

**1-Line, Uni-directional, Normal-Capacitor  
Transient Voltage Suppressors**

**Descriptions**

The ESD9X12VD is a transient voltage suppressors (TVS) which provide a very high level protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). It is designed to replace multilayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

The ESD9X12VD was past ESD transient voltage up to ±30KV (contact) according to IEC61000-4-2 and withstand peak current up to 3.5A for 8/20us pulse according to IEC61000-4-5.

The ESD9X12VD is available in SOD-923 package. Standard products are Pb-free and Halogen-free.



**SOD-923**



**Pin configuration (Top view)**



**SOD-923**

**C = Device code  
Marking**

**Features**

- Working voltage : 12V
- Peak power (tp=8/20us) : 84W
- ESD protection
  - IEC61000-4-2 (Contact) : ±30KV
  - IEC61000-4-2 (Air) : ±30KV
- Low leakage current
- Small package

**Order information**

Device	Package	Shipping
ESD9X12VD-2/TR	SOD-923	8000/Tape&Reel

**Applications**

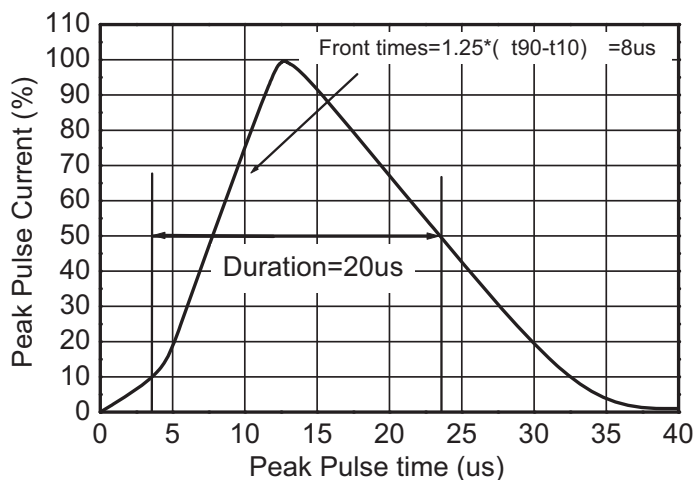
- Mobile phone
- PAD
- Notebook
- STB
- LCD TV
- Digital camera
- Other electronics equipments

**Absolute maximum ratings**

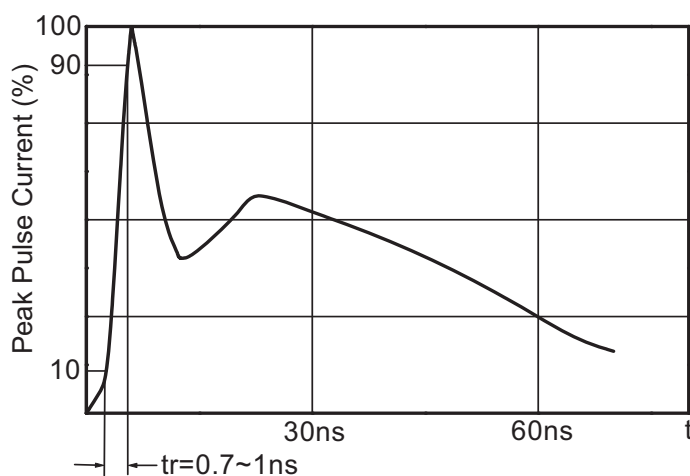
Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20us)	Ppk	84	W
Peak pulse current (tp=8/20us)	Ipp	3.5	A
ESD voltage IEC61000-4-2 air	V <sub>ESD</sub>	±30	KV
ESD voltage IEC61000-4-2 contact		±30	
Junction temperature	T <sub>J</sub>	150	°C
Lead temperature	T <sub>L</sub>	260	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C

**Electronics characteristics (Ta=25 °C, unless otherwise noted)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reveres maximum working voltage	V <sub>RWM</sub>				12	V
Reveres leakage current	I <sub>R</sub>	V <sub>RWM</sub> =12V			1	uA
Reveres breakdown voltage	V <sub>BR</sub>	I <sub>T</sub> =1mA	13.5			V
Clamping voltage	V <sub>C</sub>	Ipp=1A tp=8/20us			18	V
		Ipp=3.5A tp=8/20us			24	V
Junction capacitance	C	F=1MHz, V <sub>R</sub> =0V		30		pF



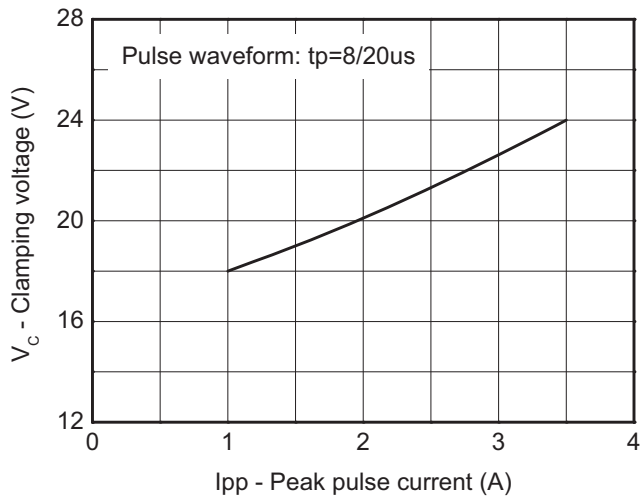
**8/20us waveform**



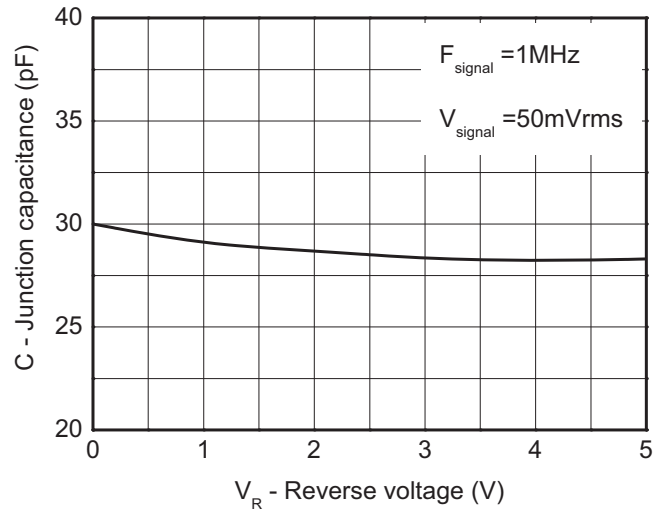
**IEC61000-4-2 waveform**

Typical characteristics (Ta=25°C, unless otherwise noted)

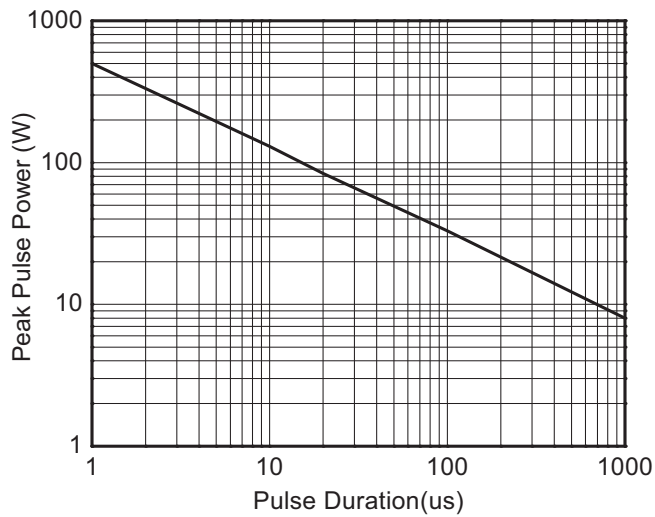
**ESD9X12VD**



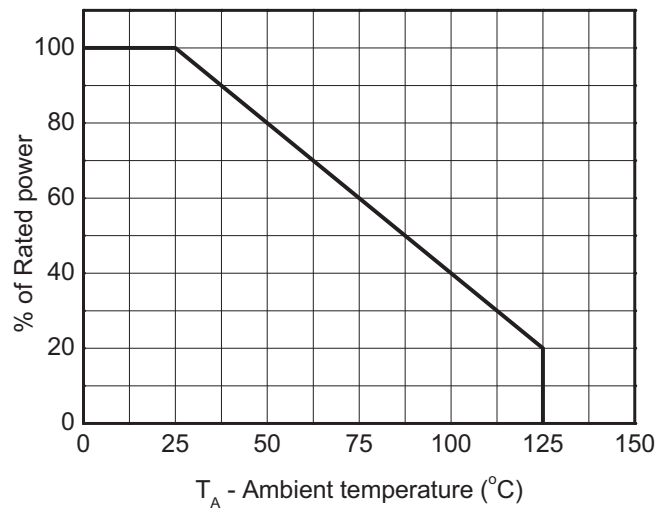
**Clamping voltage vs. Peak pulse current**



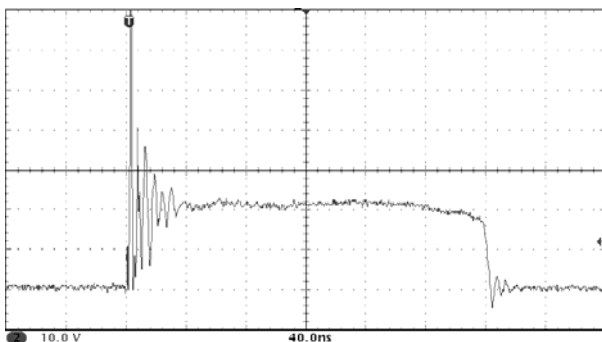
**Capacitance vs. Reverse voltage**



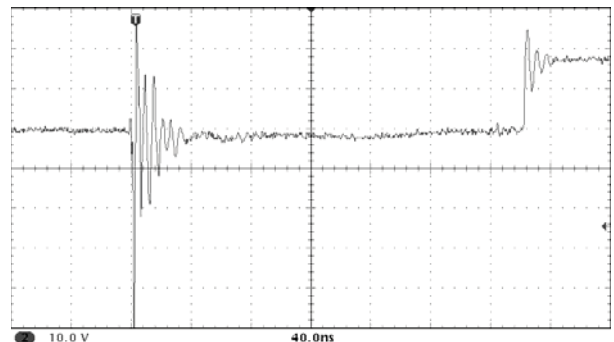
**Non-Repetitive Peak Pulse Power vs. Pulse time**



**Power derating vs. Temperature**



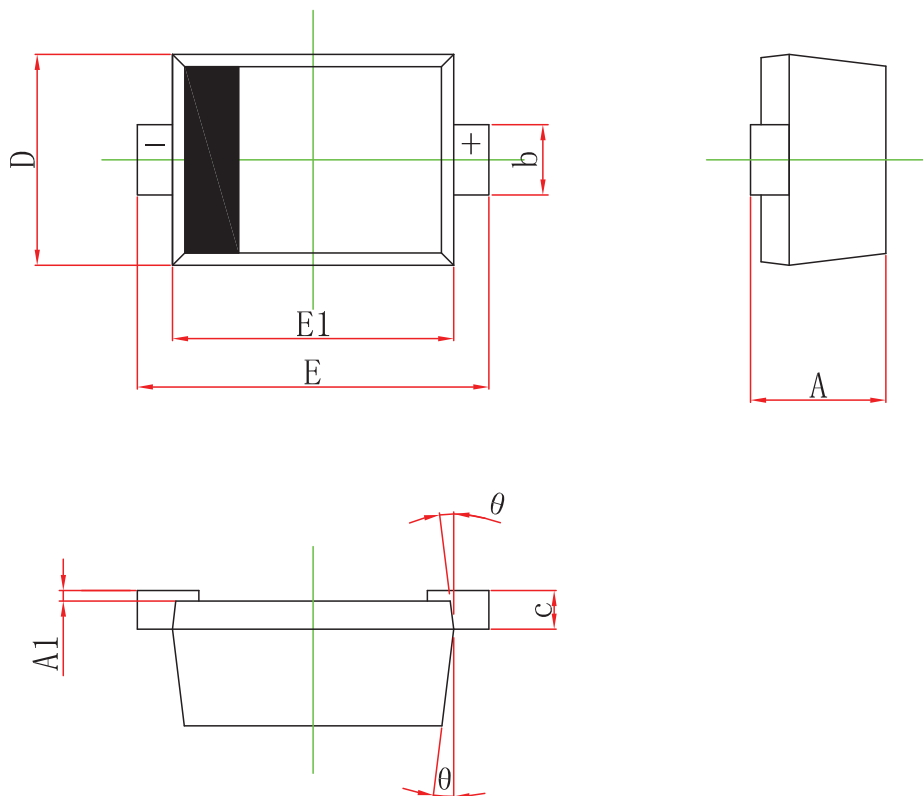
**ESD Clamping  
(IEC61000-4-2 +8KV contact)**



**ESD Clamping  
(IEC61000-4-2 -8KV contact)**

Package outline dimensions

SOD-923



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.350	-	0.450
A1	0.000	-	0.050
b	0.150	-	0.270
c	-	-	0.180
D	0.550	0.600	0.650
E	0.900	1.000	1.100
E1	0.750	0.800	0.850
θ	7° Ref.		

Recommend PCB Layout (Unit: mm)

