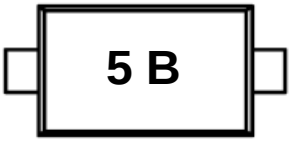
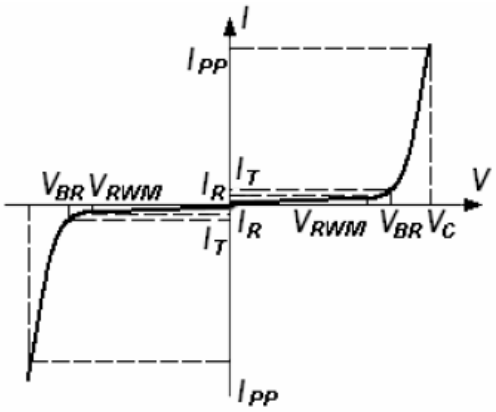
Description

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 (±15kV air, ±8kV contact discharge)



Feature

- 100 Watts peak pulse power (tp = 8/20 μs)
- Transient protection for data lines to
  IEC 61000-4-2 (ESD) ±25kV (air), ±10kV (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: 1.0mm×0.6mm×0.5mm
- Equivlent 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℃(unless otherwise specified)

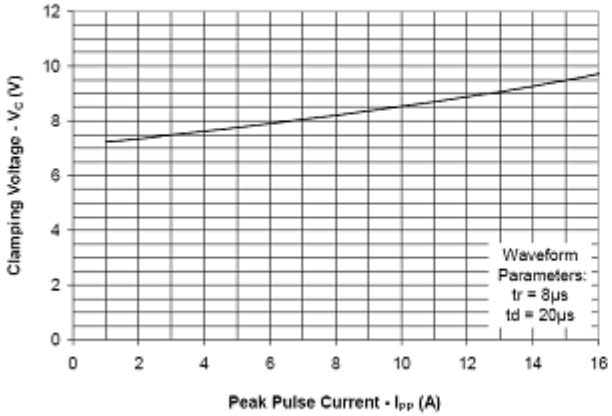
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Working Voltage	V_{RWM}				5	V
Breakdown voltage	V_{BR}	I_t =1mA	5.6	6.7	7.8	V
Reverse Leakage Current	I_R	V_{RWM} =5V T=25℃			1	μA
Clamping Voltage	V_C	I_{PP}=5A t_P = 8/20μS			9.8	V
Clamping Voltage	V_C	I_{PP}=16A t_P = 8/20μS			12.5	V
Junction Capacitance	C_j	V_R=0V f = 1MHz		20	25	pF
Junction Capacitance	C_j	V_R=2.5V f = 1MHz		12	20	pF

Absolute maximum rating @25℃

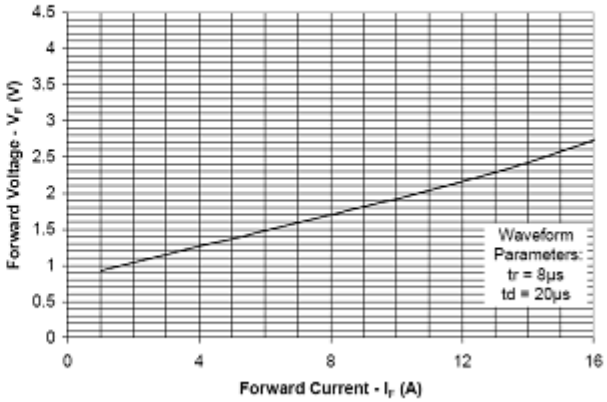
Rating	Symbol	Value	Units
Peak Pulse Power (t_P = 8/20μS)	P_{pk}	100	W
Maximum Peak Pulse Current (t_P = 8/20μS)	I_{pp}	16	A
Lead Soldering Temperature	T_L	260 (10 sec)	℃
Operating Temperature	T_J	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Typical Characteristics

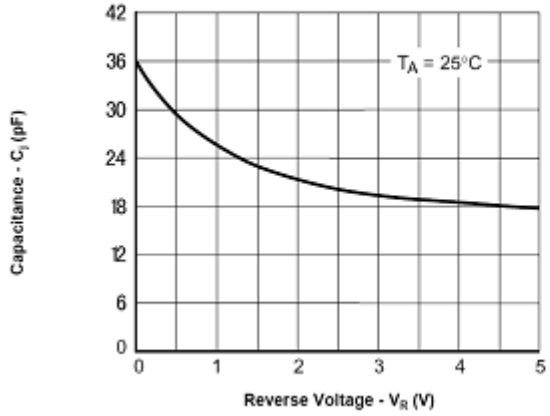
Clamping Voltage vs. Peak Pulse Current



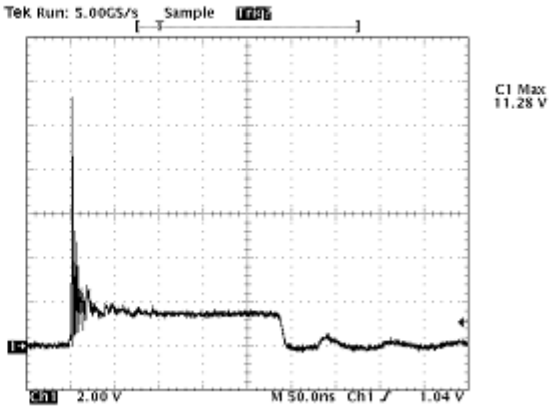
Forward Voltage vs. Forward Current



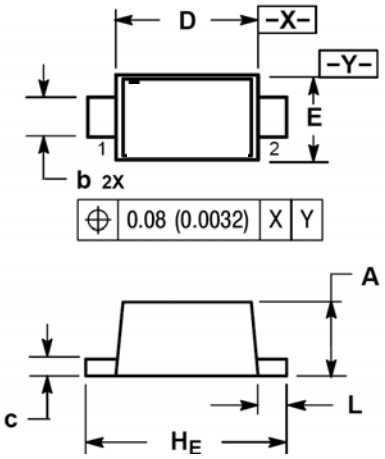
Junction Capacitance vs. Reverse Voltage



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



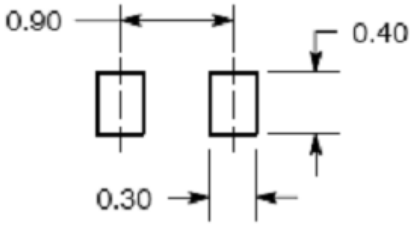
Product dimension



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.

	MILLIMETERS			INCHES		
DIM	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
H_E	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*

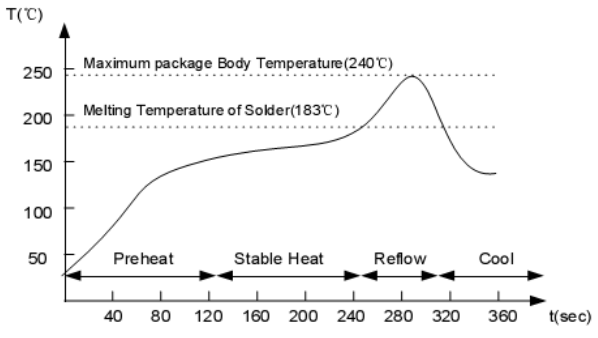


DIMENSIONS: MILLIMETERS

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.



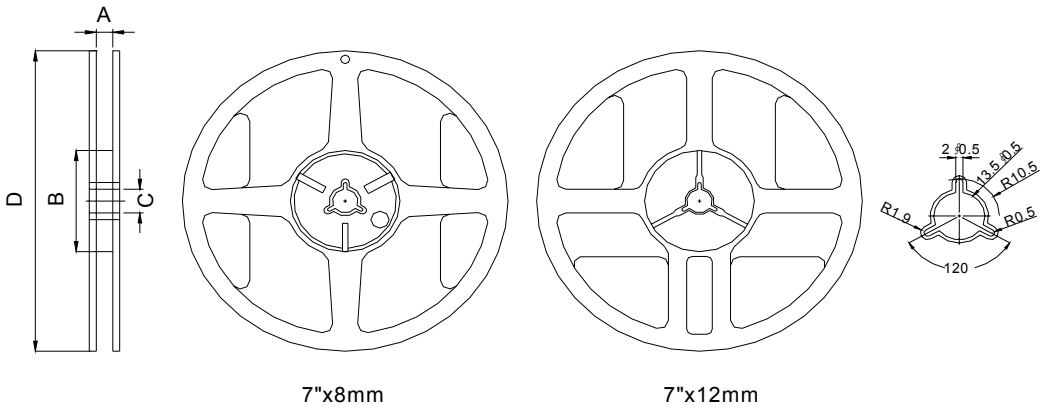
NOTE If reflow temperatures exceed recommended profile, devices may not meet the performance requirements, If the reflow curve can not meet your product, please contact SEMITEL.

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



7"x8mm 7"x12mm

Revision History

Revision	Date	Changes
1.0	2008-7-3	-