Discription

The PESDXXXL1BA protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

SOD-323

Specification Features:

- 500W peak pulse power (8/20μs)
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage:3.3V, 5V, 12V,15, 24V
- Ultra low clamping voltage
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

Circuit Diagram

Ordering information

Product ID	Pack	Qty(PCS)
PESDXXXL1BA	SOD-323	3000

Absolute Ratings (T_{amb}=25°C)

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (t_p = 8/20 μ s)	500	W
T_L	Maximum lead temperature for soldering during 10s	260	°C
T_{stg}	Storage Temperature Range	-55 to +155	°C
T_{op}	Operating Temperature Range	-40 to +125	°C
T_j	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD) air discharge contact discharge	±30 ±30	KV

Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0*0.75*0.62 in.

Electrical Characteristics (T_A=25°C unless otherwise specified)

PESD3V3L1BA						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	4			V	I_T = 1mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 5V
Clamping Voltage	V_C		5		V	I_{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V_C		10		V	I_{PP} = 36A (8 x 20μs pulse)
Peak Pulse Current	Ipp			18	A	tp = 8/20μs
Junction Capacitance	C_J			200	pF	VR = 0V, f = 1MHz

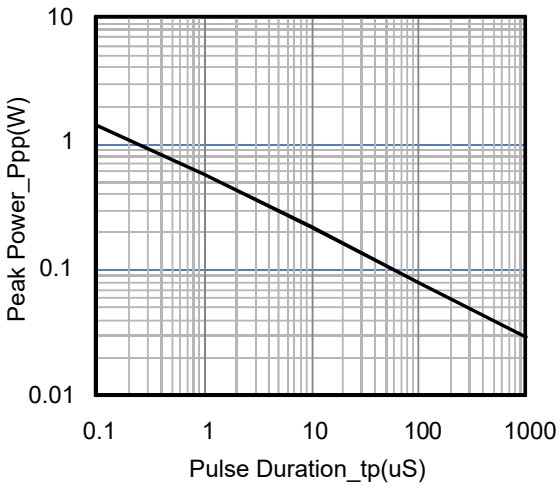
PESD5V0L1BA						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	8.5			V	I_T = 1mA
Reverse Leakage Current	I_R			1	μA	V_{RWM} = 8V
Clamping Voltage	V_C			11	V	I_{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V_C			15	V	I_{PP} = 34A (8 x 20μs pulse)
Peak Pulse Current	Ipp			15	A	tp = 8/20μs
Junction Capacitance	C_J			180	pF	VR = 0V, f = 1MHz

PESD12VL1BA-MS						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			12	V	
Breakdown Voltage	V_{BR}	13.3			V	I_T = 1mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 12V
Clamping Voltage	V_C			19	V	I_{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V_C			28	V	I_{PP} = 18A (8 x 20μs pulse)
Peak Pulse Current	Ipp			10	A	tp = 8/20μs
Junction Capacitance	C_J			100	pF	VR = 0V, f = 1MHz

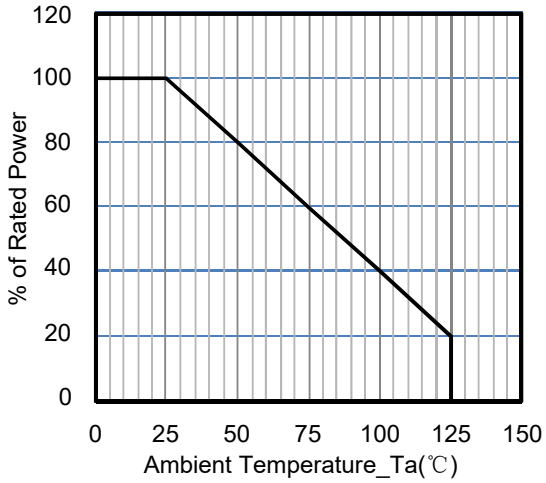
PESD15VL1BA-MS						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			15	V	
Breakdown Voltage	V_{BR}	16.7			V	I_T = 1mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 12V
Clamping Voltage	V_C			19	V	I_{PP} = 5A (8 x 20μs pulse)
Clamping Voltage	V_C			28	V	I_{PP} = 18A (8 x 20μs pulse)
Peak Pulse Current	Ipp			10	A	tp = 8/20μs
Junction Capacitance	C_J			100	pF	VR = 0V, f = 1MHz

PESD24VL1BA-MS						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			24	V	
Breakdown Voltage	V_{BR}	27			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 24V
Clamping Voltage	V_C			40	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			62	V	I_{PP} = 8A (8 x 20μs pulse)
Peak Pulse Current	Ipp			5	A	tp = 8/20μs
Junction Capacitance	C_J			50	pF	VR = 0V, f = 1MHz

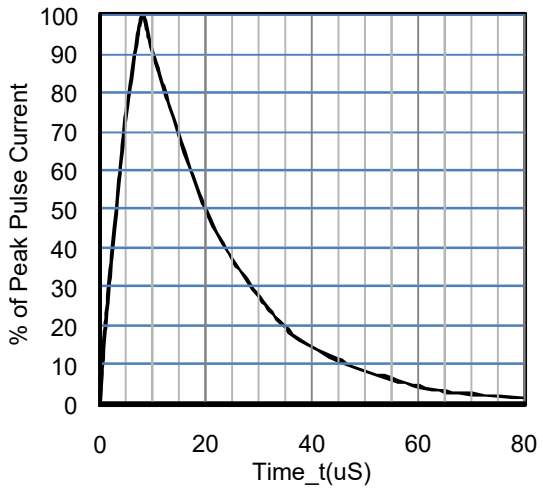
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



Peak Pulse Power vs. Pulse Time

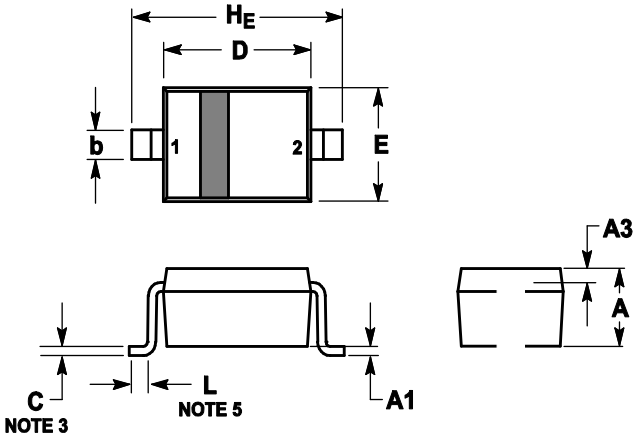


Power Derating Curve



8 X 20uS Pulse Waveform

OUTLINE AND DIMENSIONS

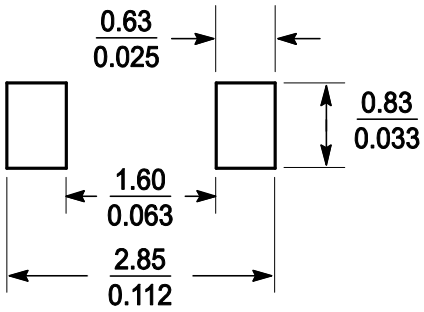


Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.8	0.9	1	0.031	0.035	0.04
A1	0	0.05	0.1	0	0.002	0.004
A3	0.15REF			0.006REF		
b	0.25	0.32	0.4	0.01	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.6	1.7	1.8	0.062	0.066	0.07
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
H_E	2.3	2.5	2.7	0.09	0.098	0.105

SOLDERING FOOTPRINT



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