ESD5621WXX

1-Line, Uni-directional, Transient Voltage Suppressor

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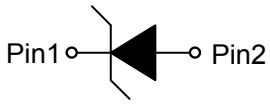
Descriptions

The ESD5621WXX is a uni-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning.

The ESD5621WXX may be used to provide ESD protection up to ±30kV (contact and air discharge) according to IEC61000-4-2, and with high surge capability used to protect USB voltage bus pin (8/20μs) according to IEC61000-4-5.

The ESD5621WXX is available in SOD-323F package. Standard products are Pb-free and Halogen-free.

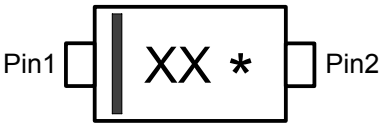
SOD-323F (Bottom View)



Circuit diagram

Features

- Reverse stand-off voltage: 4.5V ~ 15V
- Surge protection according to IEC61000-4-5 see Table 4
- ESD protection according to IEC61000-4-2 ±30kV (contact and air discharge)
- Low clamping voltage
- Solid-state silicon technology



XX = Device code

* = Month code

Marking (Top View)

Applications

- Power supply protection
- Power management

Order information

Table 1.

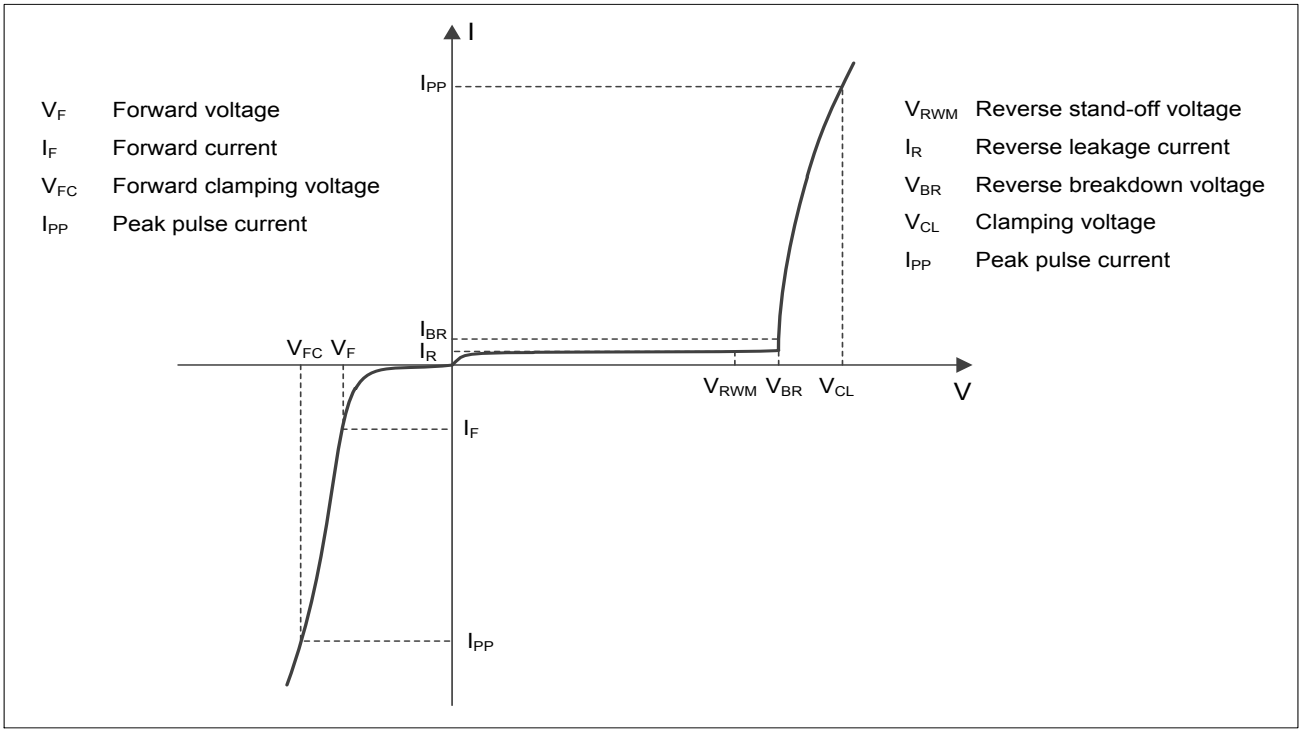
Device	Package	Shipping	Marking
ESD5621W04-2/TR	SOD-323F	3000/Tape&Reel	TE*
ESD5621W10-2/TR	SOD-323F	3000/Tape&Reel	TJ*
ESD5621W-2/TR	SOD-323F	3000/Tape&Reel	Q*
ESD5621W15-2/TR	SOD-323F	3000/Tape&Reel	TD*

Absolute maximum ratings

Table 2.

Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20μs)	Ppk	1400	W
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40~85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (T_A = 25°C, unless otherwise noted)



Definitions of electrical characteristics

Electrical characteristics (T_A = 25°C, unless otherwise noted)

Table 3.

Type number	Reverse Standoff Voltage V_{RWM} (V)	Breakdown voltage V_{BR}(V) I_{BR} = 1mA			Reverse leakage current I_{RM}(μA) at V_{RWM}		Forward voltage V_F(V) I_F = 20mA		Junction capacitance F = 1MHz, V_R =0V (pF)	
	Max	Min	Typ	Max	Typ	Max	Min	Max	Typ	Max
ESD5621W04	4.5	5.2	6.1	7.0	-	5.0	0.45	1.25	900	1200
ESD5621W10	10.0	11.5	13.2	15.0		0.1	0.45	1.25	350	500
ESD5621W	12.0	13.0	15.0	17.0	-	0.1	0.45	1.25	300	400
ESD5621W15	15.0	16.0	18.0	20.0	-	0.1	0.45	1.25	270	350

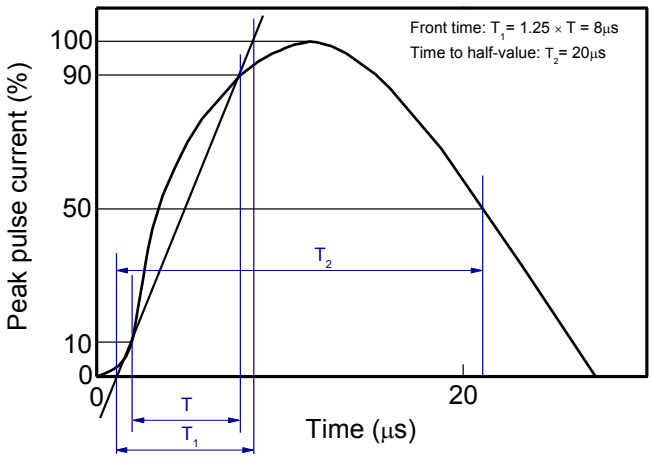
Table 4.

Type number	Rated peak pulse current I_{PP} （A） 1)3)	Clamping voltage V_{CL}(V) at I_{PP}（A） 1)3)	Clamping voltage V_{CL}(V) at I_{PP} = 16A, t_p = 100ns 2)3)	Clamping voltage V_{CL}(V) at V_{ESD} = 8kV 2)3)
ESD5621W04	95	14.5	7.0	8.0
ESD5621W10	60	25.0	15.0	16.0
ESD5621W	50	27.5	16.0	17.0
ESD5621W15	45	31.0	20.0	21.0

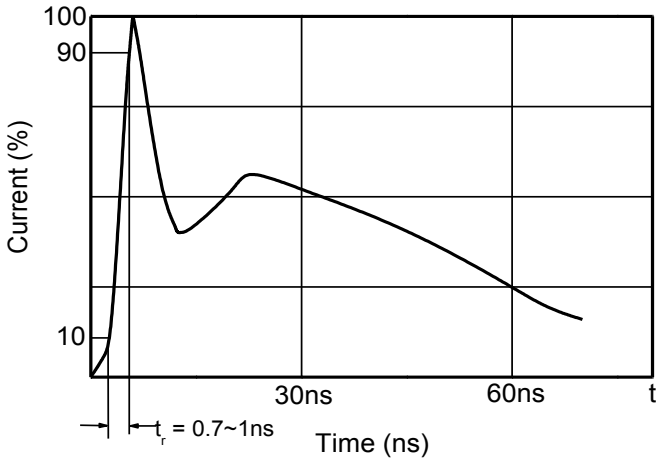
Notes:

1) *Non-repetitive current pulse, according to IEC61000-4-5.(8/20μs current waveform)*
2) *Non-repetitive current pulse, according to IEC61000-4-2.*
3) *Measured from pin 1 to pin 2.*

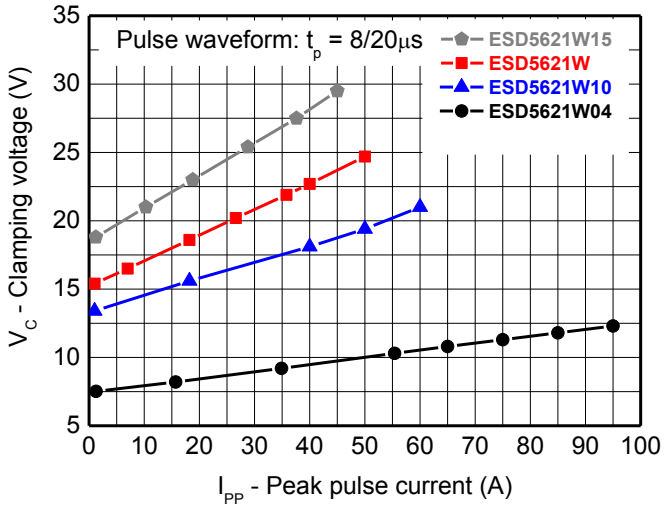
Typical characteristics (T_A = 25°C, unless otherwise noted)



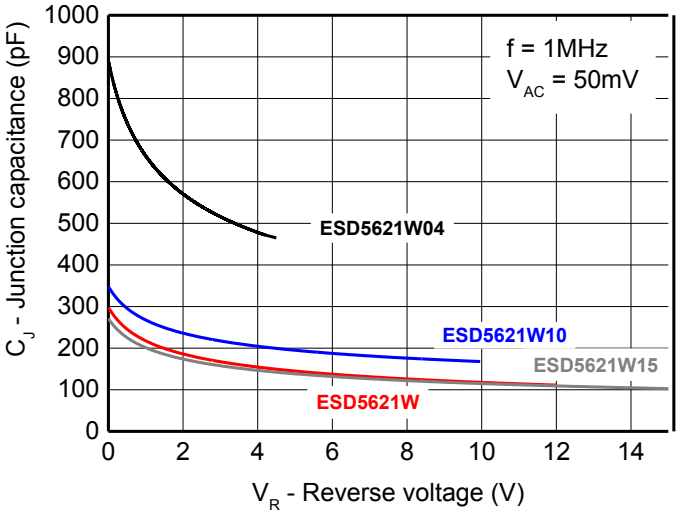
8/20μs waveform per IEC61000-4-5



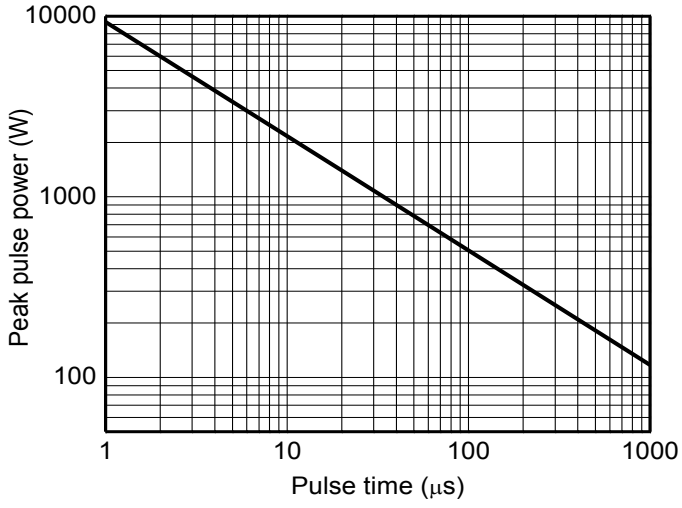
Contact discharge current waveform per IEC61000-4-2



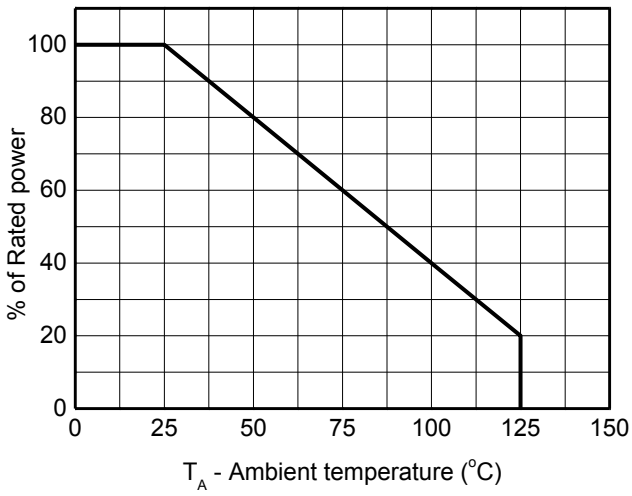
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage



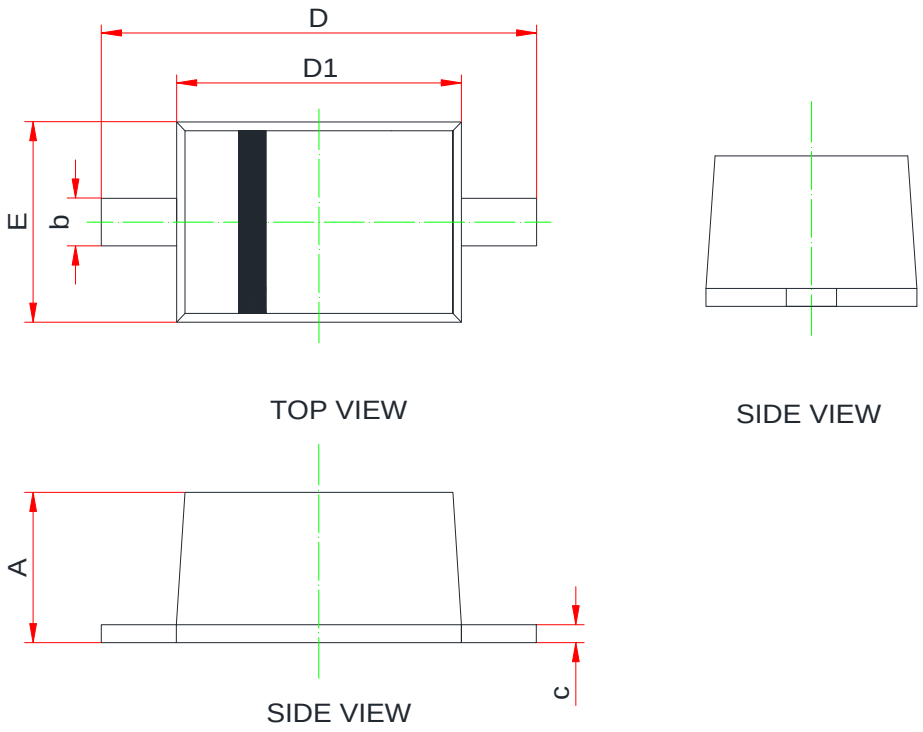
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

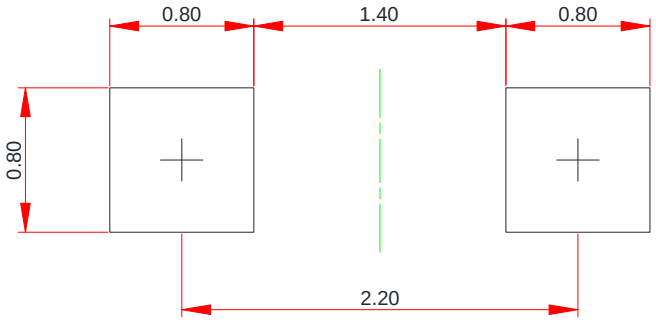
PACKAGE OUTLINE DIMENSIONS

SOD-323F



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.60	-	1.10
c	0.08	0.13	0.18
b	0.25	-	0.40
D1	1.60	1.70	1.80
E	1.15	1.25	1.35
D	2.30	-	2.80

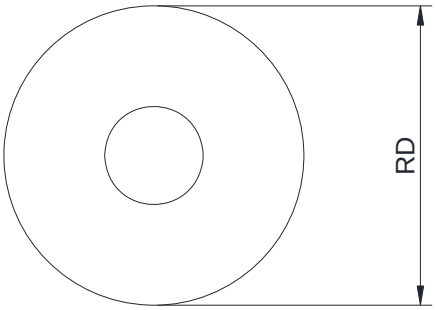
Recommend land pattern (Unit: mm)



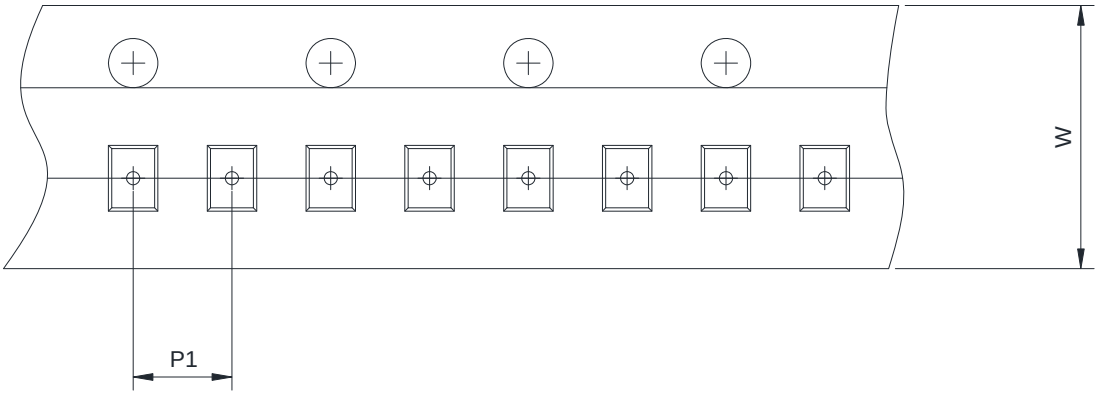
Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

TAPE AND REEL INFORMATION

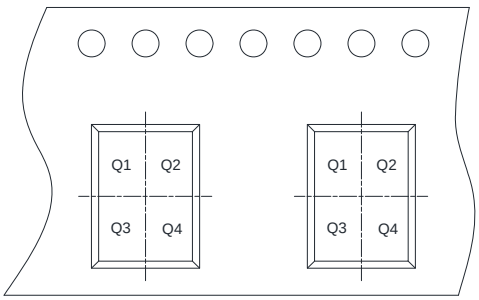
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



User Direction of Feed

RD	Reel Dimension	☑ 7inch	☐ 13inch		
W	Overall width of the carrier tape	☑ 8mm	☐ 12mm	☐ 16mm	
P1	Pitch between successive cavity centers	☐ 2mm	☑ 4mm	☐ 8mm	
Pin1	Pin1 Quadrant	☑ Q1	☑ Q2	☐ Q3	☐ Q4

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