ESD9B5VLD

1-Line, Bi-directional, Low-Capacitance, Transient Voltage Suppressor

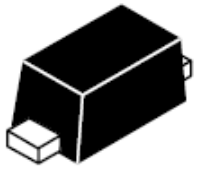
http//:www.sh-willsemi.com

Descriptions

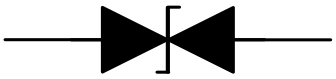
The ESD9B5VLD is a Bi-directional transient voltage suppressor (TVS) to protect sensitive electronic components from electrostatic discharge (ESD). It is particularly well-suited for cellular phones, PMP, MID, PDA, digital cameras and other electronic equipment.

The ESD9B5VLD is safely dissipating ESD strikes to meet the ESD immunity testing of IEC61000-4-2 level 4.

The ESD9B5VLD is available in a SOD-923 package with Pb-free and Halogen-free.



SOD-923



Pin configuration

Features

- Reverse stand-off voltage : 5V Max.
- Peak power (tp=8/20μs) : 36W Max.
- Peak current (tp=8/20μs) : 3A Max.
- Transient protection
  IEC61000-4-2 : ±20KV air
  : ±20KV contact
- Low clamping voltage
- Low leakage current
- Small package

SOD-923
L = Device code
Marking

Applications

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

Order information

Device	Package	Shipping
ESD9B5VLD-2/TR	SOD-923	10000/Tape&Reel

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20μs)	Ppk	36	W
Peak pulse current (tp=8/20μs)	Ipp	3	A
ESD voltage IEC61000-4-2 air	V_{ESD}	±20	KV
ESD voltage IEC61000-4-2 contact		±20	
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

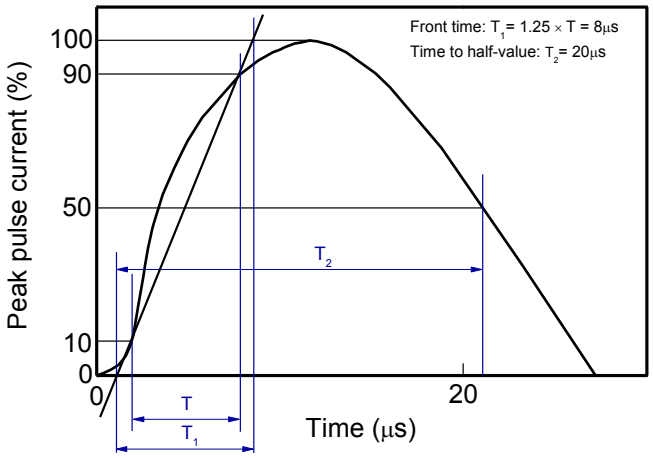
Electronics characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5.0	V
Reveres leakage current	I_R	V_{RWM}=5V			1.0	μA
Breakdown voltage	V_{BR}	I_T=1mA	6.5		8.2	V
Clamping voltage 1)	V_{CL}	I_{PP} = 16A, t_p = 100ns		13		V
Clamping voltage 2)	V_{CL}	V_{ESD} = 8kV		13		V
Clamping voltage 3)	V_C	Ipp=1A tp=8/20μs			8.5	V
		Ipp=3A tp=8/20μs			12	V
Dynamic resistance 1)	R_{DYN}			0.4		Ω
Junction capacitance	C_J	V_R = 0V, f = 1MHz		5	12	pF

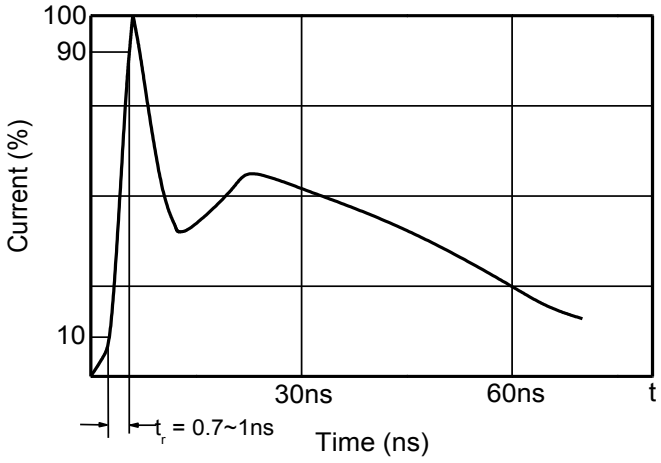
Notes:

1) *TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.*
2) *Contact discharge mode, according to IEC61000-4-2.*
3) *Non-repetitive current pulse, according to IEC61000-4-5.*

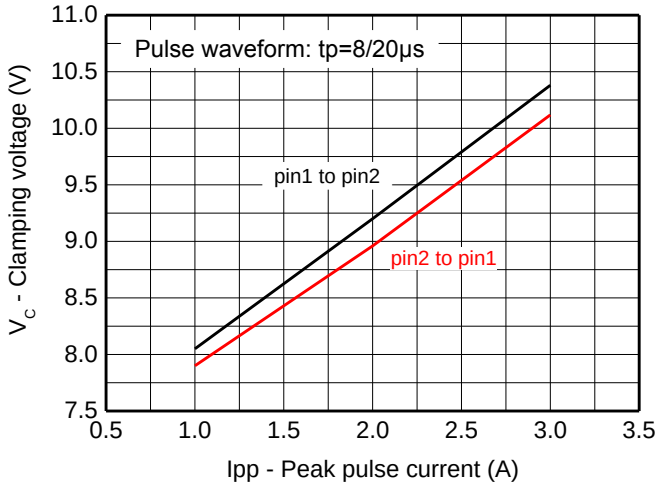
Typical characteristics (T_A=25°C, unless otherwise noted)



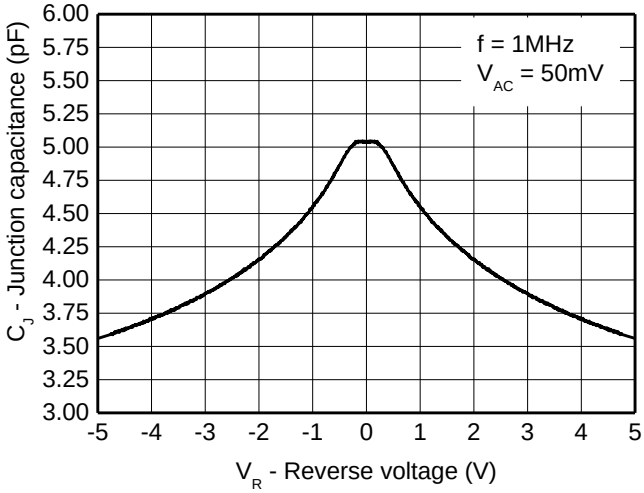
8/20μs waveform per IEC61000-4-5



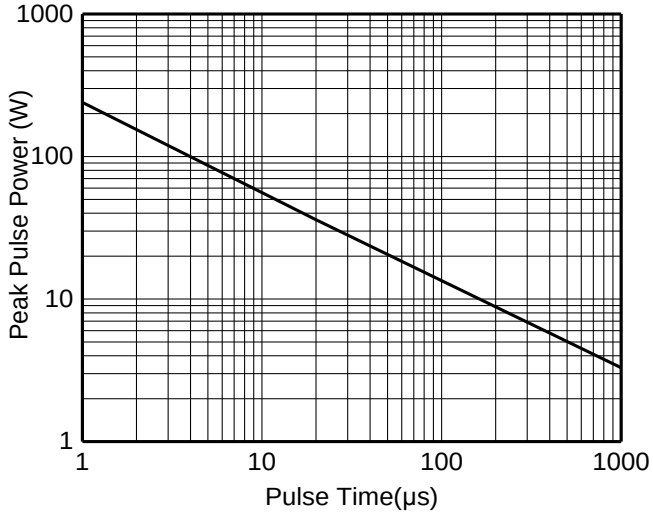
Contact discharge current waveform per IEC61000-4-2



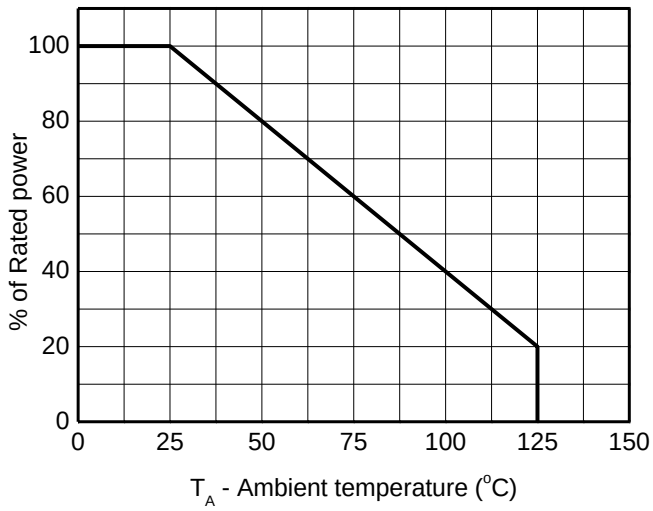
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

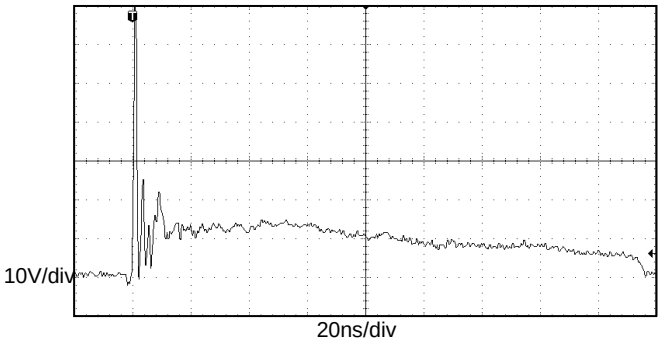


Non-repetitive peak pulse power vs. Pulse time

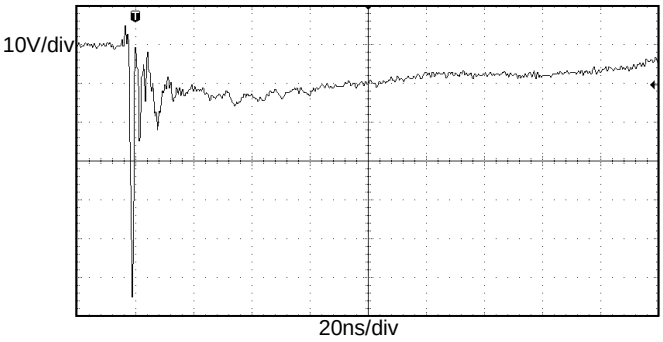


Power derating vs. Ambient temperature

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



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



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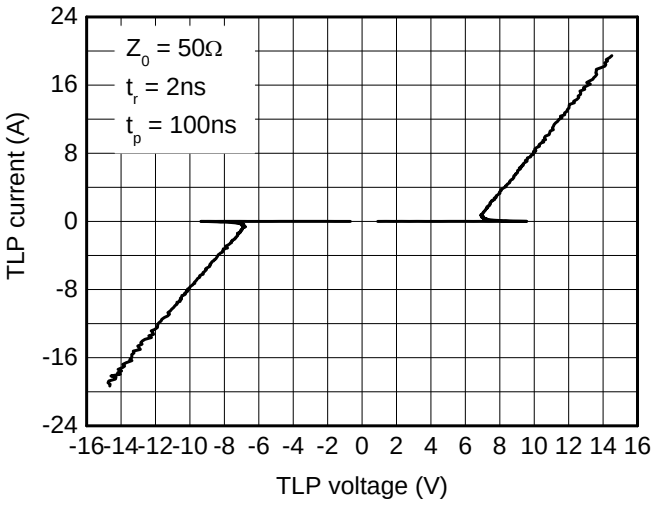
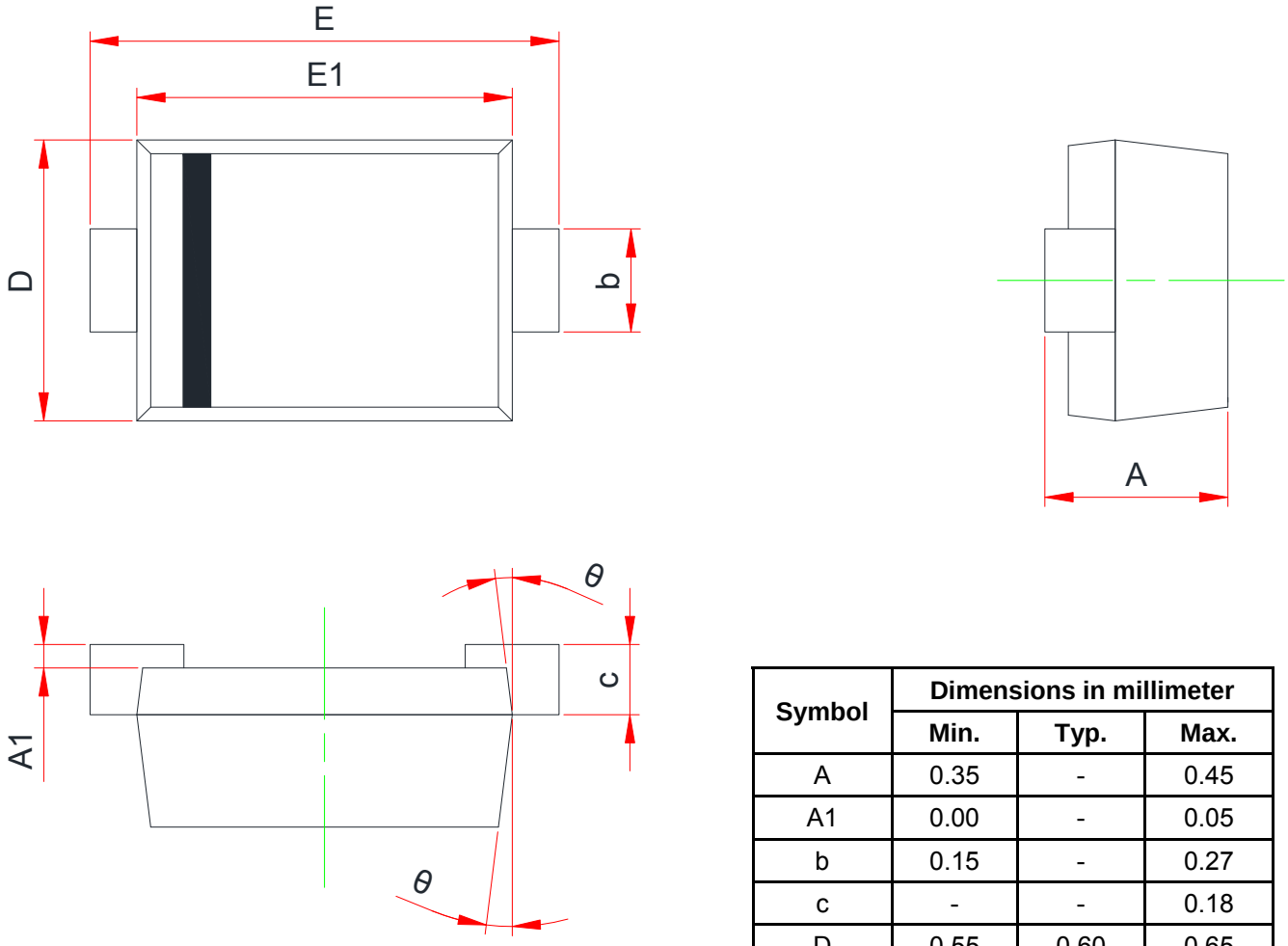


TLP Measurement

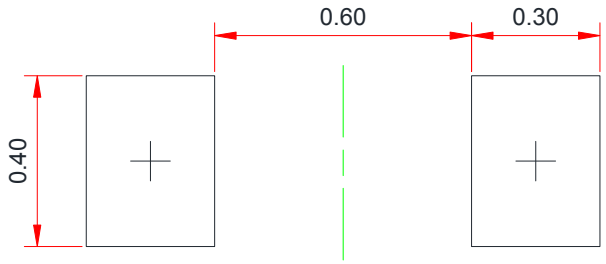
Package outline dimensions

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^{o} 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.