

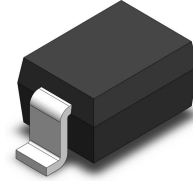
Transient Voltage Suppressors Array for ESD Protection

SE15D3W11GN

Features

- ◆ Working voltages : 15.0V
- ◆ Low leakage current: 1 μ A @ V_{RWM}
- ◆ Low clamping voltage
- ◆ Response Time is < 1 ns

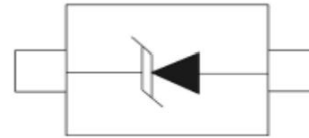
SOD-323



Applications

- ◆ Cell phone handsets and accessories
- ◆ Microprocessor based equipment
- ◆ Personal digital assistants (PDA' s)
- ◆ Notebooks, desktops, and servers
- ◆ Portable instrumentation
- ◆ Power lines
- ◆ Peripherals

PIN Configuration



Mechanical Characteristics

- ◆ SOD-323 package
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Weight 5 milligrams (approximate)
- ◆ Quantity per reel: 3,000pcs
- ◆ Lead finish: lead free

Protection Solution To Meet

- ◆ IEC61000-4-2 (ESD) ± 30 kV (air), ± 30 kV (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 55A (8/20 μ s)

Absolute Maximum Rating ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Symbol	Parameter	Value	Units
t_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_J	Operating Temperature Range	-55 to +125	$^\circ\text{C}$
T_L	Lead soldering temperature	260 (10 sec.)	$^\circ\text{C}$
V_{ESD}	ESD per IEC 61000-4-2(Air)	± 30	KV
	ESD per IEC 61000-4-2 (Contact)	± 30	

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Electrical Characteristics (@ $T_A=25^\circ\text{C}$)

Parameter	Symbol	Test Condition	Minimum	Typical	Maximum	Unit
Reverse working voltage	V_{RWM}	--	--	--	15.0	V
Reverse breakdown voltage	V_{BR}	$I_T = 1\text{mA}$	16.0	17.2	20.0	V
Reverse leakage current	I_R	$V_{RWM}=15\text{V}$	--	--	1.0	μA
Peak pulse current	I_{PP}	$t_p = 8/20\mu\text{s}$	--	--	55.0	
Clamping voltage	V_C	$I_{PP}=25\text{A}, t_p=8/20 \mu\text{s}$	--	22.0	25.0	V
		$I_{PP}=50\text{A}, t_p=8/20\mu\text{s}$	--	26.0	28.0	
		$I_{PP}=55\text{A}, t_p=8/20\mu\text{s}$	--	27.0	30.0	
Junction capacitance	C_J	$V_{RWM}=0\text{V}, f=1\text{MHZ}$	--	330.0	400.0	pF

Ratings and V-I Characteristics Curves ($T_A=25^\circ\text{C}$, unless otherwise noted)

Fig1. V- I curve characteristics((Uni-directional))

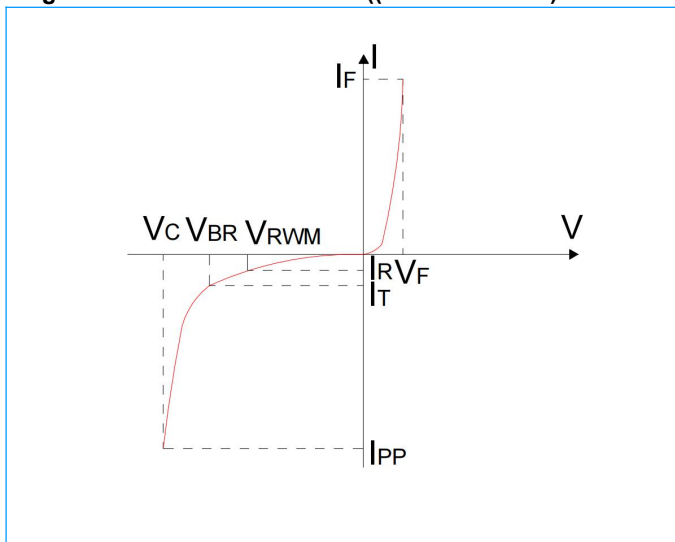
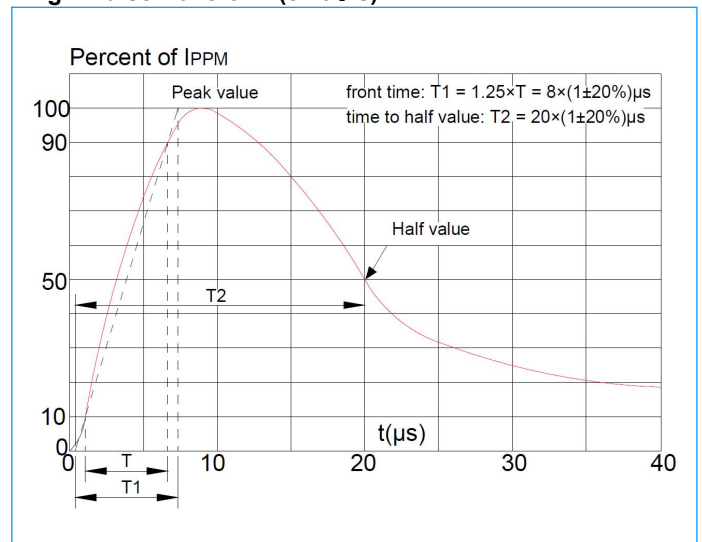


Fig2. Pulse waveform (8/20 μs)



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Ratings and V-I Characteristics Curves ($T_A=25^{\circ}\text{C}$, unless otherwise noted) (Continue)

Fig3. Pulse derating curve

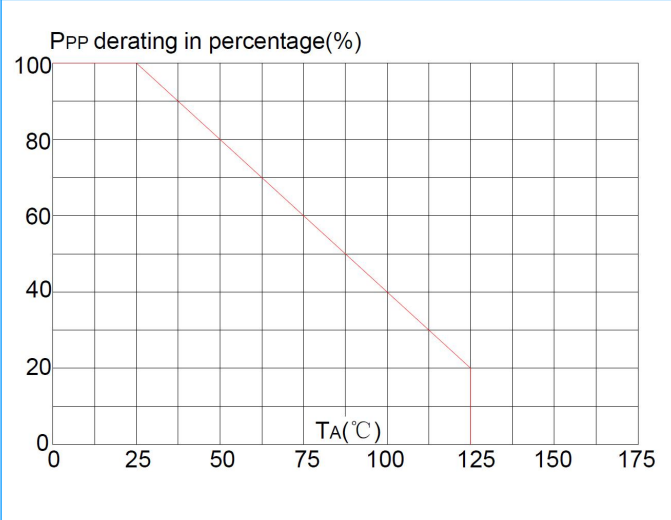


Fig4. ESD clamping (30KV contact)

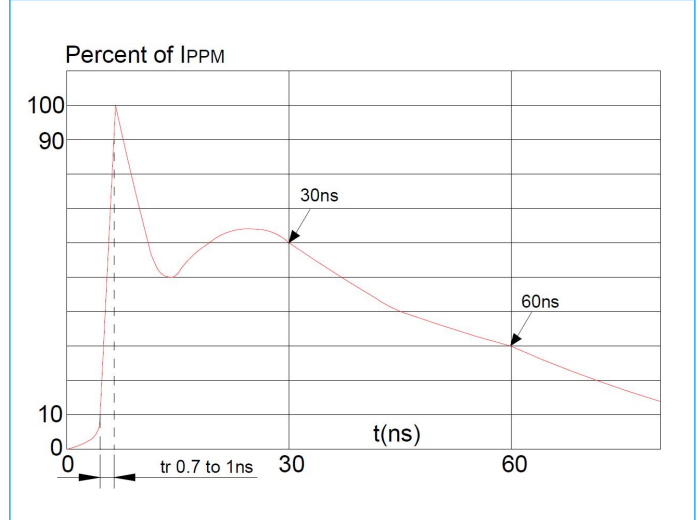


Fig5:Clamping voltage vs.peak pulse current

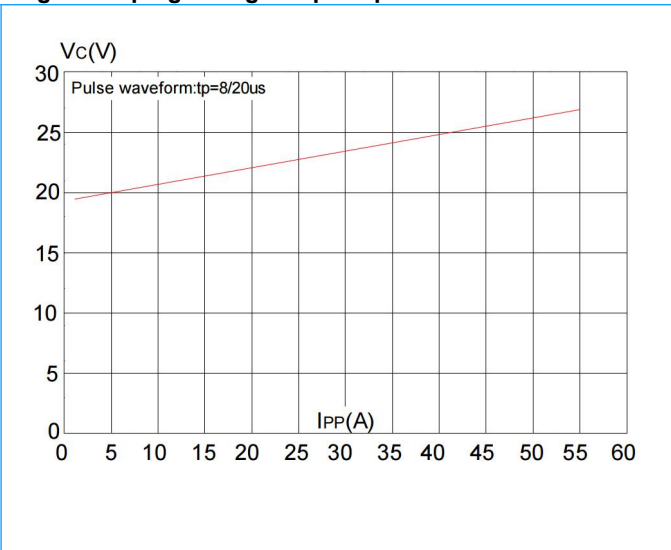
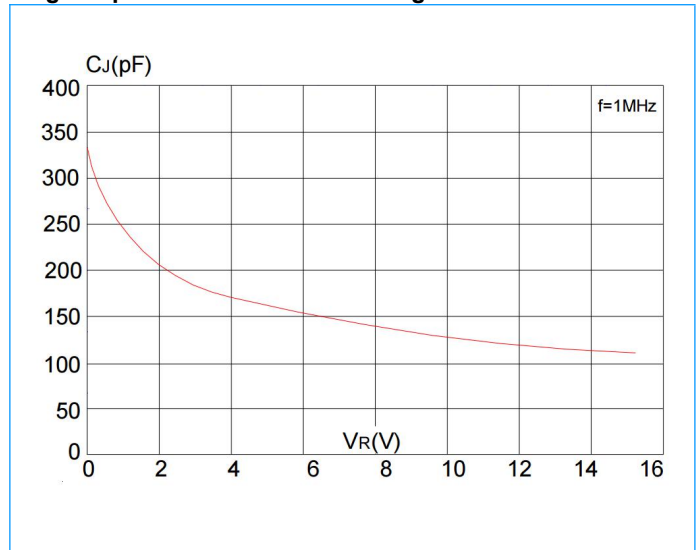


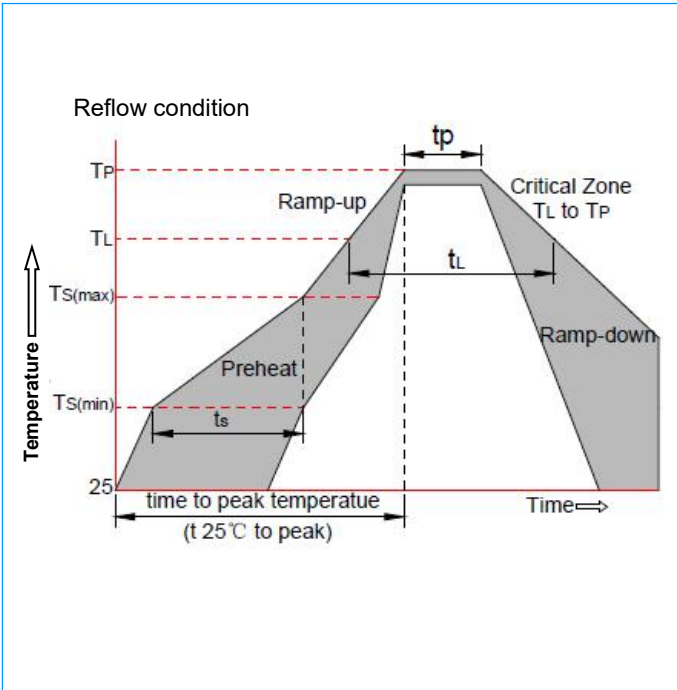
Fig6:Capacitance vs.reverse voltage



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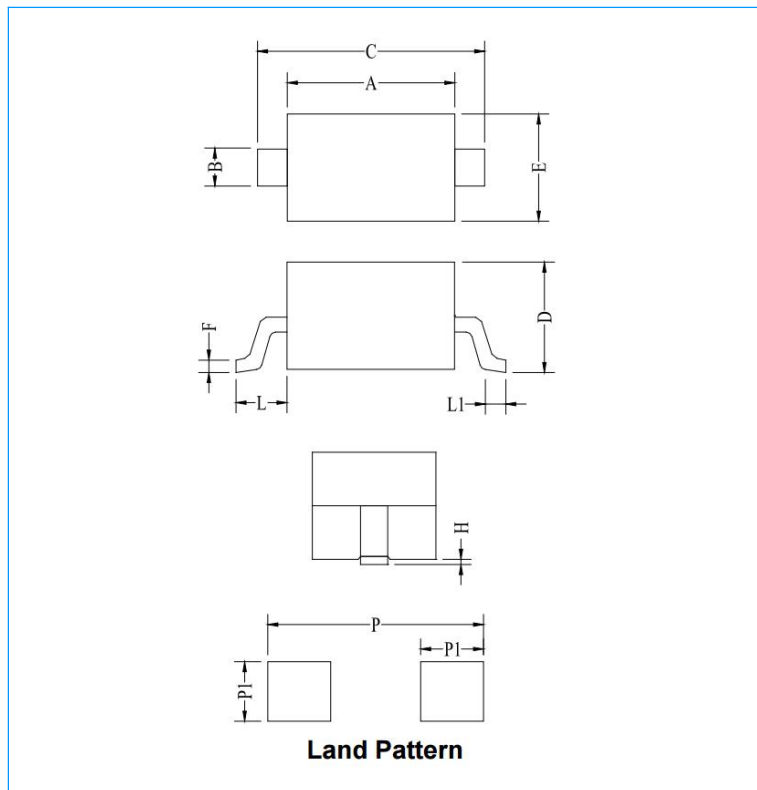
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Soldering Parameters



Reflow Condition		Pb-Free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max ($T_{s(max)}$)	+200°C
	-Time (min to max) (t_s)	60 - 180 Seconds
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/Second Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/Second Max
Reflow	- Temperature (T_L) (Liquidus)	+217°C
	-Temperature (t_L)	60 - 150 Seconds
Peak Temperature (T_P)		+260(+0/-5)°C
Time within 5°C of actual peak Temperature (t_p)		20-40 Seconds
Ramp-down Rate		6°C/Second Max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		+260°C

Package Mechanical Data

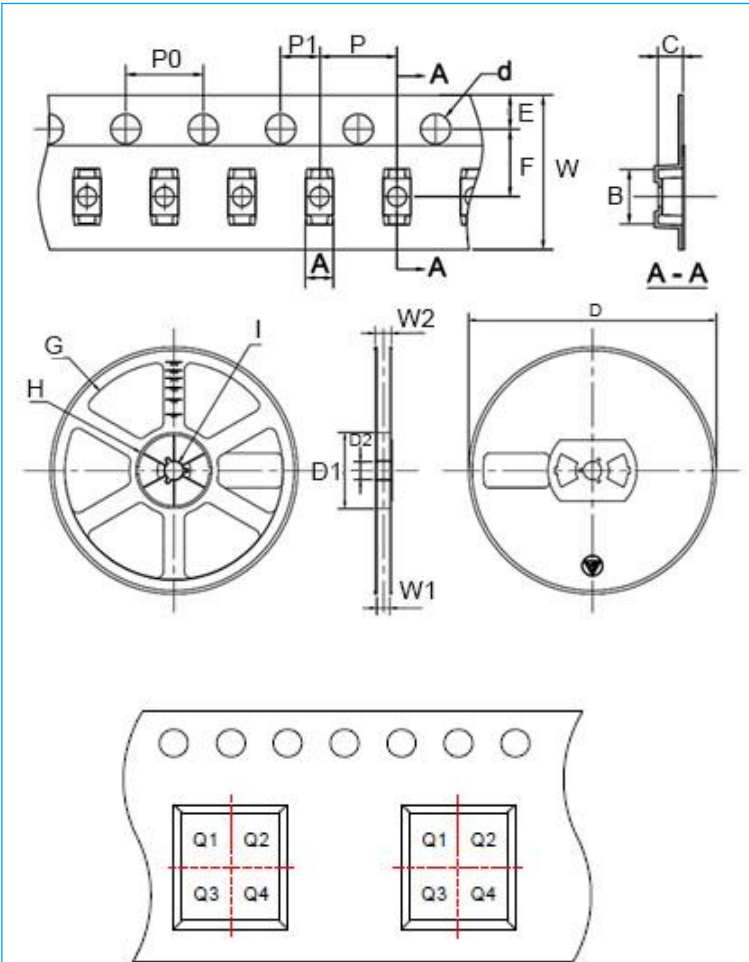


Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.60	1.70	1.80	0.063	0.067	0.071
B	0.25	0.32	0.40	0.010	0.013	0.016
C	2.30	2.60	2.80	0.091	0.102	0.110
D	0.80	0.95	1.10	0.031	0.037	0.043
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.08	0.13	0.18	0.003	0.005	0.007
L	0.475REF			0.019REF		
L1	0.25	0.33	0.40	0.010	0.013	0.016
H	0.00	0.06	0.14	0.000	0.002	0.006
P	3.00			0.118		
P1	0.80			0.031		

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Tape and Reel Information -SOD-323



Pin 1 quadrant:Q1&Q2

Packaging Description:

SOD-323 parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. The reels are blue in color and made of recyclable plastic.

Symbol	Millimeters	Inches
	Typ.	Typ.
A	1.46	0.057
B	2.90	0.114
C	1.25	0.049
d	∅ 1.50	∅ 0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
p	4.00	0.157
P1	2.00	0.079
W	8.00	0.315
D	∅ 178.0	∅ 7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.0	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

Packaging Quantity

Part Number	Packaging Option	Quantity
SE15D3W11GN	Tape & Reel	3000 PCS