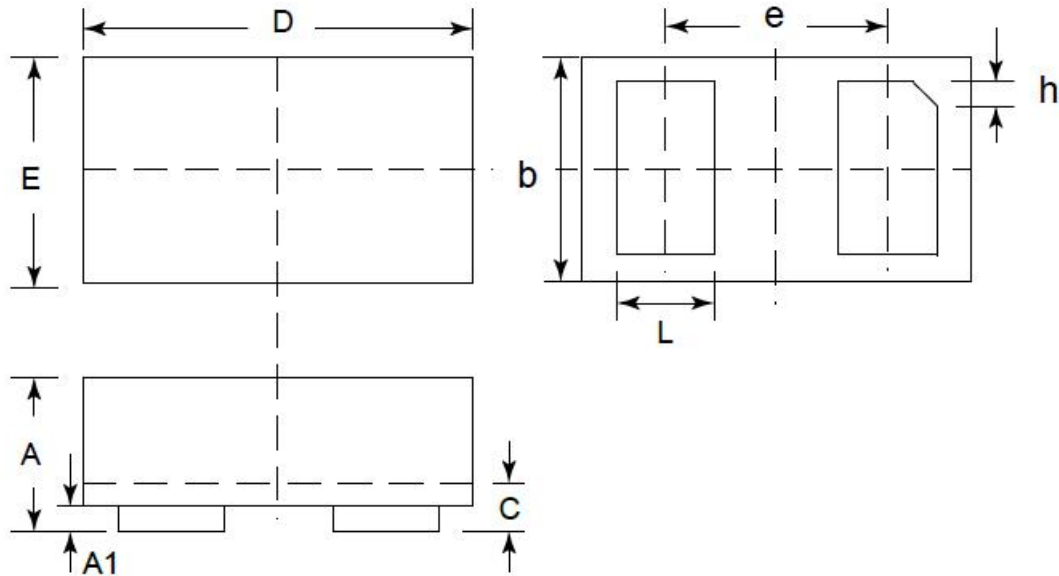
Fig2. Power Derating Curve



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DFN1610-2 Package Outline Drawing



| Symbol | Dimensions | | | | | |
|--------|-------------|------|------|-----------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Nom. | Max. | Min. | Nom. | Max. |
| A | 0.45 | 0.50 | 0.55 | 0.018 | 0.020 | 0.022 |
| A1 | -- | 0.02 | 0.05 | -- | 0.001 | 0.002 |
| b | 0.75 | 0.80 | 0.85 | 0.030 | 0.032 | 0.034 |
| c | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| D | 1.55 | 1.60 | 1.65 | 0.062 | 0.064 | 0.066 |
| e | 1.10 BSC | | | 0.044 BSC | | |
| E | 0.95 | 1.00 | 1.05 | 0.038 | 0.040 | 0.042 |
| L | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |