

### Dual transil array for ESD protection

 Lead(Pb)-Free

#### Description:

\* The ESDAxx is a dual monolithic voltage suppressor designed to protect components which are connected to data and transmission lines against ESD. It clamps the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients. It can also work as bidirectional suppressor by connecting only pin1 and 2.

#### Features:

- \* 2 Unidirectional Transil functions
- \* Low leakage current: IR max < 20  $\mu$ A at VBR
- \* 300W peak pulse power(8/20 $\mu$ s)
- \* High ESD protection level: up to 25 kV
- \* Complies with the following standards:
  - IEC61000-4-2 Level 4
  - MIL STD 883c - Method 3015-6 Class 3(Human Body Model)

#### Application:

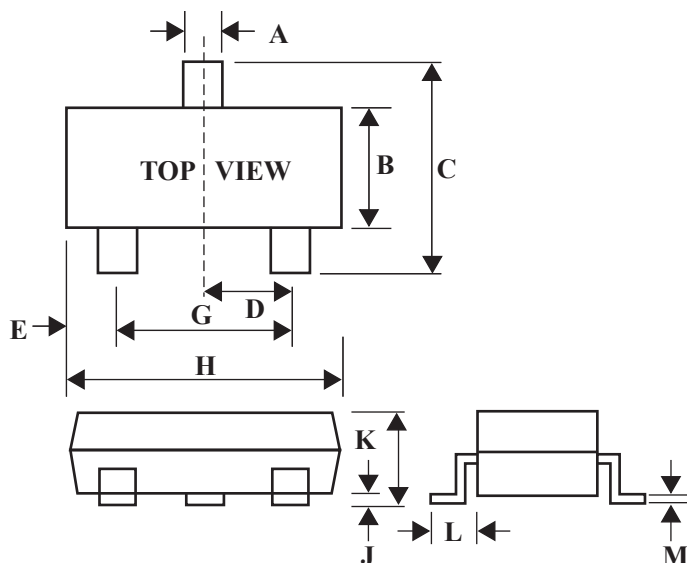
- \* Computers
- \* Printers
- \* Communication systems
- \* It is particularly recommended for the RS232 I/O port protection where the line interface withstands only with 2kV ESD surges.

#### Mechanical Data:

- \* Case : Molded Epoxy
- \* Marking : Marking Code
- \* Weight : 0.008 grams(approx)

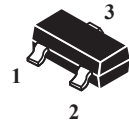
### SOT-23 Outline Dimensions

Unit:mm



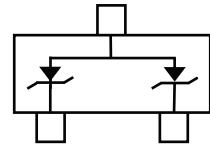
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25

**ELECTROSTATIC  
DISCHARGE  
300 WATTS  
5.3/6.1/14.2/25 VOLTS**



**SOT-23**

#### Equivalent Circuit Diagram:



**Bidirectional  
Configuration**

## Maximum Ratings( $T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation ( $t_p=8/20\mu\text{s}$ )	$P_{PP}$	300	W
Lead Soldering Temperature	$T_L$	260(10s)	$^{\circ}\text{C}$
Junction Temperature Range	$T_J$	150	$^{\circ}\text{C}$
Operating Temperature Range	$T_{op}$	-40 to +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Electrostatic discharge MILSTD 833C-Method 3015-6 IEC61000-4-2 Air discharge IEC61000-4-2 ContactAir discharge	$V_{PP}$	25 16 9	kv

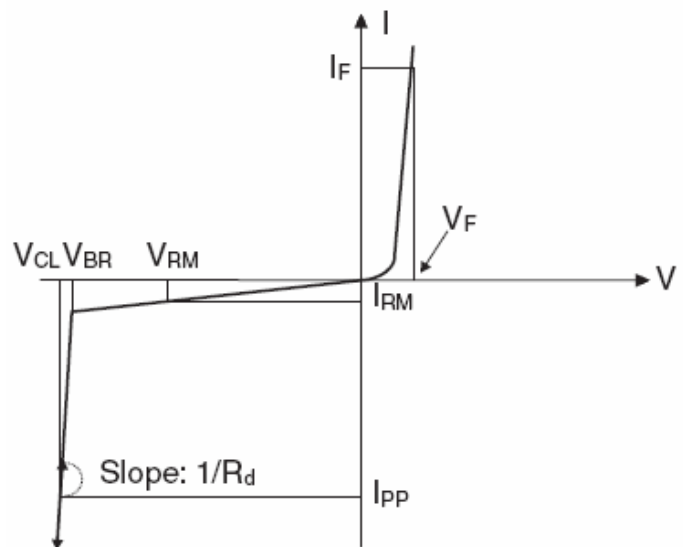
## Electrical Characteristics

Part Numbers	$V_{BR}$		$I_R$	$V_{RM}$	$I_{RM}$	$V_F$	$I_F$	$R_d$	$\alpha T$	C
	Min.	Max.								
	V	V				mA		V	$\mu\text{A}$	V
<b>ESDA5V3</b>	5.3	5.9	1	3	2	1.25	200	280	5	220
<b>ESDA6V1</b>	6.1	7.2	1	5.25	20	1.25	200	350	6	140
<b>ESDA14V2</b>	14.2	15.8	1	12	5	1.25	200	650	10	90
<b>ESDA25</b>	25	30	1	24	1	1.2	10	1000	10	50

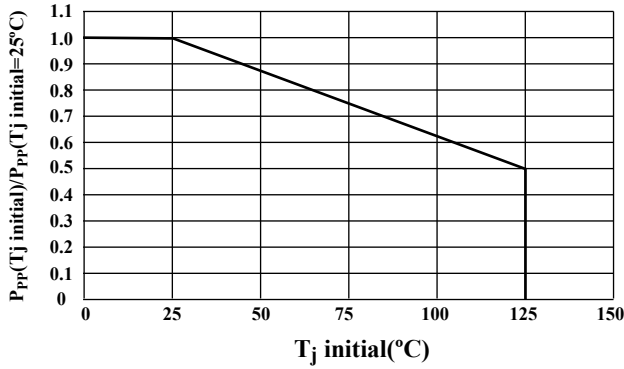
1. Square pulse  $I_{PP}=15\text{A}$ ,  $t_p=2.5\mu\text{s}$ .
2.  $\Delta V_{BR}=\alpha T*(T_{amb}-25^{\circ}\text{C}) * V_{BR}(25^{\circ}\text{C})$ .

## Electrical Parameter

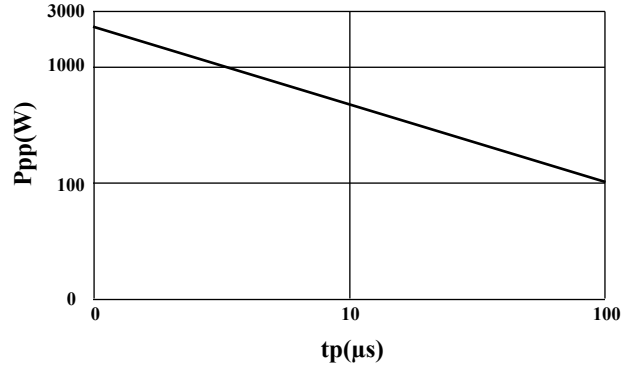
Symbol	Parameter
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{CL}$	Clamping voltage
$I_{RM}$	Leakage current
$I_{PP}$	Peak pulse current
$\alpha T$	Voltage temperature coefficient
$V_F$	Forward voltage drop
C	Capacitance
$R_d$	Dynamic resistance



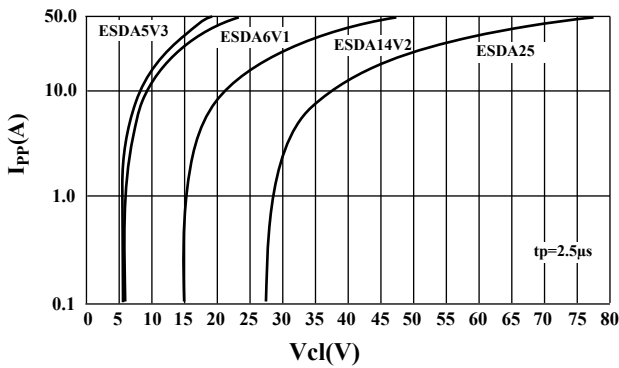
## Typical Characteristics



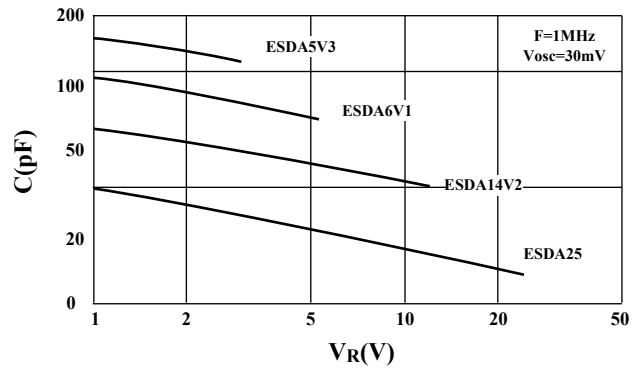
**Fig.1 Peak power dissipation vs Initial junction temperature**



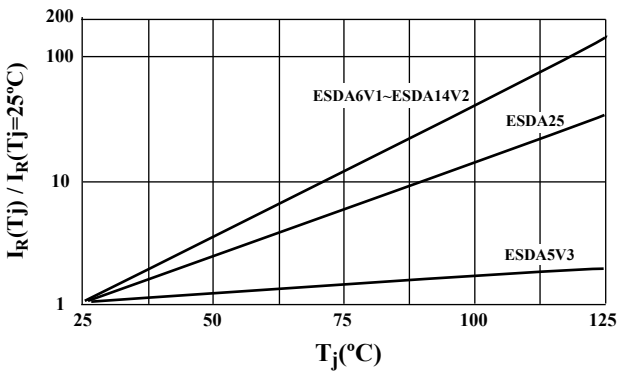
**Fig.2 Peak pulse power vs exponential pulse duration ( $T_j = 25^\circ\text{C}$ )**



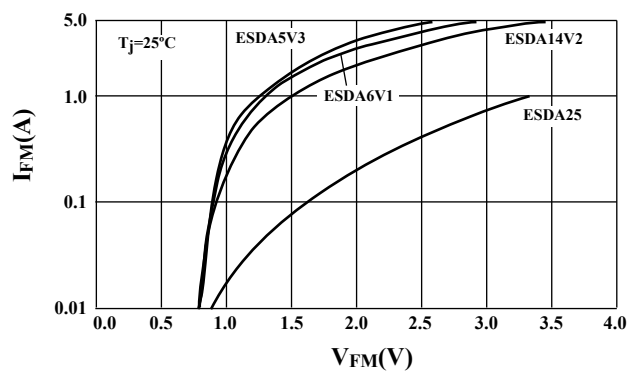
**Fig.3 Clamping voltage vs peak pulse current ( $T_j = 25^\circ\text{C}$ , rectangular waveform,  $t_p = 2.5\mu\text{s}$ )**



**Fig.4 Capacitance vs Reverse applied voltage**



**Fig.5 Relative variation of leakage current vs Versus junction temperature**



**Fig.6 Peak forward voltage drop vs peak forward current**