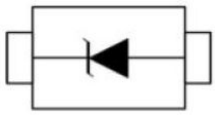
SSCT24V11D2

1-Line Uni-directional TVS Diode

Description

The SSCT24V11D2 is an Uni-directional high power TVS diode,utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage,making this device an ideal solution for protecting voltage sensitive data and power line. The SSCT24V11D2 complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into an ultra-small lead-free SOD-323 package. The small size and high ESD surge protection make SSCT24V11D2 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

PIN configuration



Top view

Marking

Feature

- 1800W peak pulse power (tP = 8/20μs)
- SOD-323 Package
- Working voltage: 24V
- Low clamping voltage
- High peak pulse current capability
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - IEC61000-4-5 (EFT) 35A (8/20μs)

Applications

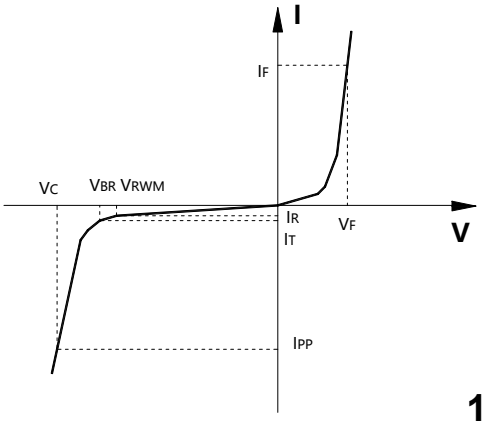
- Mobile Phones and Accessories
- Battery Protection
- Power Supply Protection
- Hand Held Portable Applications
- Peripherals

Mechanical data

- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Qualified max reflow temperature:260℃
- Device meets MSL 1 requirements
- Moisture Sensitivity: Level 3 per J-STD-020

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	Junction Capacitance



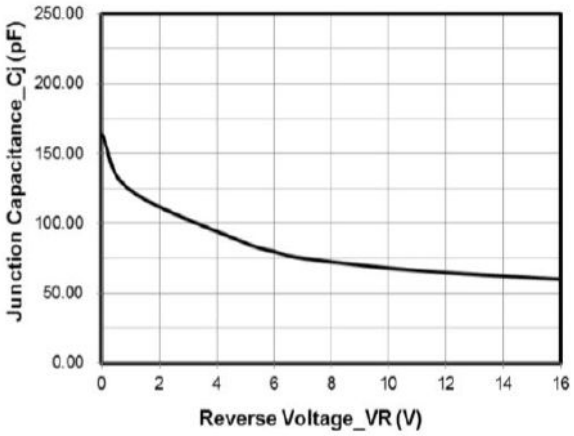
- **Absolute maximum rating @TA=25℃**

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	1800	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	35	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	30 30	KV
Operating Temperature Range	T_J	-55 ~ 125	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

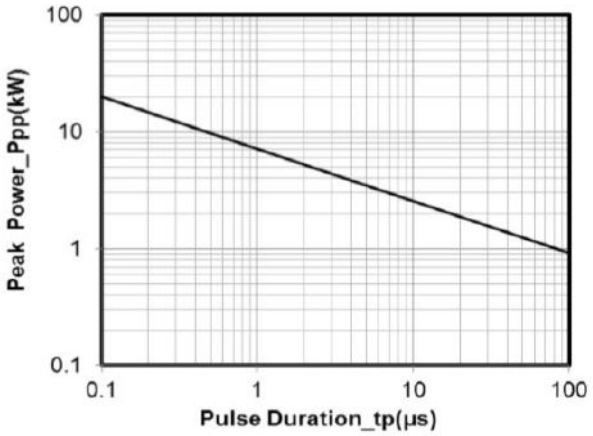
- **Electrical Characteristics @TA=25℃**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			24	V	
Breakdown Voltage	V_{BR}	26.7			V	IT = 1mA
Reverse Leakage Current	I_R			0.2	uA	VRWM = 24V
Clamping Voltage	I_{PP}			42	V	IPP = 10A (8 x 20uS pulse)
Clamping Voltage	I_{PP}			54	V	IPP = 35A (8 x 20uS pulse)
Junction Capacitance	C_J		200		pF	VR = 0V, f = 1MHz

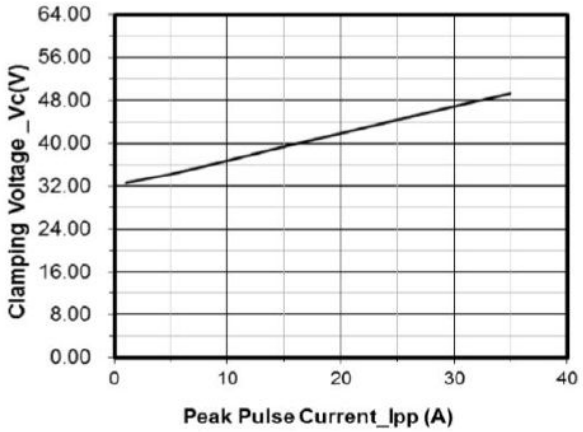
- **Typical Performance Characteristics**



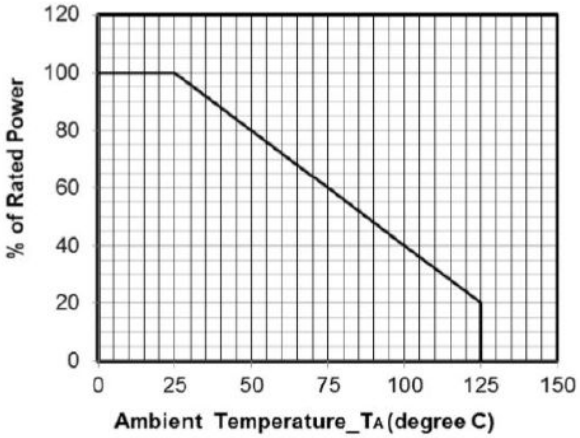
Junction Capacitance vs. Reverse Voltage



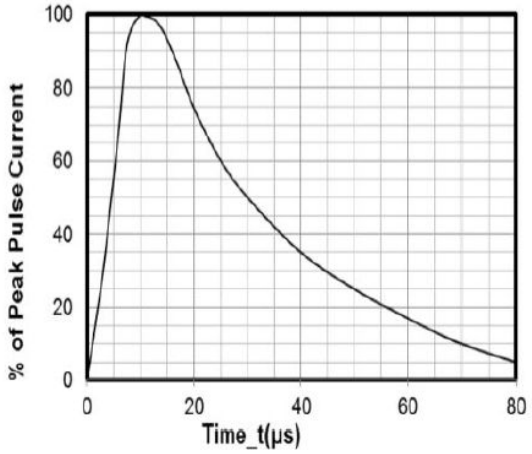
Peak Pulse Power vs. Pulse Time



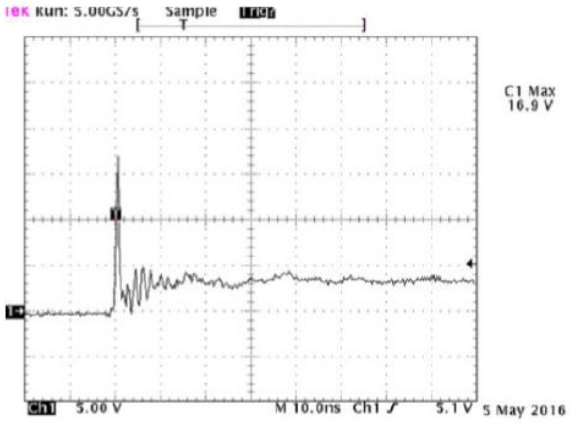
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



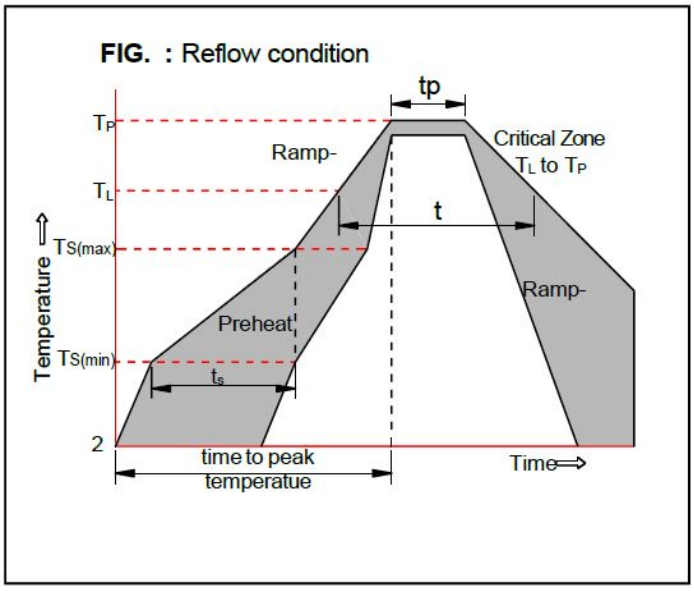
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

- **Soldering Parameters**

Reflow Condition		**Pb-Free assembly (see as bellow)**
Pre Heat	-Temperature Min (Ts(min))	+150℃
	-Temperature Max(Ts(max))	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
Ts(max) to TL - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (Tp)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



- **Package Information**

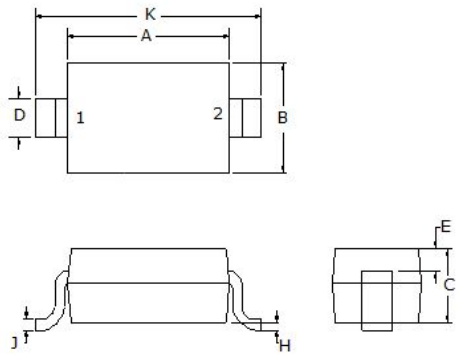
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT24V11D2	SOD-323	3000	7 Inch

Mechanical Data

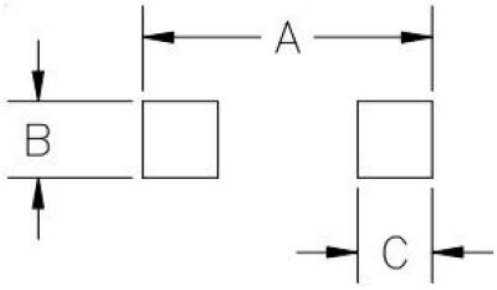
Case: SOD-323

Case Material: Molded Plastic. UL Flammability



Dim	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.50	1.80	0.060	0.071
B	1.2	1.40	0.045	0.054
C	-	1.10	-	0.043
D	0.30	0.40	0.012	0.016
H	-	0.10	-	0.004
J	0.10	0.25	0.004	0.010
K	2.30	2.70	0.090	0.107

Recommended Pad outline



Dim	Dimensions	
	Millimeters	Inches
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

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