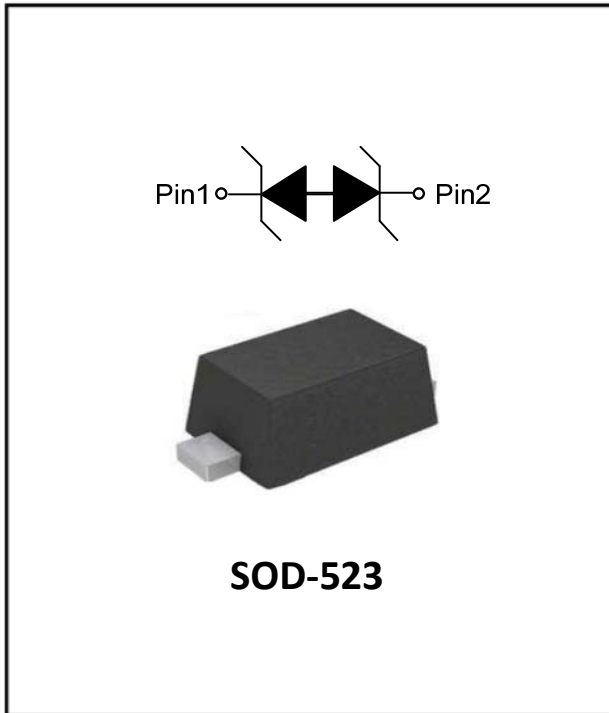


## 1- Line, Bi-directional, Transient Voltage Suppressor



### Features

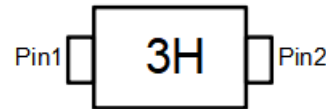
- Stand-off voltage:  $\pm 3.3V$  Max
- Transient protection for each line according to IEC61000-4-2(ESD):  $\pm 30kV$  (contact)  
IEC61000-4-4 (EFT): 40A (5/50ns)  
IEC61000-4-5(surge): 13A (8/20 $\mu s$ )
- Low leakage current
- Ultra low clamping voltage
- RoHS Compliant

### Applications

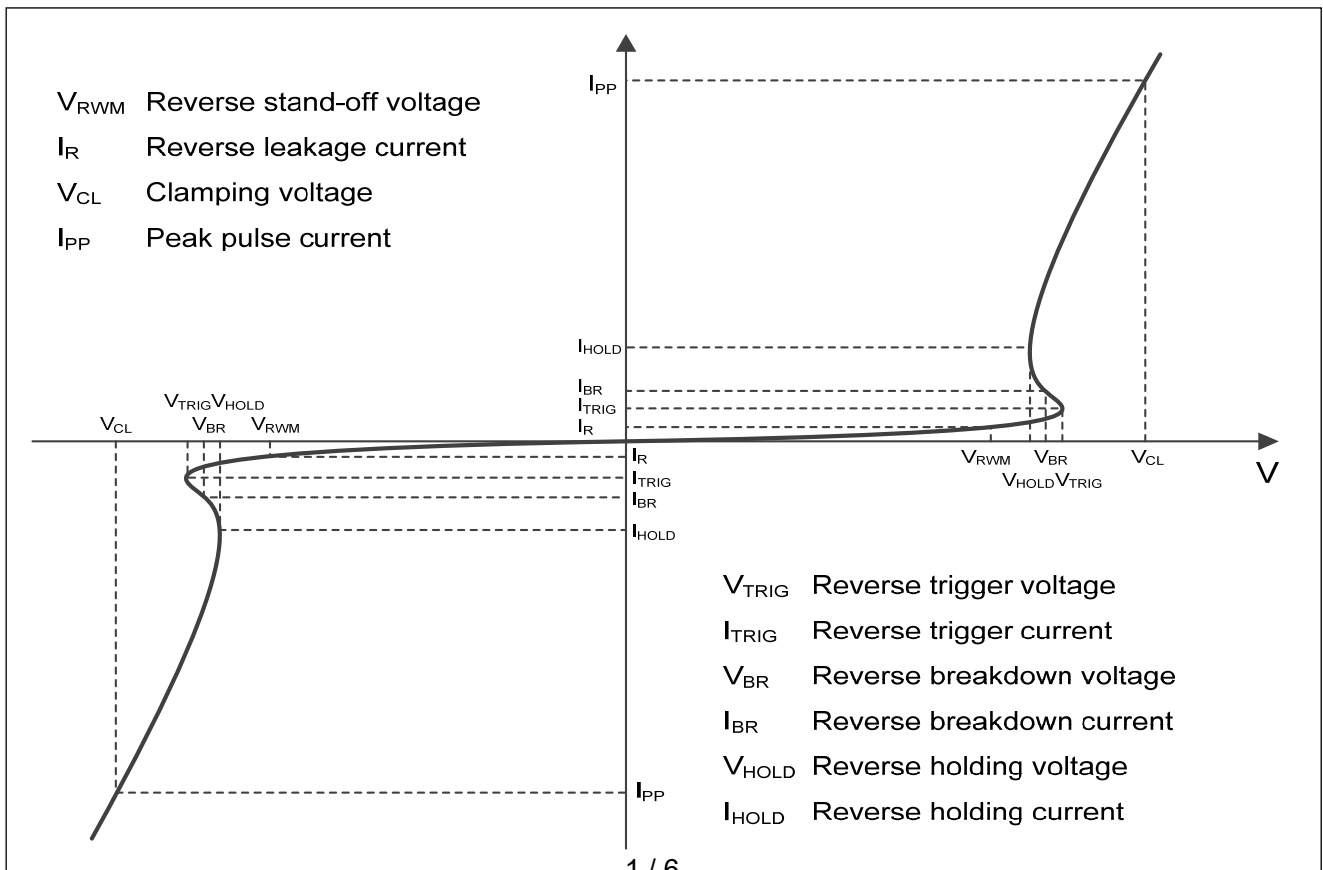
- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

### Mechanical Data

- Package: SOD-523
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



### ■ Definitions of electrical characteristics





# ESD3V3D5BA

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	125	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{pp}$	13	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	-55~125	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~150	$^{\circ}C$

## ■Electrical Characteristics ( $T_a=25^{\circ}C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	$V_{RWM}$	V				$\pm 3.3$
Reverse leakage current	$I_R$	$\mu A$	$V_{RWM} = 3.3V$			0.1
Reverse breakdown voltage	$V_{BR}$	V	$I_{BR} = 1mA$	3.5	4	
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{pp} = 16A, t_p = 100ns$		7.2	
Dynamic resistance <sup>1)</sup>	$R_{DYN}$	$\Omega$			0.17	
Clamping voltage <sup>2)</sup>	$V_{CL}$	V	$V_{ESD} = 8kV$		7.5	
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{pp} = 1A, t_p = 8/20\mu s$		4.5	5.5
		V	$I_{pp} = 13A, t_p = 8/20\mu s$		8.2	9.5
Junction capacitance	$C_J$	pF	$V_R = 0V, f = 1MHz$		20	28
	$C_J$	pF	$V_R = 2.5V, f = 1MHz$		18	22

Notes:

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

## ■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD3V3D5BA	F3	Approximate 2	3000	30000	120000	7" reel



## ■ Characteristics (Typical)

Fig.1 8/20 $\mu$ s waveform per IEC61000-4-5

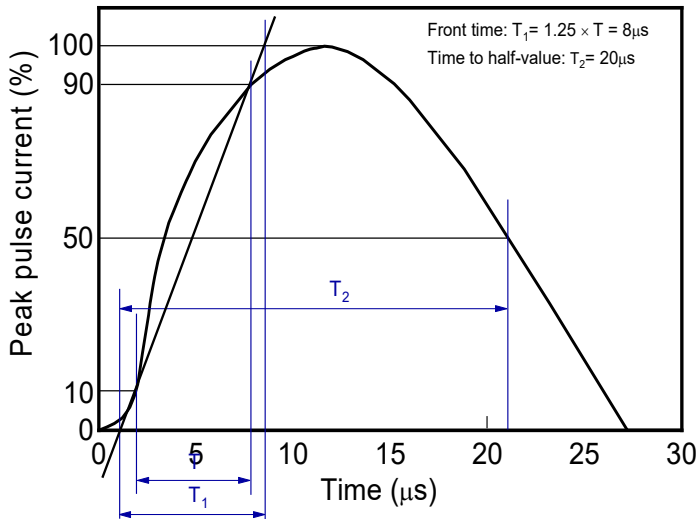


Fig.2 Contact discharge current waveform per IEC61000-4-2

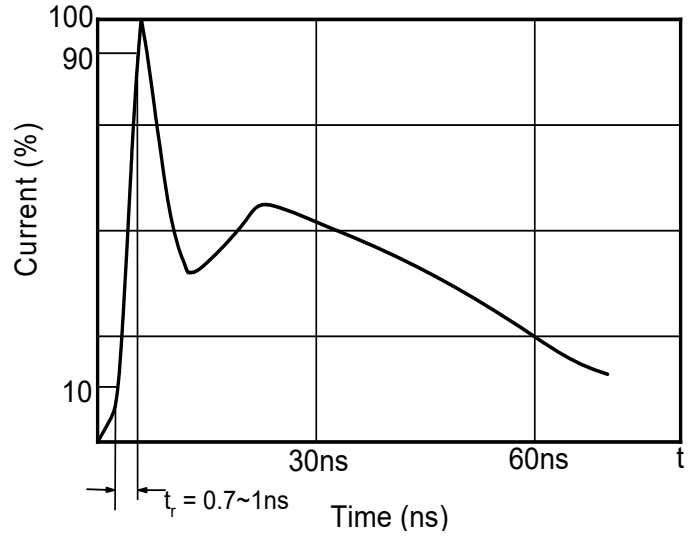


Fig.3 Clamping voltage vs. Peak pulse current

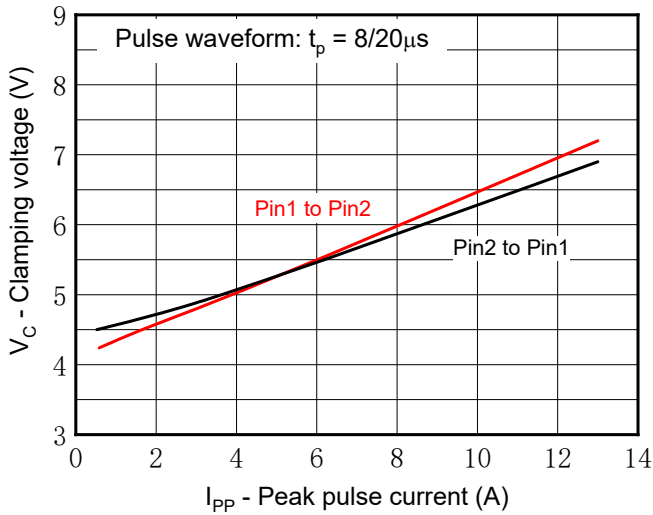


Fig.4 Capacitance vs. Reverse voltage

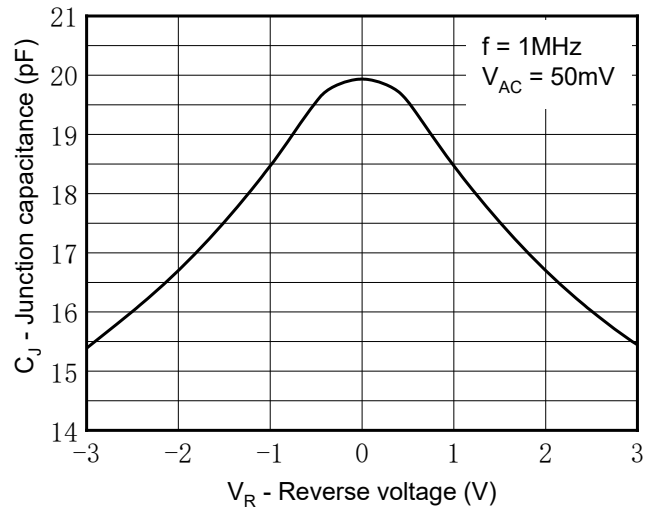


Fig.5 Non-repetitive peak pulse power vs. Pulse time

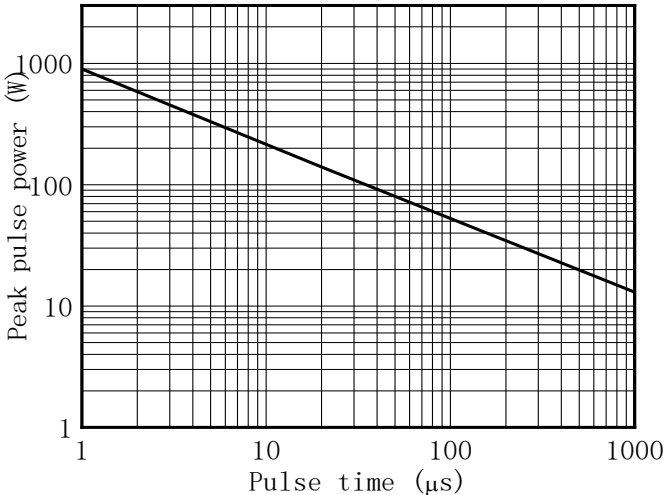


Fig.6 Power derating vs. Ambient temperature

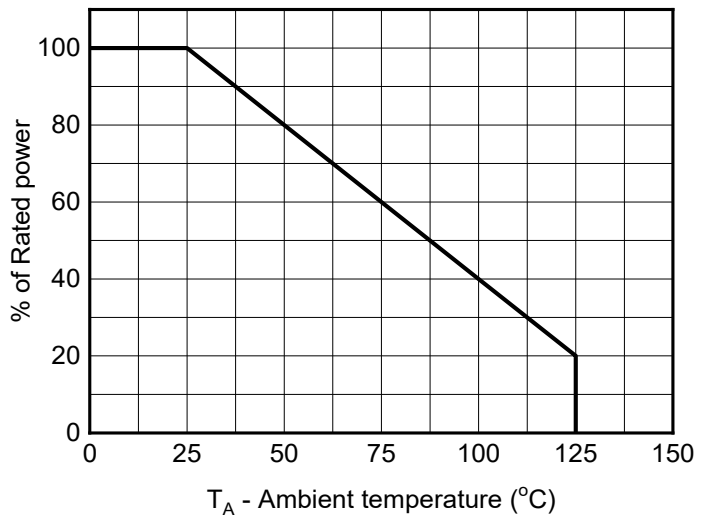
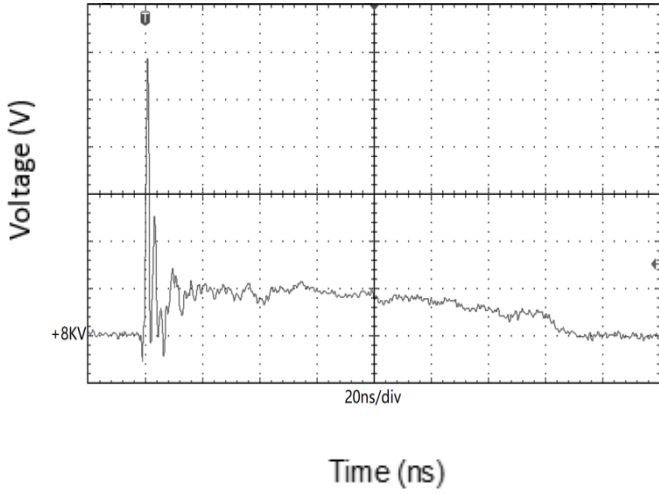
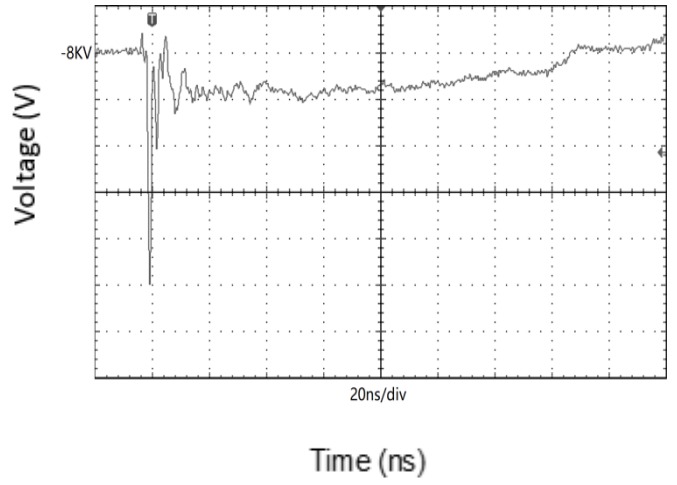


Fig.7 ESD clamping



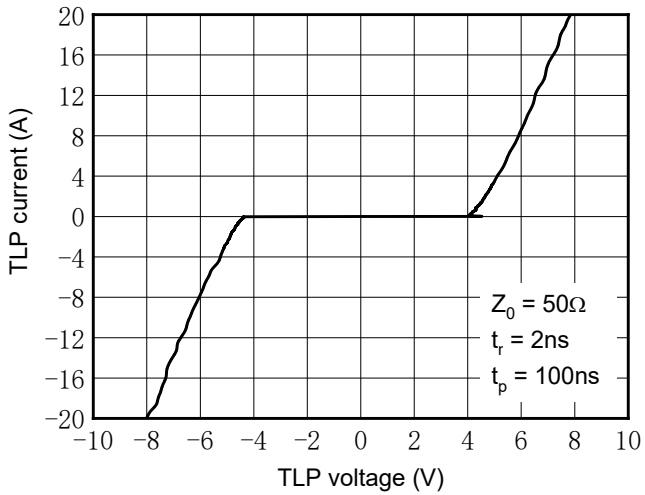
(+8kV contact discharge per IEC61000-4-2)

Fig.8 ESD clamping t



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

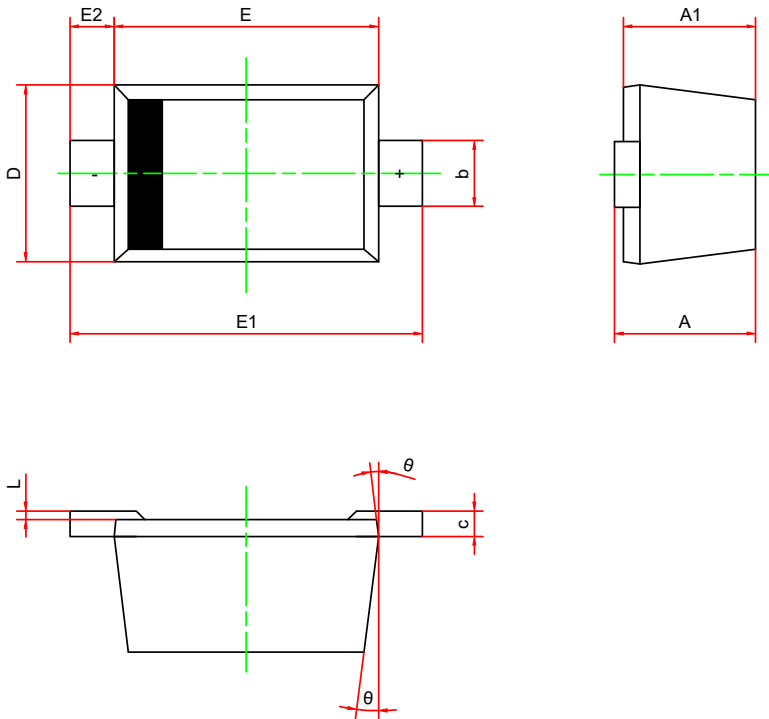
Fig.9 TLP Measurement





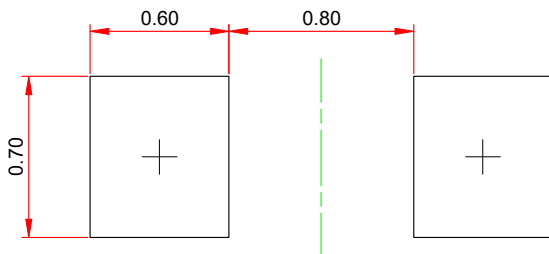
# ESD3V3D5BA

## ■ Outline Dimensions



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.510	0.640	0.770
A1	0.500	0.600	0.700
b	0.250	0.300	0.350
c	0.080	0.115	0.150
D	0.750	0.800	0.850
E	1.100	1.200	1.300
E1	1.500	1.600	1.700
E2	0.200 Ref		
L	0.010	0.040	0.070
$\theta$	7° Ref		

## ■ Soldering Footprint



### Notes:

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



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