

ESD9B5VD

**1-Line, Bi-directional, Normal-Capacitance,
Transient Voltage Suppressors**

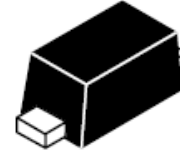
<http://www.sh-willsemi.com>

Descriptions

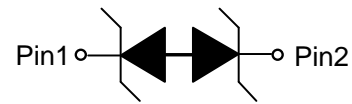
The ESD9B5VD is a Bi-directional transient voltage suppressor (TVS) to protect sensitive electronic components from electrostatic discharge (ESD). It is particularly well-suited for cellular phones, PMP, MID, PDA, digital cameras and other electronic equipment.

The ESD9B5VD is safely dissipating ESD strikes to meet the ESD immunity testing of IEC61000-4-2 level 4.

The ESD9B5VD is available in SOD-923 package. Standard products are Pb-free and Halogen-free.



SOD-923



Pin configuration (Top view)

Features

- Reverse stand-off voltage : 5V Max
- Peak power (tp=8/20μs) : 85W Max.
- Peak current (tp=8/20μs) : 6.5A Max.
- Transient protection
IEC61000-4-2 : ±30kV air
: ±30kV contact
- Low clamping voltage
- Low leakage current
- Small package



**9C = Device code
Marking**

Order information

Device	Package	Shipping
ESD9B5VD-2/TR	SOD-923	10000/Tape&Reel

Applications

- Cell phone
- PMP
- MID
- PDA
- Digital camera
- Other electronics equipments

Absolute maximum ratings

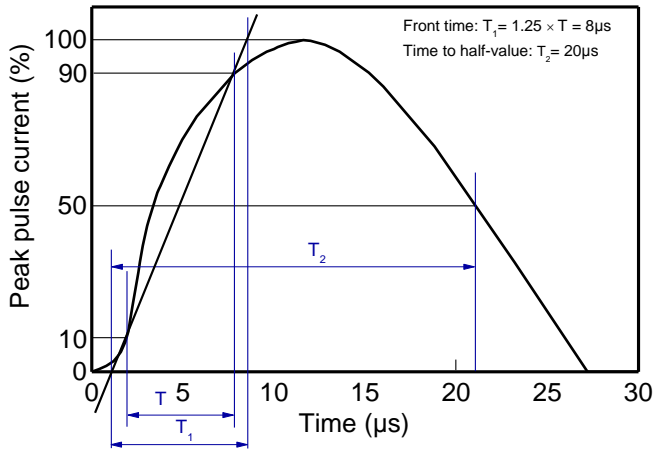
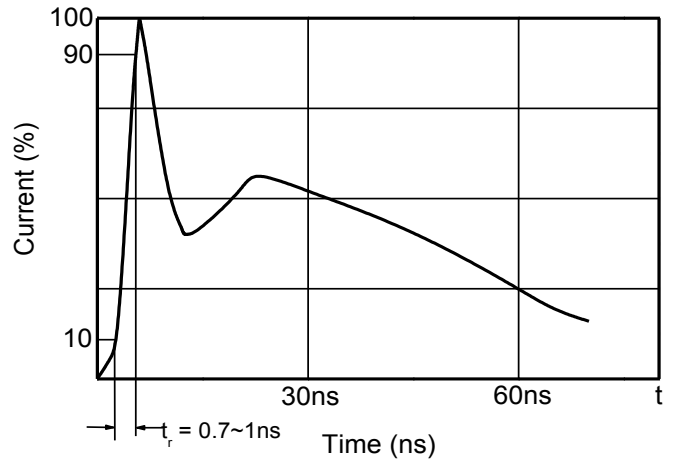
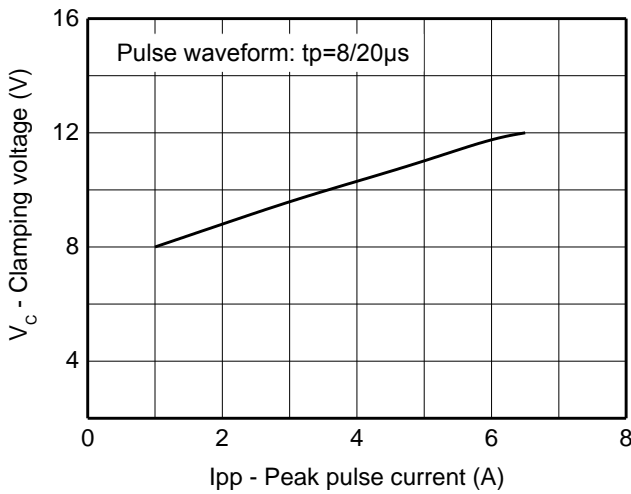
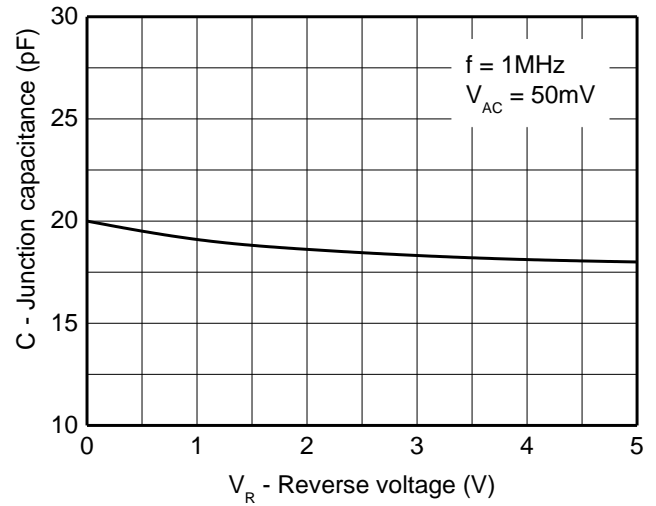
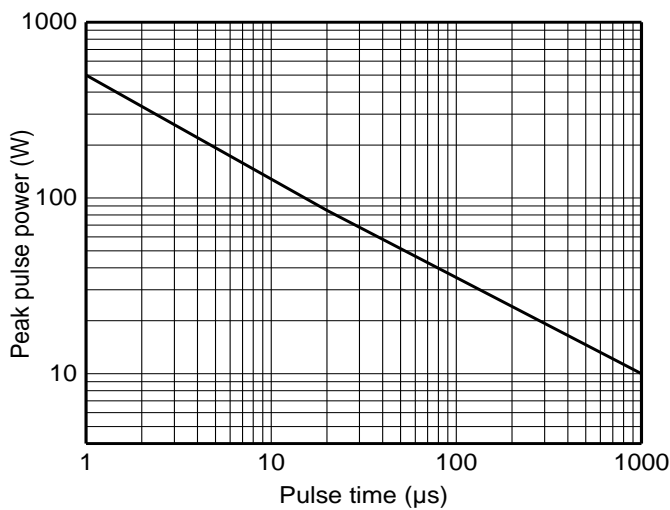
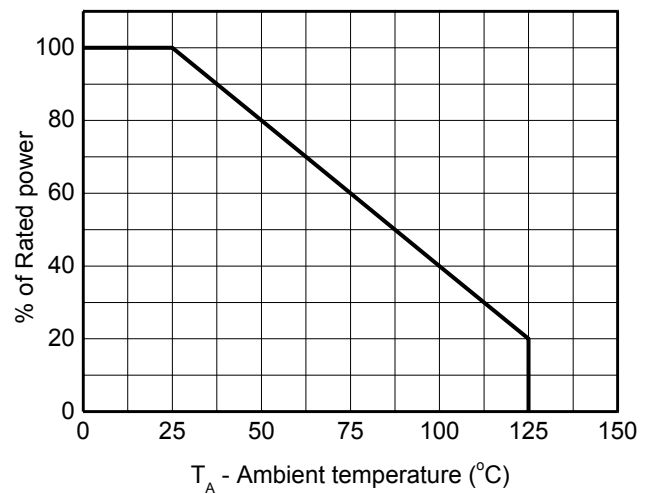
Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20μs)	Ppk	85	W
Peak pulse current (tp=8/20μs)	Ipp	6.5	A
ESD according to IEC61000-4-2 air discharge	V _{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T _J	125	°C
Operating temperature	T _{OP}	-40~85	°C
Lead temperature	T _L	260	°C
Storage temperature	T _{STG}	-55~150	°C

Electronics characteristics (Ta=25 °C, unless otherwise noted)

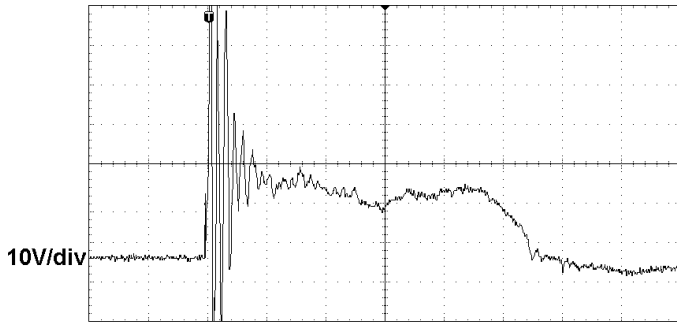
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5.0	V
Reverse leakage current	I _R	V _{RWM} = 5V			1.0	μA
Reveres breakdown voltage	V _{BR}	I _{BR} = 1mA	5.6	7.5	8.2	V
Clamping voltage ¹⁾	V _{CL}	I _{pp} = 1.0A, tp = 8/20μs			9	V
		I _{pp} = 6.5A, tp = 8/20μs			13	V
Junction capacitance	C _J	F=1MHz, V _R =0V		20	35	pF

Notes:

1) Non-repetitive current pulse, according to IEC61000-4-5.

Typical characteristics (Ta=25°C, unless otherwise noted)

8/20μs waveform per IEC61000-4-5

Contact discharge current waveform per IEC61000-4-2

Clamping voltage vs. Peak pulse current

Capacitance vs. Reverse voltage

Non-repetitive peak pulse power vs. Pulse time

Power derating vs. Ambient temperature

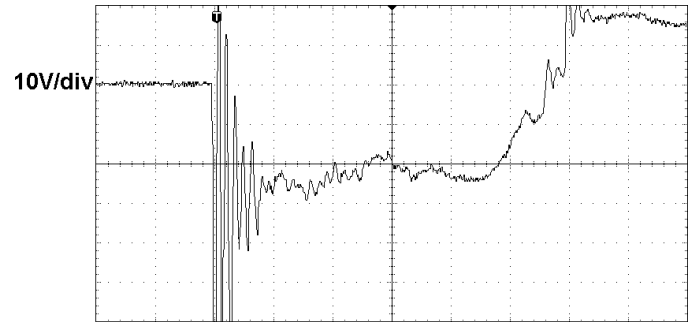
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



40ns/div

ESD clamping

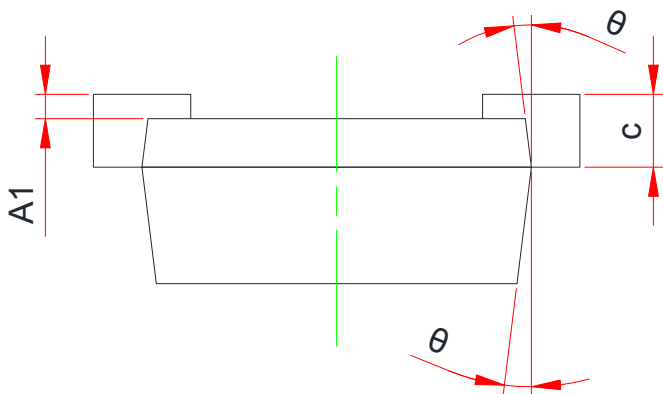
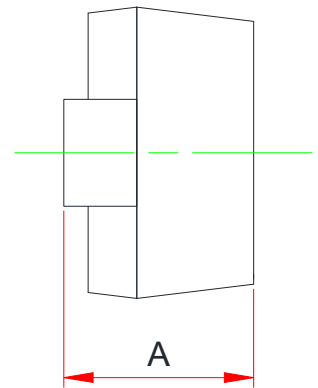
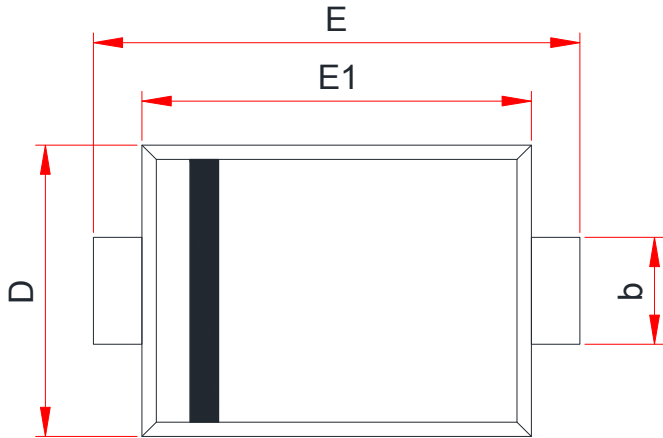
(+8kV contact discharge per IEC61000-4-2)



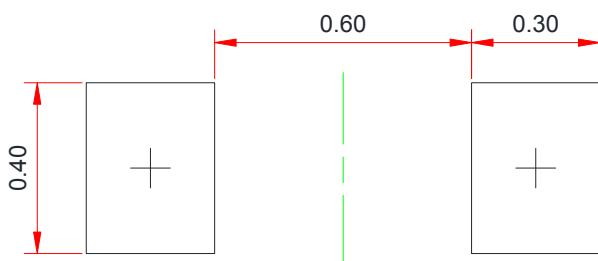
40ns/div

ESD clamping

(-8kV contact discharge per IEC61000-4-2)

Package outline dimensions
SOD-923


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.35	-	0.45
A1	0.00	-	0.05
b	0.15	-	0.27
c	-	-	0.18
D	0.55	0.60	0.65
E	0.90	1.00	1.10
E1	0.75	0.80	0.85
θ	7° Ref.		

Recommend PCB Layout (Unit: mm)

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.