

Quad Array for ESD Protection

General Description

The ESDA6V1W5 is a monolithic suppressor designed to protect components connected to data and transmission lines against ESD. The device clamp the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients.

Applications

- Computers
- Printers
- Communication systems
- Cellular phones handsets and accessories
- Wireline and wireless telephone sets
- Set top boxes

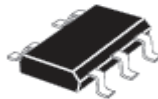
Features

- 4 Unidirectional Transil functions
- Breakdown voltage:
- VBR = 6.1 V min. and 25 V min.
- Low leakage current: < 1 mA
- Very small PCB area < 4.2 mm² typically
- High ESD protection level: up to 25 kV
- High integration

**Complies with the following standards
IEC61000-4-2**

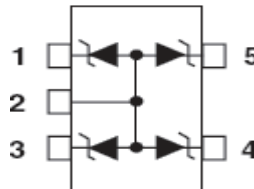
Level 4 16 kV (air discharge)
9 kV (contact discharge)

MIL STD 883E - Method 3015-7 Class 3
25 kV HBM (Human Body Model)



SOT353

Functional diagram



ESDA6V1W5

Absolute Ratings (T_{amb}=25°C)

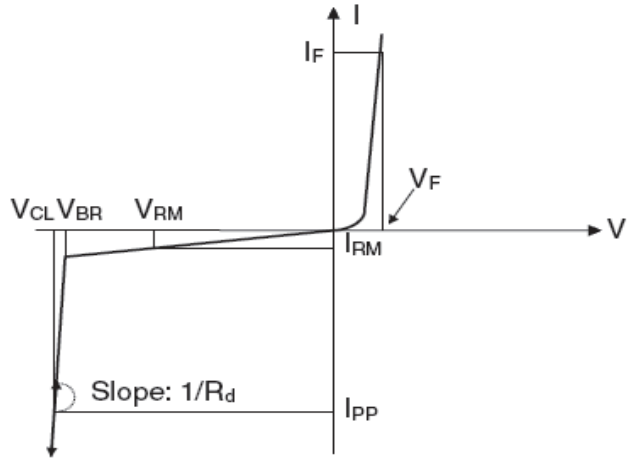
Symbol	Parameter		Value	Units
P _{PP}	Peak Pulse Power (t _p = 8/20μs)	ESDA6V1W5	150	W
T _L	Maximum lead temperature for soldering during 10s		260	°C
T _{stg}	Storage Temperature Range		-40 to +150	°C
T _{op}	Operating Temperature Range		-40 to +150	°C



ESDA6V1W5

Electrical Parameter

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current
I_{PP}	Peak pulse current
I_R	Reverse current
I_F	Forward current
αT	Voltage temperature coefficient
V_F	Forward voltage drop
C	Capacitance
R_d	Dynamic



Electrical Characteristics

Part Numbers	V_{BR}		I_R	V_{RM}	I_{RM}	V_F	I_F	R_d	αT	C
	Min.	Max.								
	v	v				mA		v	μA	v
ESDA6V1W5	6.1	7.2	1	3	1	1.25	200	0.61	6	90

1. Square pulse $I_{PP}=15A, t_p=2.5\mu s$ 2. $V_{BR}=aT*(T_{amb}-25^{\circ}C)*V_{BR}(25^{\circ}C)$

Typical Characteristics

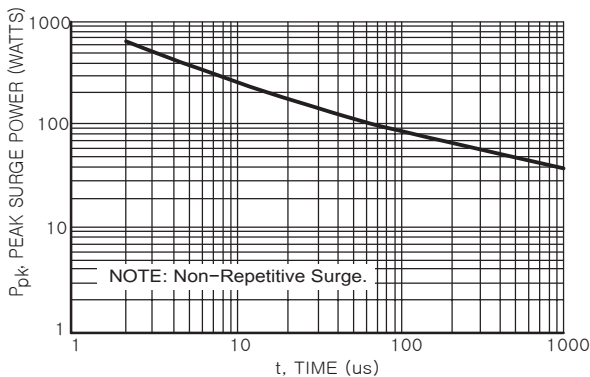


Figure 1. Pulse Width

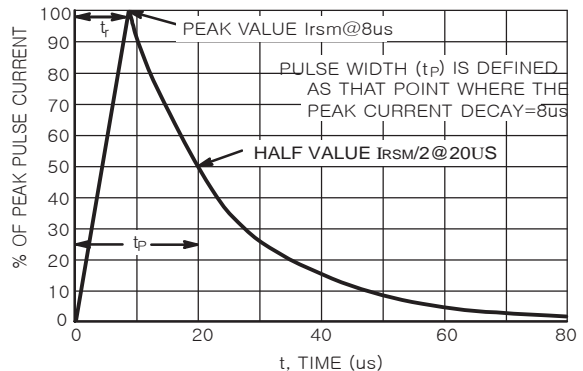


Figure 2. 8 x 20 μs Pulse Waveform

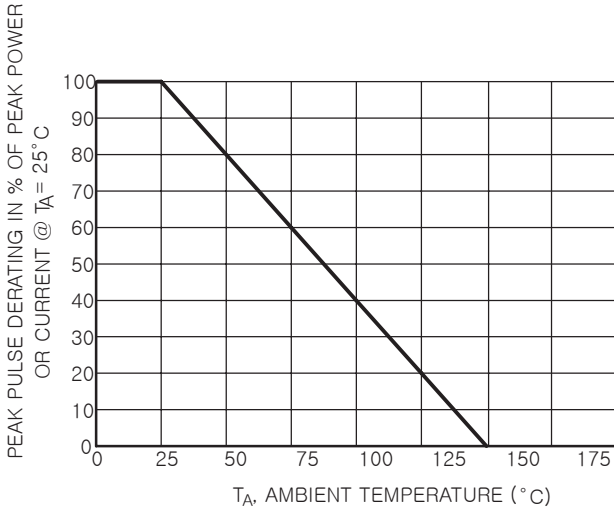


Figure 3. Pulse Derating Curve

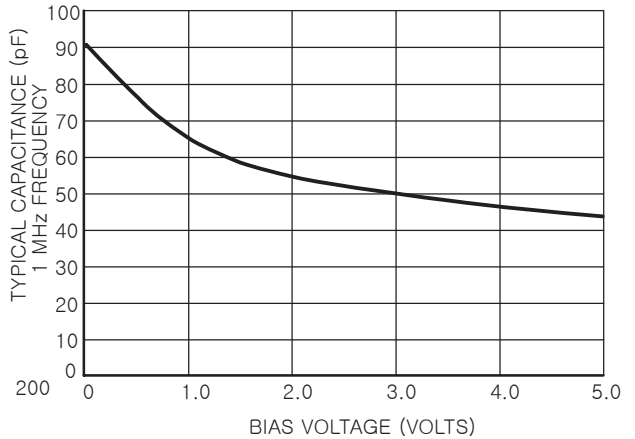


Figure 4. Capacitance

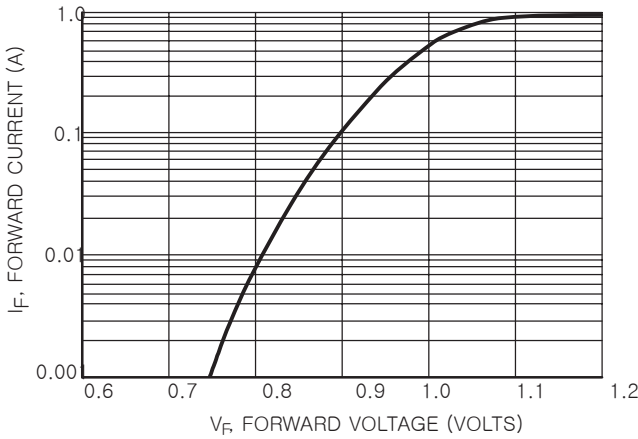


Figure 5. Forward Voltage

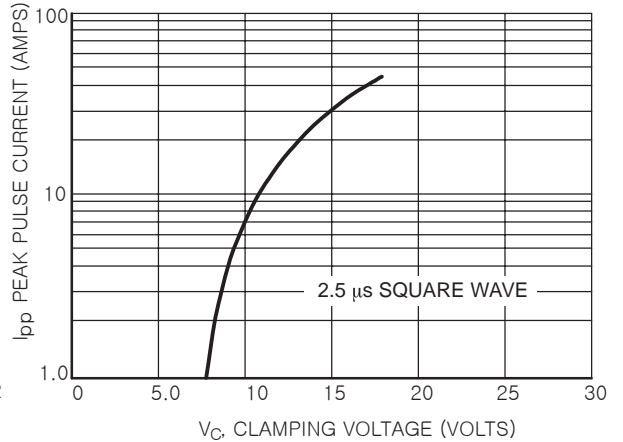


Figure 6. Clamping Voltage versus Peak Pulse Current (Reverse Direction)

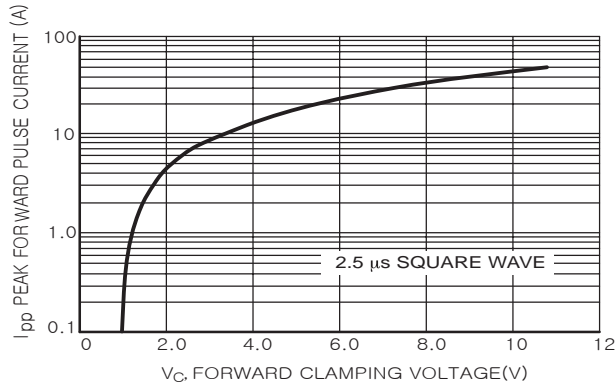


Figure 7. Clamping Voltage versus Peak Pulse Current (Forward Direction)

Package mechanical data

SOT-353 Package

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.8	1.1	0.031	0.043
A1	0	0.1	0	0.004
A2	0.8	1	0.031	0.039
b	0.15	0.3	0.006	0.012
c	0.1	0.18	0.004	0.007
D	1.8	2.2	0.071	0.086
E	1.15	1.35	0.045	0.053
e	0.65 Typ.		0.025 Typ.	
H	1.8	2.4	0.071	0.094
Q1	0.1	0.4	0.004	0.016