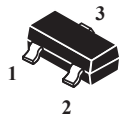
WEITRON

ESDAxx Series

Dual transil array for ESD protection

Lead(Pb)-Free

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



SOT-23

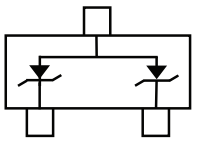
Description:

* 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 bidirectionnal suppressor by connecting only pin1 and 2.

Features:

* 2 Unidirectional Transil functions
* Low leakage current: IR max< 20 μA at VBR
* 300W peak pulse power(8/20μs)
* 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)

Eqivalent Circuit Diagram:



Bidirectional Configuration

Application:

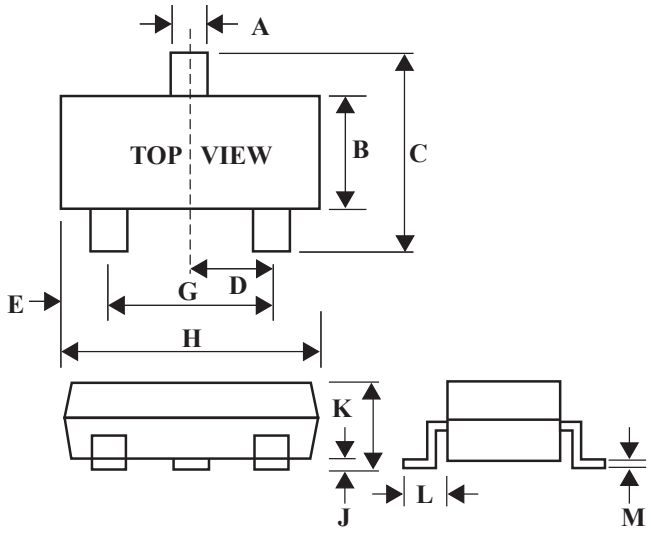
* Computers
* Printers
* Communication systems
* It is particulary recommended for the RS232 I/O port protection where the line interface withstands only with 2kV ESD surges.

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

Maximum Ratings(T_A=25°C Unless Otherwise Noted)

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

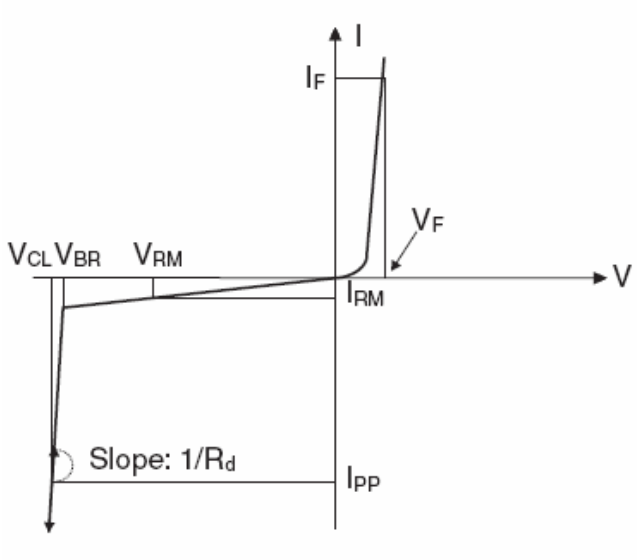
Electrical Characteristics

Part Numbers	V_{BR}		I_R	V_{RM}	I_{RM}	V_F	I_F	R_d	αT	C
	Min.	Max.				Max.		Typ(1)	Max(2)	Typ. 0v bias
	V	V	mA	V	μA	V	mA	mΩ	10^{-4}/°C	pF
ESDA5V3	5.3	5.9	1	3	2	1.25	200	280	5	220
ESDA6V1	6.1	7.2	1	5.25	20	1.25	200	350	6	140
ESDA14V2	14.2	15.8	1	12	5	1.25	200	650	10	90
ESDA25	25	30	1	24	1	1.2	10	1000	10	50

1. Square pulse IPP=15A, tp=2.5μs.
2. $\Delta V_{BR}=aT*(T_{amb}-25°C) * V_{BR}(25°C)$.

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
αT	Voltage temperature coefficient
V_F	Forward voltage drop
C	Capacitance
R_d	Dynamic resistance



Typical Characteristics

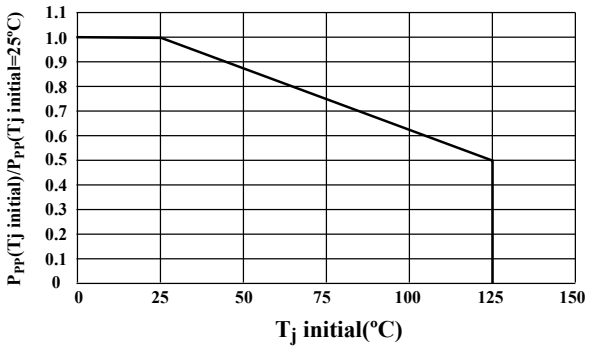


Fig.1 Peak power dissipation vs Initial junction temperature

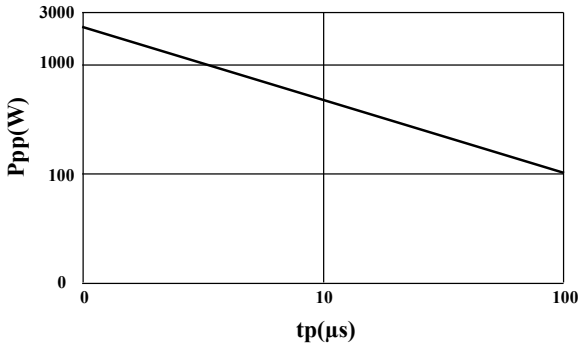


Fig.2 Peak pulse power vs exponential pulse duration(T_j =25°C)

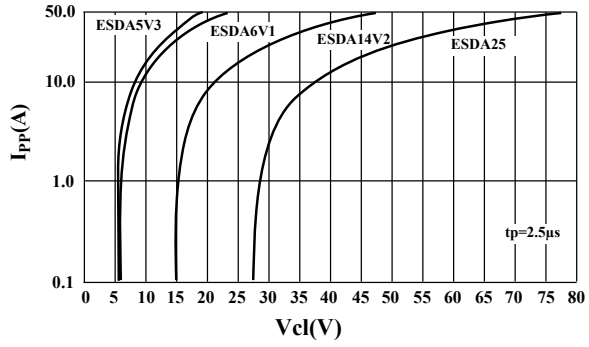


Fig.3 Clamping voltage vs peak pulse current (T_j =25°C, rectangular waveform, tp=2.5µs)

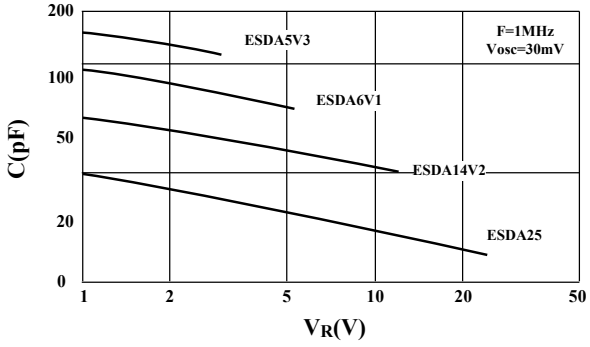


Fig.4 Capacitance vs Reverse applied voltage

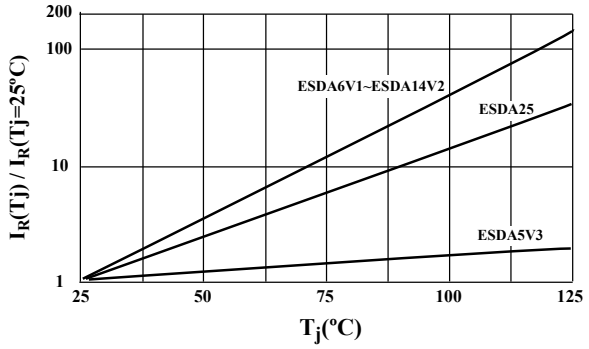


Fig.5 Relative varation of leakage current vs Versus junction temperature

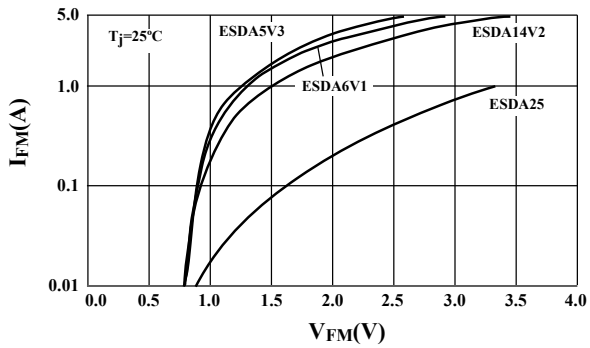


Fig.6 Peak forward voltage drop vs peak forward current