

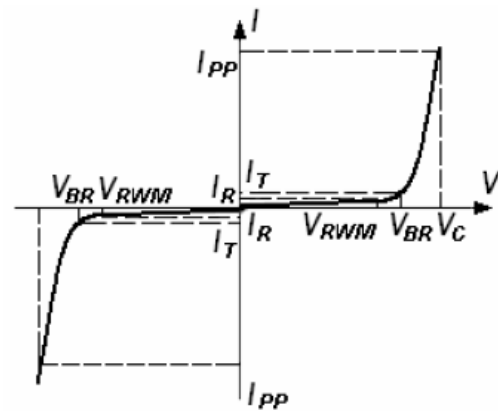
Description

The SES5VD923-2B ESD protector is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers, and PDA' s. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, lower operating voltage, lower clamping voltage and no device degradation when compared to MLVs. The SES5VD923-2B protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. The SES5VD923-2B is available in a SOD-923 package with working voltages of 5 volt. It gives designer the flexibility to protect one bidirectional line in applications where arrays are not practical. Additionally, it may be “sprinkled” around the board in applications where board space is at a premium. It may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge)



Feature

- 100 Watts peak pulse power ($t_p = 8/20 \mu s$)
- Transient protection for data lines to
 - IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 10\text{kV}$ (contact)
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
 - IEC 61000-4-5 (Lightning) 24A (8/20 μs)
- Small package for use in portable electronics
- Suitable replacement for MLV' s in ESD protection applications
- Protect one I/O or power line
- Low clamping voltage
- Stand off voltages: 5V
- Low leakage current
- Solid-state silicon-avalanche technology
- Small Body Outline Dimensions: $1.0\text{mm} \times 0.6\text{mm} \times 0.5\text{mm}$
- Equivalent to 0402 package



Applications

- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDA' s)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Cordless Phones
- Digital Cameras
- Peripherals
- MP3 Players

Electrical characteristics @25°C (unless otherwise specified)

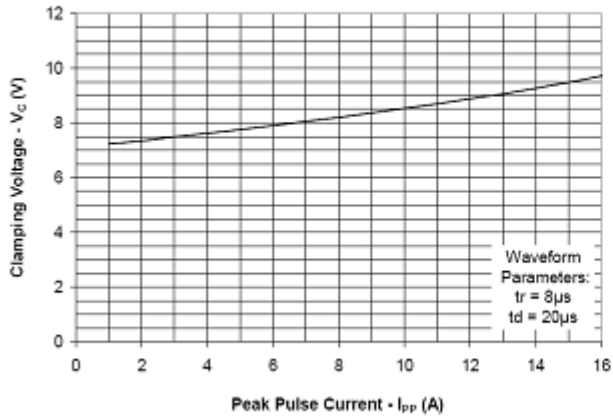
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|-------------------------|-----------|------------------------------|------|------|------|---------|
| Working Voltage | V_{RWM} | | | | 5 | V |
| Breakdown voltage | V_{BR} | $I_t=1mA$ | 5.6 | 6.8 | 7.8 | V |
| Reverse Leakage Current | I_R | $V_{RWM}=5V$ $T=25^{\circ}C$ | | | 1 | μA |
| Junction Capacitance | C_j | $V_R=0V$ $f=1MHz$ | | 15 | 20 | pF |

Absolute maximum rating @25°C

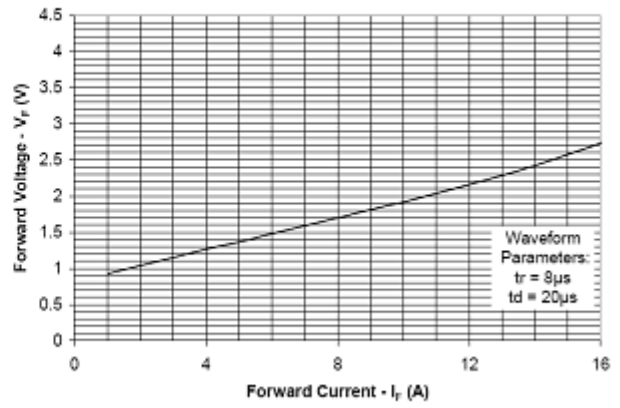
| Rating | Symbol | Value | Units |
|--|-----------|--------------|-------------|
| Peak Pulse Power ($t_P = 8/20\mu S$) | P_{pk} | 100 | W |
| Lead Soldering Temperature | T_L | 260 (10 sec) | $^{\circ}C$ |
| Operating Temperature | T_J | -55 to +125 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55 to +150 | $^{\circ}C$ |

Typical Characteristics

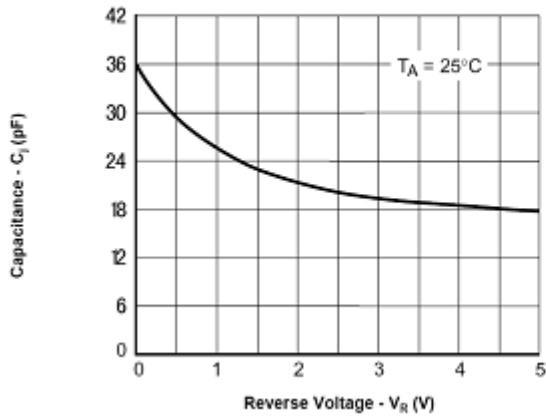
Clamping Voltage vs. Peak Pulse Current



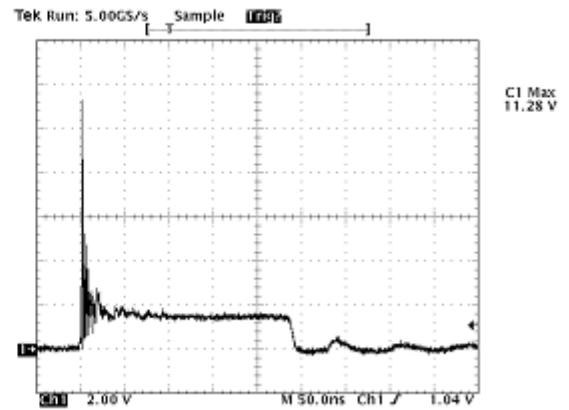
Forward Voltage vs. Forward Current



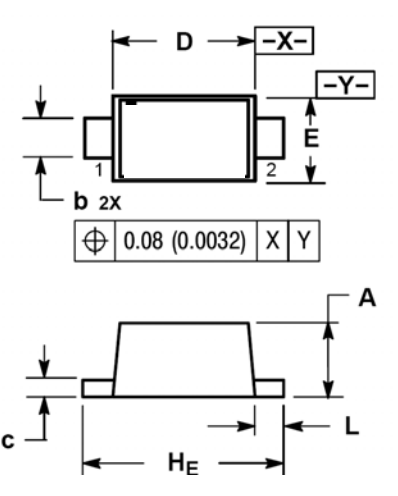
Junction Capacitance vs. Reverse Voltage



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



Product dimension



Technical drawing showing top and side views of the component with dimensions labeled: A, b, c, D, E, HE, L, X, Y. A tolerance table is provided below the drawing:

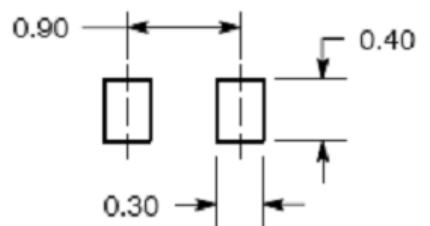
| | | | | |
|----------|------|----------|---|---|
| \oplus | 0.08 | (0.0032) | X | Y |
|----------|------|----------|---|---|

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.36 | 0.40 | 0.43 | 0.014 | 0.016 | 0.017 |
| b | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| c | 0.07 | 0.12 | 0.17 | 0.003 | 0.005 | 0.007 |
| D | 0.75 | 0.80 | 0.85 | 0.030 | 0.031 | 0.033 |
| E | 0.55 | 0.60 | 0.65 | 0.022 | 0.024 | 0.026 |
| HE | 0.95 | 1.00 | 1.05 | 0.037 | 0.039 | 0.041 |
| L | 0.05 | 0.10 | 0.15 | 0.002 | 0.004 | 0.006 |

SOLDERING FOOTPRINT*

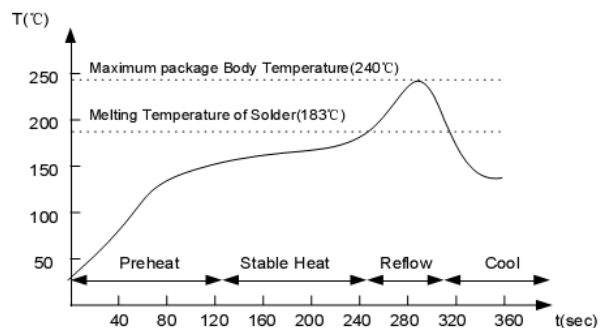


DIMENSIONS: MILLIMETERS

Reflow Soldering and Rework Recommendations

Recommended reflow methods, Recommended reflow methods: IR, Vapor phase oven, hot air oven.

- Devices can be cleaned using standard industry methods and solvents.
- If a device is removed from the board, it should be discarded and replaced with a new device.
- Leaded devices are not designed to be compatible with wave soldering manufacturing operations.
- Lead free reflow curve.



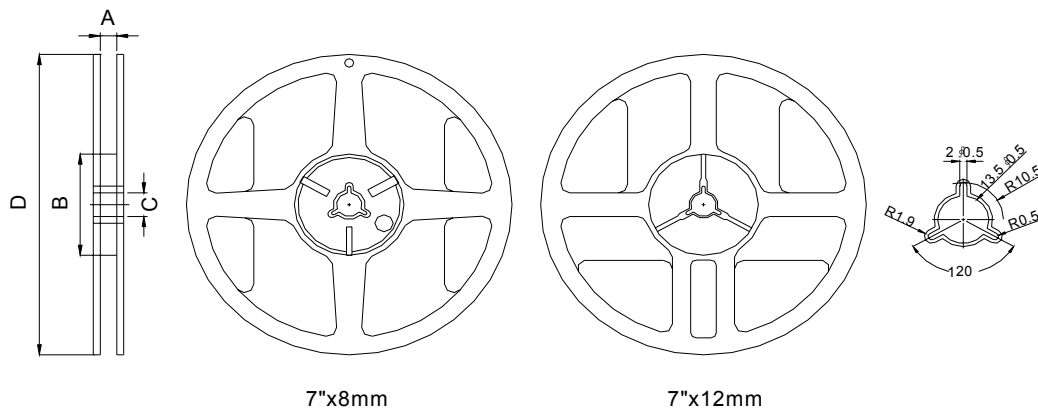
NOTE If reflow temperatures exceed recommended profile, devices may not meet the performance requirements, If the reflow curve can not meet your product, please contact SEMITEL.

How To Order

| Device | Package | Carrier | Marking Code | Standard Quantity |
|--------------|---------|---------|--------------|-------------------|
| SES5VD923-2B | SOD | Tape | 5B | 8000pcs |

Package Information

| Type | A (mm) | B (mm) | C (mm) | D(mm) |
|--------|---------|--------|----------|-------|
| 7"x8mm | 9.0±0.5 | 60±2 | 13.5±0.5 | 178±2 |




Revision History

| Revision | Date | Changes |
|----------|----------|----------------------------|
| 1.0 | 2008-7-3 | - |
| 1.1 | 2008-9-3 | Change the parameter of Cj |

Website: <http://www.semiteltech.com>

For additional information, please contact your local Sales Representative.

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