



SSCE3V312D2

1-line Bidirectional Micro Packaged TVS Diodes for ESD Protection

● Description

The SSCE3V312D2 is ultra-low capacitance transient voltage suppressor array, designed to protect applications such as portable electronics and SMART phones. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers an ultra-low capacitance and low leakage current in a miniature SOD-323 package.

● Feature

- ✧ 350W peak pulse power ($t_p = 8/20\mu s$)
- ✧ Working voltage: 3.3V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30kV$
 - Contact discharge: $\pm 30kV$
 - IEC61000-4-5 (Lightning)20A (8/20 μs)

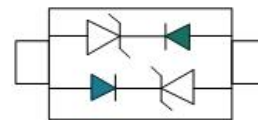
● Applications

- ✧ Hand-Held Portable Applications
- ✧ Networking and Telecom (Ethernet 10/100/1000 Base T)
- ✧ USB Interface
- ✧ Automotive Electronics
- ✧ Serial and Parallel Ports
- ✧ Notebooks, Desktops, Servers

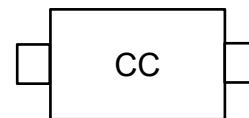
● PIN configuration



SOD-323



Circuit Diagram



Marking(Top View)

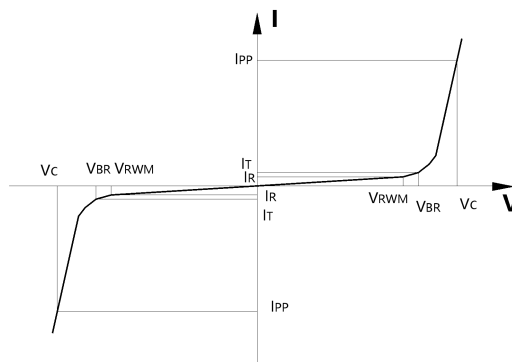
● Mechanical data

- ✧ Package: SOD-323
- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ Device meets MSL 3 requirements
- ✧ Case Material: "Green" Molding Compound
- ✧ RoHS Compliant
- ✧ Pure tin plating: 7~17 μm
- ✧ Pin flatness: $\leq 3mil$



● Electronic Parameter

Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance



● Absolute maximum rating @ $T_A=25^{\circ}\text{C}$

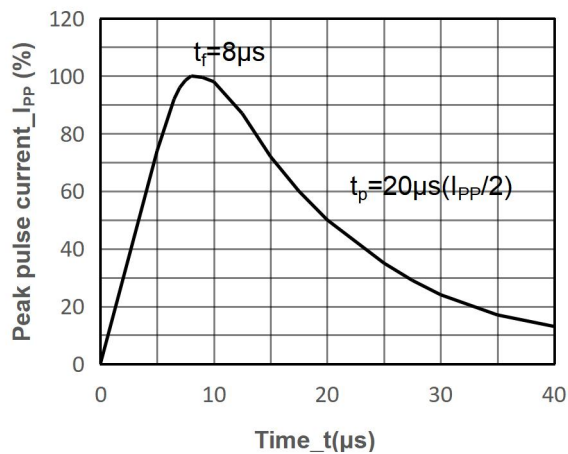
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	350	W
Peak Pulse Current (8/20 μs)	I_{PP}	20	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	± 30 ± 30	kV
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

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

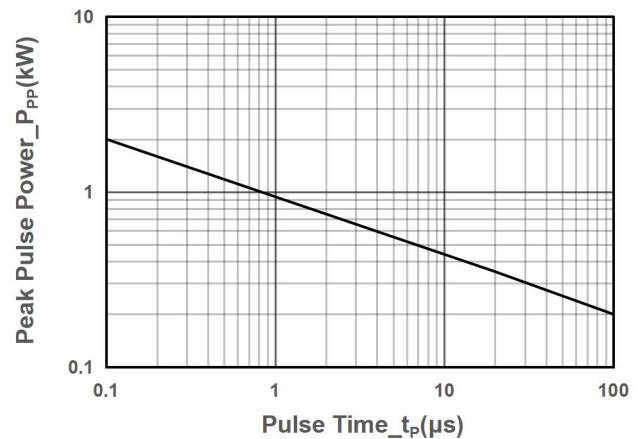
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4			V
Reverse Leakage Current	I_R	$V_{RWM} = 3.3\text{V}$			5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$			7.5	V
Clamping Voltage	V_C	$I_{PP} = 20\text{A}$, $t_P = 8/20\mu\text{s}$			20	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.8	1.5	pF



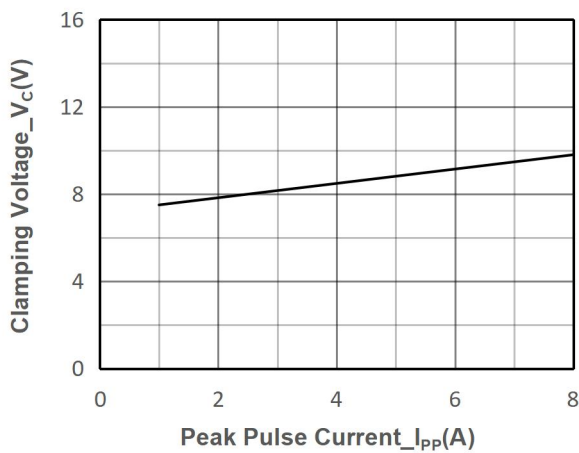
● Typical Performance Characteristics



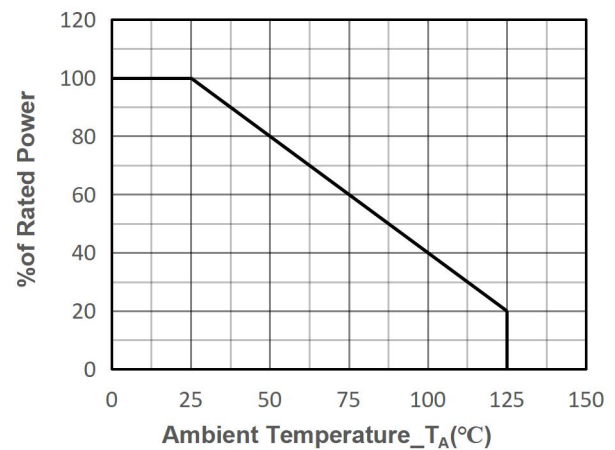
8/20 μ s Pulse Waveform



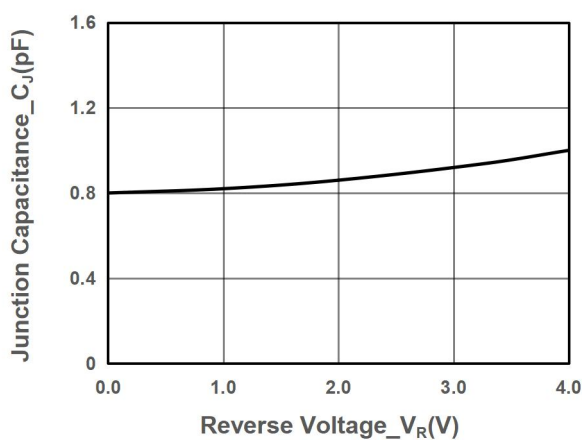
Peak Pulse Power vs. Pulse Time



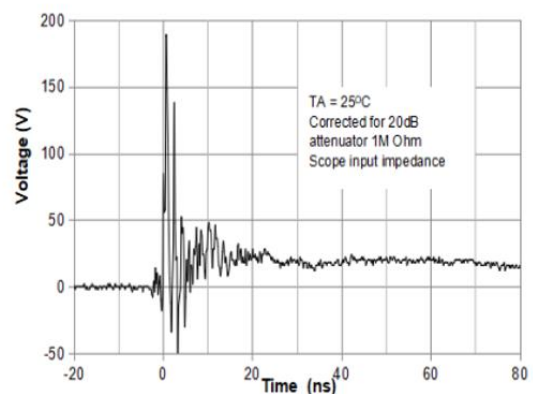
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Junction Capacitance vs. Reverse Voltage



Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8kV Contact per IEC61000-4-2



● Package Information

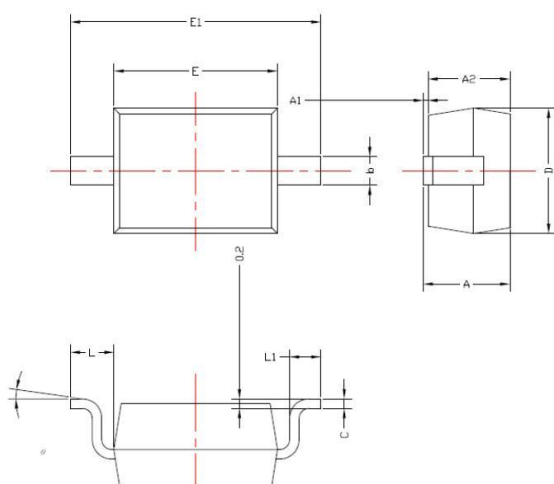
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE3V312D2	SOD-323	3000	7 Inch

Mechanical Data

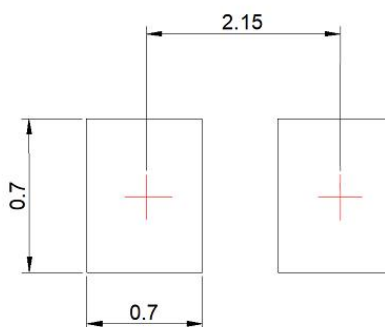
Case: SOD-323

Case Material: Molded Plastic. UL Flammability

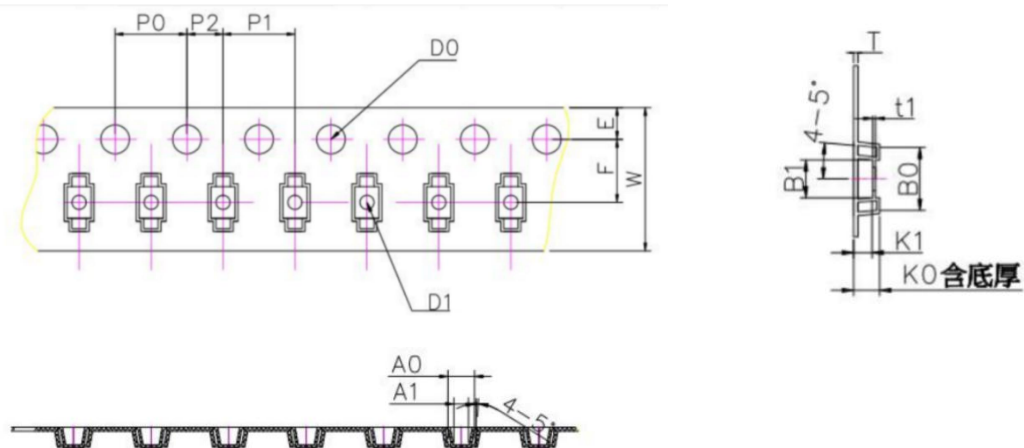


Dim	Millimeters	
	Min	Max
A	1.60	1.80
A1	1.2	1.40
A2	0.80	0.90
b	0.25	0.35
c	0.08	0.15
D	1.20	1.40
E	1.60	1.80
E1	2.45	2.75
L	0.475REF	
L1	0.20	0.40
θ	0°	8°

Recommended Pad outline (Unit: mm)

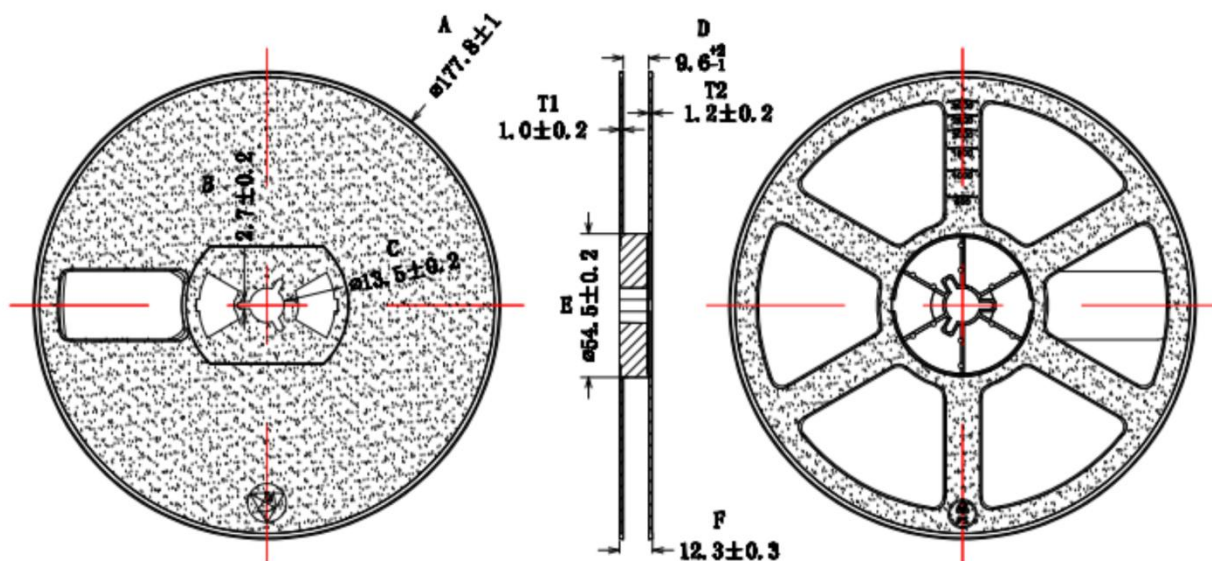


● Type and Reel Information-SOD-323



(Unit: mm)

A0	A1	B0	B1	K0	K1	D0	D1
1.45±0.1	0.7±0.1	2.9±0.1	1.75±0.1	1.25±0.1	0.95±0.1	1.55±0.1	1.08±0.1
P0	P1	W	E	F	P2	t	t1
4±0.1	4±0.1	8±0.1	1.75±0.1	3.5±0.1	2±0.1	0.21±0.02	0.05 以上



A	B	C	D	E	F	T1	T2
Φ177.8±1	2.7±0.2	Φ13.5±0.2	9.6±1	Φ54.5±0.2	12.3±0.3	1.0±0.2	1.2±0.2



DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.