

DESCRIPTION

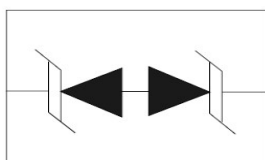
SLE5VFBN102 is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power line. With maximum capacitance of 12pF, SLE5VFBN102 is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

SLE5VFBN102 uses ultra-small DFN1006 package. Each SLE5VFBN102 device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

ORDERING INFORMATION

- ✧ Device: SLE5VFBN102
- ✧ Package: DFN1006 (SOD882)
- ✧ Marking: C
- ✧ Material: RoHS compliant, Halogen free

CIRCUIT DIAGRAM



FEATURES

- ✧ Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air)
 - $\pm 30\text{kV}$ (Contact)
 - IEC 61000-4-4 (EFT) 40A (5/50 ns)
 - Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (1.0mm \times 0.6mm \times 0.4mm)
- ✧ Protects one data, control or power line
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

MACHANICAL DATA

- ✧ DFN1006 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:
 - 260 $^{\circ}\text{C}$ /10s
- ✧ Reel size: 7 inch
- ✧ MSL3

APPLICATIONS

- ✧ Portable Electronics
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MP3 Ports
- ✧ Digital Ports
- ✧ Subscriber Identity Module (SIM) card

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATING

| Symbol | Parameter | Value | Units |
|-----------|--|----------------------|--------------|
| P_{PP} | Peak Pulse Power (8/20 μ s) | 105 | W |
| V_{ESD} | ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | ± 30 ± 30 | kV |
| T_j | Operating Temperature | -55/+125 | $^{\circ}$ C |
| T_{STG} | Storage Temperature | -55/+150 | $^{\circ}$ C |

ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)

| Symbol | Parameter | Test Condition | Min | Typ | Max | Units |
|-----------|---------------------------|--|-----|-----|---------|---------|
| V_{RWM} | Reverse Stand-Off Voltage | | | | 5.0 | V |
| V_{BR} | Reverse Breakdown voltage | $I_T=1mA$ | 5.6 | | | V |
| I_R | Reverse leakage current. | $V_{RWM}=5V$ | | | 0.3 | μ A |
| I_{PP} | Peak Pulse Current | $t_p=8/20\mu s$ | | | 8 | A |
| V_C | Clamping Voltage | $I_{PP}=1A, t_p=8/20\mu s$ $I_{PP}=8A, t_p=8/20\mu s$ | | | 8 15 | V |
| C_J | Junction Capacitance | $V_R=0V, f=1MHz$ | | 12 | | pF |

ELECTRICAL CHARACTERISTICS CURVE

Figure 1: Peak Pulse Power Vs Pulse Time

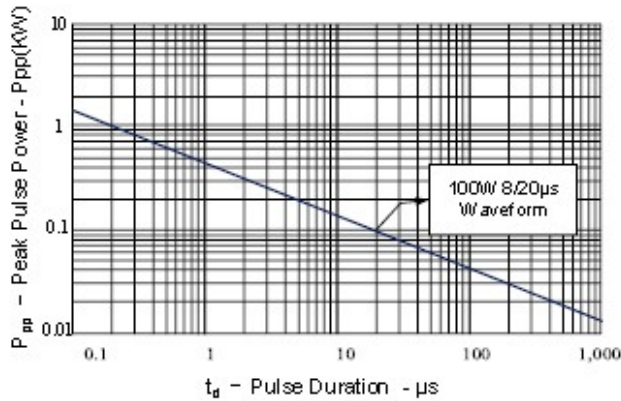


Figure 2: Power Derating Curve

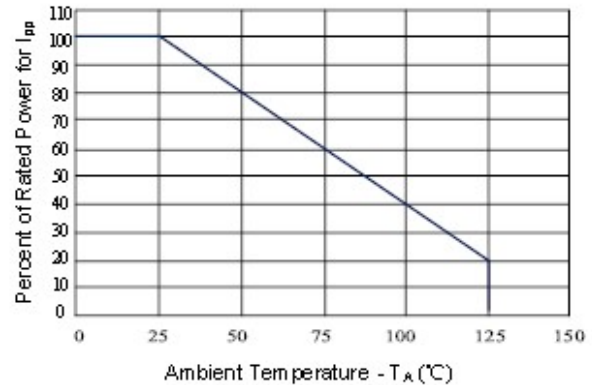


Figure 3: Clamping Voltage vs. Peak Pulse Current

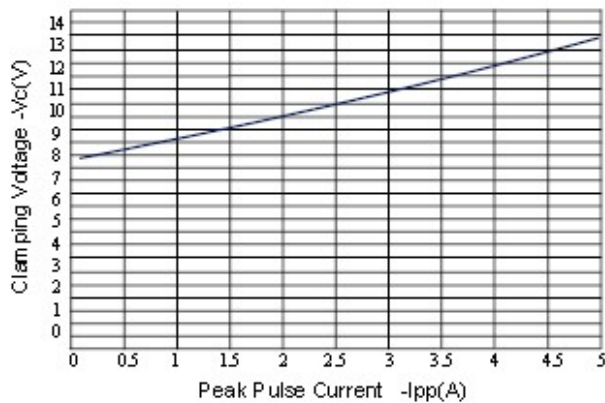


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

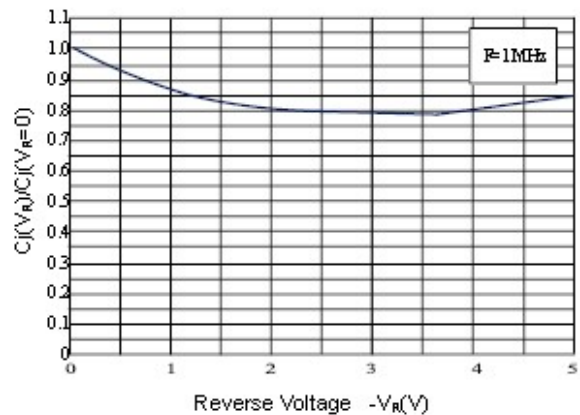


Figure 5: Pulse Waveform

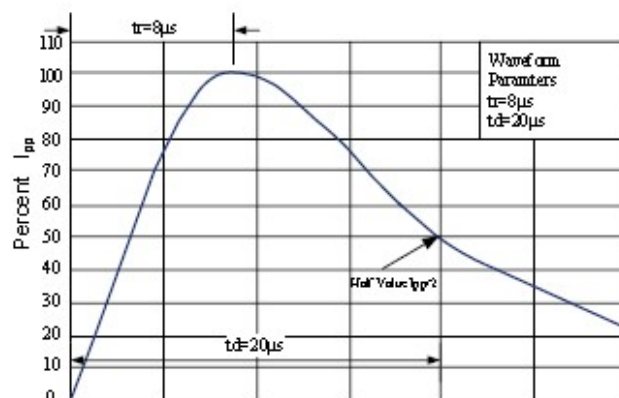
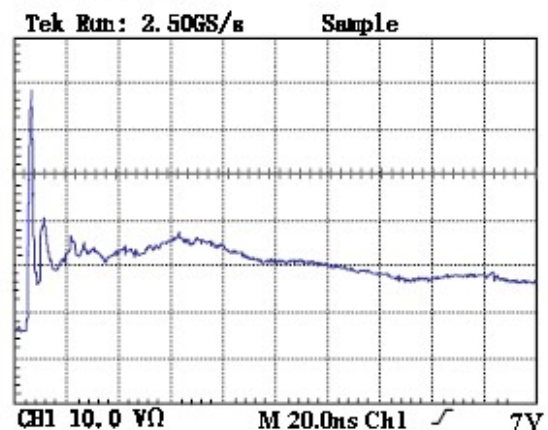
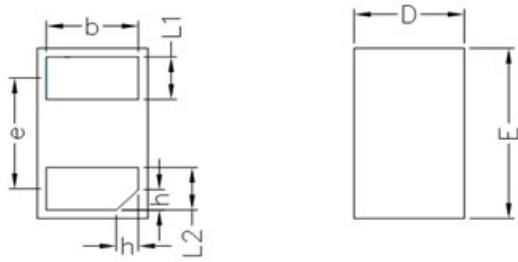


Figure 6: ESD Clamping (8kV Contact per IEC 61000-4-2)

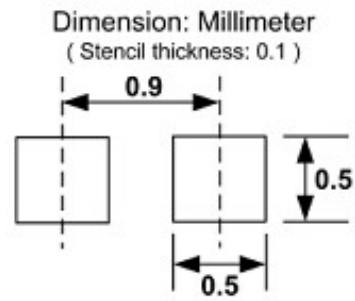


DFN1006 PACKAGE OUTLINE DIMENSIONS



Unit: mm

| | MIN | NOM | MAX |
|----|---------|------|------|
| D | 0.55 | 0.60 | 0.65 |
| E | 0.95 | 1.00 | 1.05 |
| L1 | 0.20 | 0.25 | 0.30 |
| L2 | 0.20 | 0.25 | 0.30 |
| b | 0.45 | 0.50 | 0.55 |
| e | 0.65BSC | | |
| A | 0.45 | 0.50 | 0.55 |
| h | 0.07 | 0.12 | 0.17 |



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