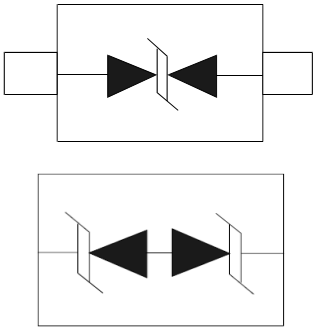
THE DATASHEET OF

PESD5V0V1BL

Features

- Bidirectional ESD protection of one line
- Very low diode capacitance: C_d = 11 pF
- Max. peak pulse power: P_{PP} = 45 W
- Low clamping voltage: V_{CL} = 12.5 V
- Ultra low leakage current: I_{RM} < 1 nA
- ESD protection up to 30 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); I_{PP} = 4.8 A
- AEC-Q101 qualified



Transparent
top view

Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Subscriber Identity Module (SIM) card protection
- Communication systems
- Portable electronics
- 10/100 Mbit/s Ethernet
- FireWire

Mechanical Data

- SOD-882 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Quick reference data

Quick reference data
T_{amb} = 25 ˚C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage		-	-	5	V
C_d	diode capacitance	f = 1 MHz; V_R = 0 V	-	11	13	pF

Ordering information

Ordering information

Type number	Package		
	Name	Description	Version
PESD5V0V1BA	SC-76	plastic surface-mounted package; 2 leads	SOD323
PESD5V0V1BB	SC-79	plastic surface-mounted package; 2 leads	SOD523
PESD5V0V1BL	-	leadless ultra small plastic package; 2 terminals; body 1.0 ? 0.6 ? 0.5 mm	SOD882

Limiting values

Limiting values
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
Per diode						
P_{PP}	peak pulse power	t_p = 8/20 ?s	[1]	-	45	W
I_{PP}	peak pulse current	t_p = 8/20 ?s	[1]	-	4.8	A

Limiting values …continued
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	**Parameter**	**Conditions**	**Min**	**Max**	**Unit**
Per device					
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		–55	+150	°C
T_{stg}	storage temperature		–65	+150	°C

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

ESD maximum ratings
T_{amb} = 25 °C unless otherwise specified.

Symbol	**Parameter**	**Conditions**		**Min**	**Max**	**Unit**
V_{ESD}	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	[1]	-	30	kV
		machine model		-	2	kV
		MIL-STD-883 (human body model)		-	16	kV

[1] Device stressed with ten non-repetitive ESD pulses.

ESD standards compliance

Standard	**Conditions**
IEC 61000-4-2; level 4 (ESD)	> 15 kV (air); > 8 kV (contact)
MIL-STD-883; class 3B (human body model)	> 8 kV

Characteristics

Characteristics

T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{RWM}	reverse standoff voltage			-	-	5	V
I_{RM}	reverse leakage current	V_{RWM} = 5 V		-	< 1	10	nA
V_{BR}	breakdown voltage	I_R = 5 mA		5.8	6.8	7.8	V
C_d	diode capacitance	f = 1 MHz; V_R = 0 V		-	11	13	pF
V_{CL}	clamping voltage	I_{PP} = 4.8 A	[1]	-	-	12.5	V
r_{dyn}	dynamic resistance	I_R = 10 A	[2]	-	0.2	-	Ω
r_{dif}	differential resistance	I_R = 5 mA		-	-	35	Ω

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

[2] Non-repetitive current pulse, Transmission Line Pulse (TLP) t_p = 100 ns; square pulse; ANS/IESD STM5.1-2008.

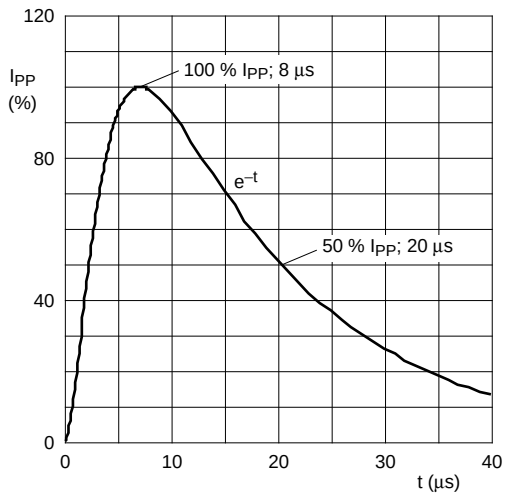


Fig 1. 8/20 ?s pulse waveform according to IEC 61000-4-5

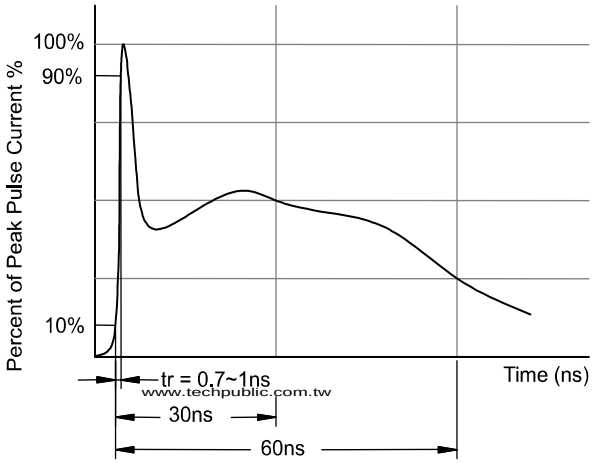


Fig 2. ESD pulse waveform according to IEC 61000-4-2

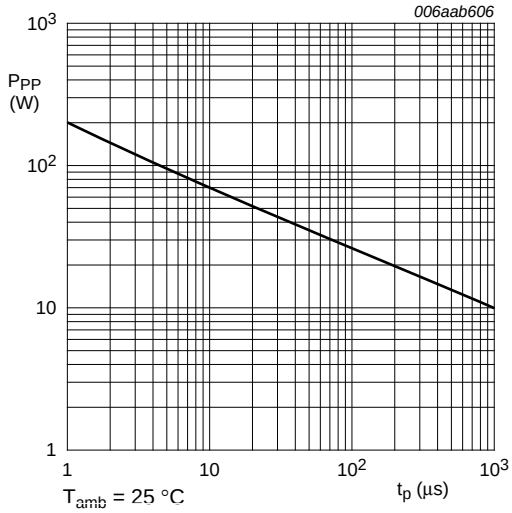


Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

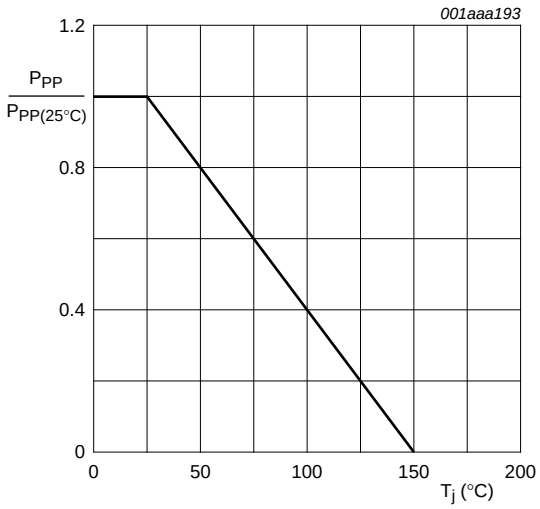


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values

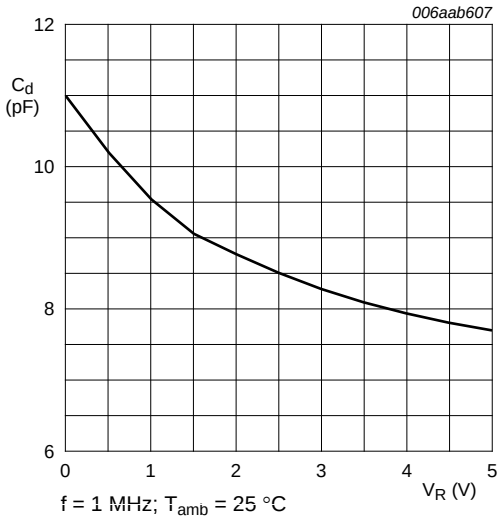


Fig 5. Diode capacitance as a function of reverse voltage; typical values

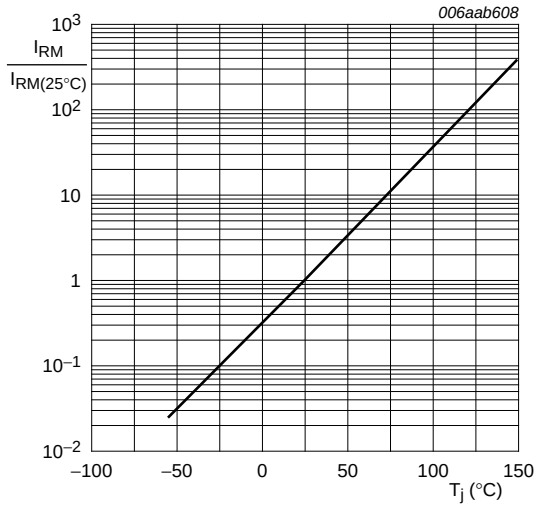
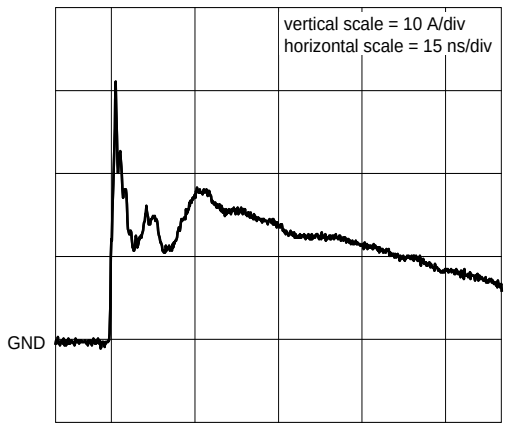
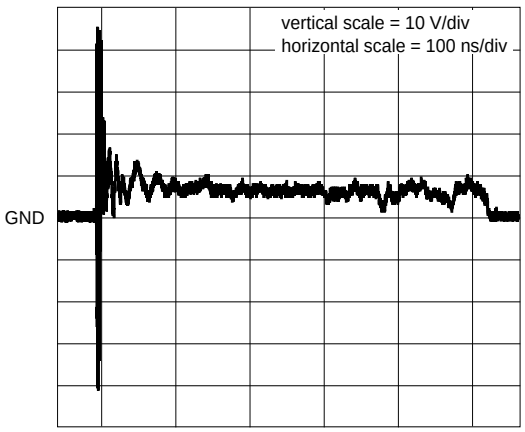


Fig 6. Relative variation of reverse leakage current as a function of junction temperature; typical values

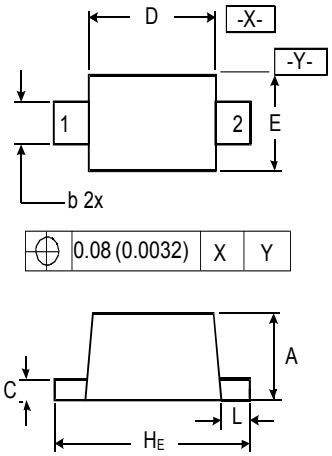


unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)



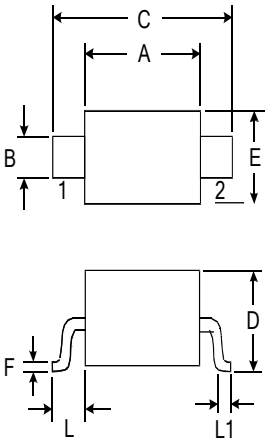
clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

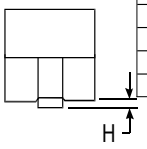
Outline Drawing – SOD-323/SOD-523/SOD-882



DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
C	0.07	0.20	0.0028	0.0079
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
HE	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

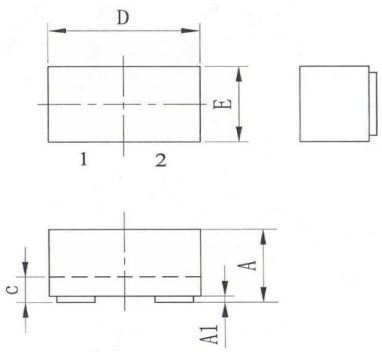
SOD-523

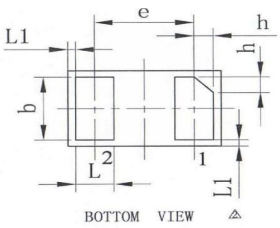




DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.600	1.800	0.063	0.071
B	0.250	0.350	0.010	0.014
C	2.500	2.700	0.098	0.106
D		1.000		0.039
E	1.200	1.400	0.047	0.055
F	0.080	0.150	0.003	0.006
L	0.475 REF		0.019REF	
L1	0.250	0.400	0.010	0.016
H	0.000	0.100	0.000	0.004

SOD-323

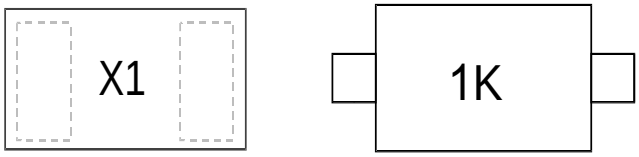




SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
c	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.05REF		
h	0.07	0.12	0.17
载体尺寸 (W11)	20*20		

SOD-882

Marking



Ordering information

Order code	Marking codes	Package	Baseqty	Deliverymode
UMW PESD5V0V1BA	1K	SOD-323	10000	Tape and reel
UMW PESD5V0V1BB	Z9	SOD-523	10000	Tape and reel
UMW PESD5V0V1BL	X1	SOD-882	10000	Tape and reel

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