

# ESD12VAP

## Features

- ◆ 500 watts peak pulse power per line (tP=8/20μs)
- ◆ Protects two I/O lines with uni-directional
- ◆ Low clamping voltage
- ◆ Working voltages:12V
- ◆ Low leakage current
- ◆ RoHS Compliance
- ◆ SOT-23 package

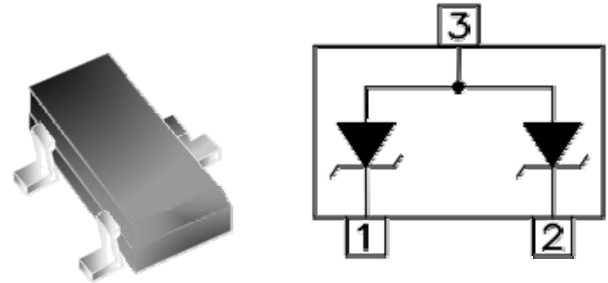
## Applications

- ◆ RS-232, RS-422 & RS-485
- ◆ Servers, notebook, and desktop
- ◆ Cellular handsets and accessories
- ◆ Control & monitoring systems
- ◆ Portable electronics
- ◆ Wireless bus protection
- ◆ Set-top box

## Protection Solution To Meet

- ◆ IEC61000-4-2 (ESD) ±30kV (air),±30kV (contact)
- ◆ IEC61000-4-4 (EFT) 40A(5/50ns)
- ◆ IEC61000-4-5 (lightning) 20A(8/20μs)

## Pin Configuration



## Absolute Maximum Ratings Tamb=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	500	W
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Lead soldering temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STJ</sub>	-55 to +150	°C

## Electrical Characteristics TA=25°C unless otherwise specified

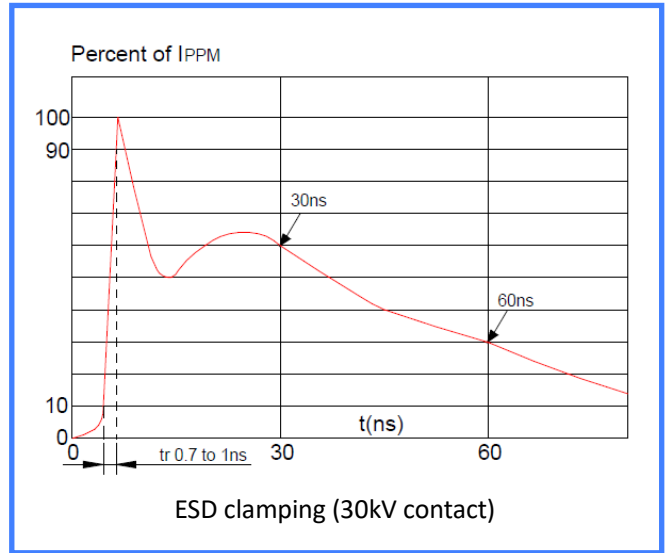
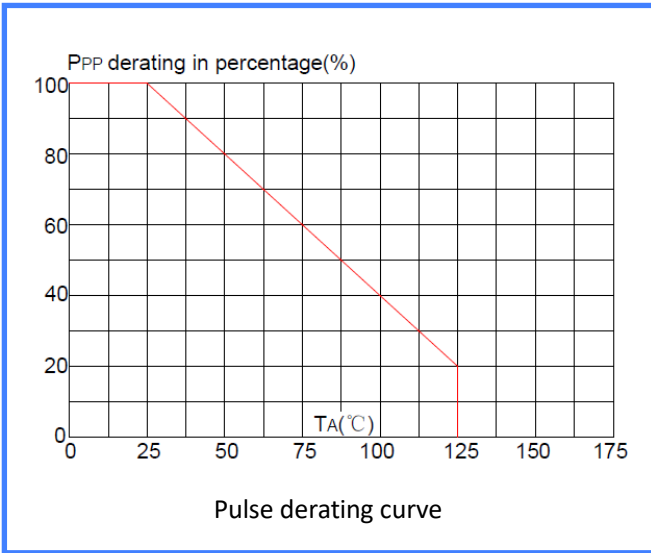
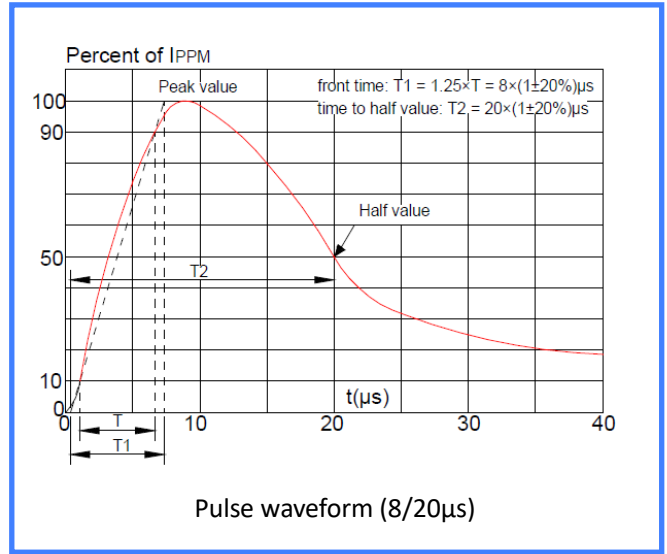
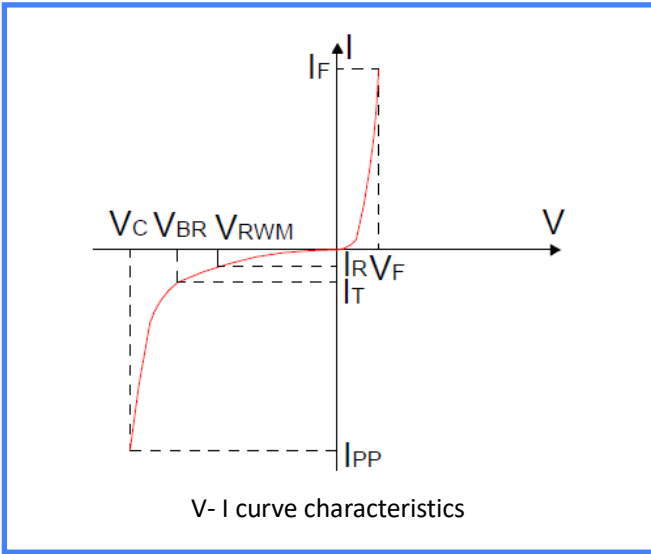
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	VRWM				12	V
Reverse breakdown voltage	VBR	IT=1mA	13			V
Reverse leakage current	IR	VRWM=12V			0.15	μ A
Clamping voltage	VC	IPP <sup>①</sup> =1A, tP=8/20 μ s		14	18	V
		IPP <sup>①</sup> =20A, tP=8/20 μ s		23	26	
Junction capacitance	C <sub>J</sub> <sup>②</sup>	VRWM=0V, f=1MHz Any I/O pin to GND		90		pF
Junction capacitance	C <sub>J</sub> <sup>③</sup>	VRWM=0V, f=1MHz Between I/O pins		45		pF

① Surge waveform: 8/20 μ s

② C<sub>J</sub> measured @VRWM=0V,1MHz (pin1 to pin3, pin2 to pin3)

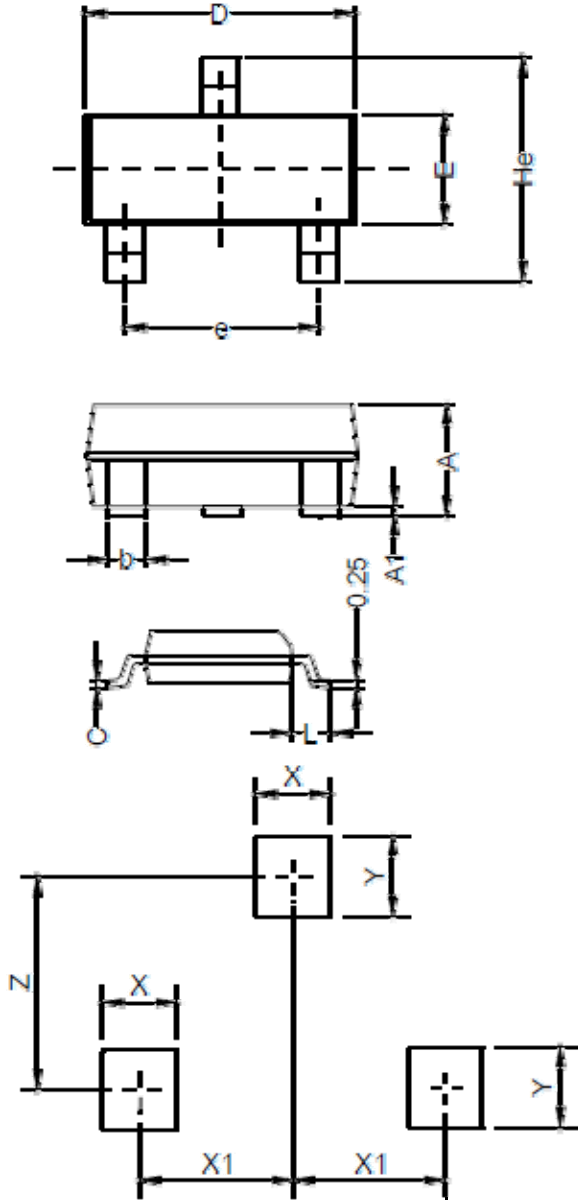
③ C<sub>J</sub> measured @VRWM=0V,1MHz (pin1 to pin2, pin2 to pin1)

## Characteristic Curves



## Package Outline

### SOT-23



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.25	0.325	0.010	0.013
C	0.22	0.25	0.009	0.010
D	2.80	3.00	0.110	0.118
e	1.80	1.90	0.071	0.075
E	1.20	1.40	0.047	0.055
L	0.30	0.50	0.012	0.020
He	2.25	2.55	0.089	0.100
X	0.80		0.031	
X1	0.95		0.037	
Y	0.80		0.031	
Z	2.02		0.080	