SSCTXXX22D2 Series

3.3V~24V Ultra Low Capacitance bi-directional TVS Diode

Description

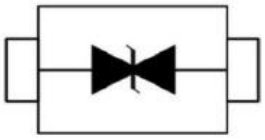
The SSCTXXX22D2 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines.

The SSCTXXX22D2 complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into a leadfree SOD-323 package. The small size, low capacitance and high ESD surge protection make SSCTXXX22D2 an ideal choice to protect cell phone, wireless systems, and communication equipment.

Feature

- 350W peak pulse power (t_P = 8/20us)
- SOD-323 Package
- Working voltage: 3.3V,5V,12V,15V,24V,36V
- Low clamping voltage
- Low capacitance
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)

PIN configuration



Top view

Applications

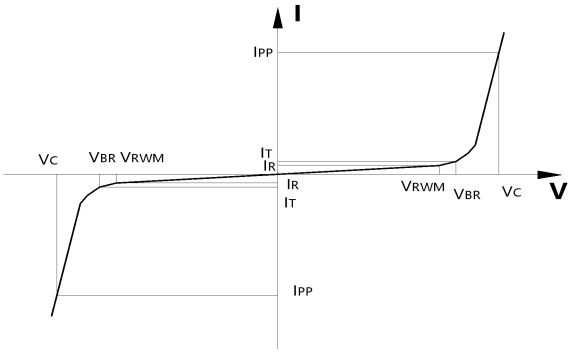
- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Networking and Telecom
- Serial and Parallel Ports.
- Peripherals

Mechanical data

- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Qualified max reflow temperature:260℃
- Device meets MSL 3 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_J	Junction Capacitance



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

SSCT3V322D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	20	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	30 30	K kV
Operating Temperature Range	T_J	-55 ~ 125	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
SSCT5V022D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	17	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	℃
SSCT12V22D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	11	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	℃

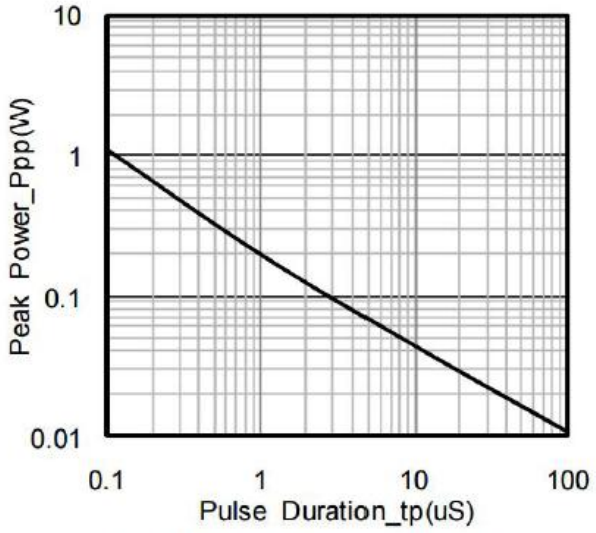
SSCT15V22D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	10	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	30 30	kV
Operating Temperature Range	T_J	-55 ~ 125	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
SSCT24V22D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	7	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	℃
SSCT36V22D2			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	350	W
Peak Pulse Current (tp=8/20μs waveform)	I_{PP}	5	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 @T_A=25℃**

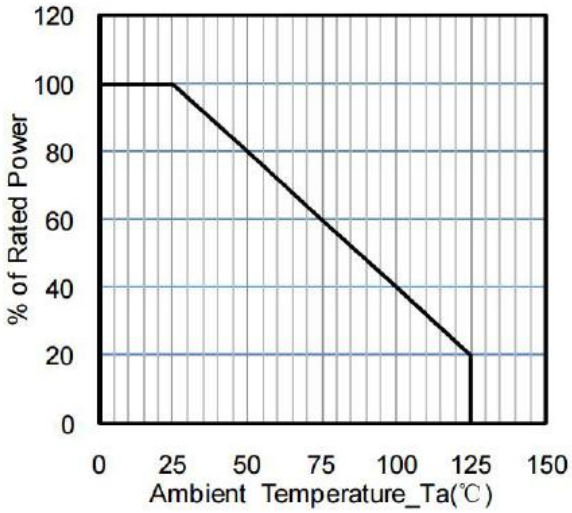
SSCT3V322D2						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	I_T = 1mA	4.0			V
Reverse Leakage Current	I_R	V_{RWM} = 3.3V			40	uA
Clamping Voltage	V_C	IPP = 1A , tp = 8/20us		7		V
Clamping Voltage	V_C	IPP = 20A, tp = 8/20us			19	V
Junction Capacitance	C_J	VR = 0V, f = 1MHz		450		pF

SSCT5V022D2						
Parameter	**Symbol**	**Test Condition**	**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	6			V
Reverse Leakage Current	I_R	V_{RWM} = 5V			10	uA
Clamping Voltage	V_C	I_{PP} = 1A , tp = 8/20us		9.8		V
Clamping Voltage	V_C	I_{PP} = 17A , tp = 8/20us			21	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		200		pF
SSCT12V22D2						
Parameter	**Symbol**		**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	I_T = 1mA	13.3			V
Reverse Leakage Current	I_R	V_{RWM} = 12V			1	uA
Clamping Voltage	V_C	I_{PP} = 1A , tp = 8/20us		19		V
Clamping Voltage	V_C	I_{PP} = 11A , tp = 8/20us			32	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		75		pF
SSCT15V22D2						
Parameter	**Symbol**		**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				15	V
Breakdown Voltage	V_{BR}	I_T = 1mA	16.7			V
Reverse Leakage Current	I_R	V_{RWM} = 15V			1	uA
Clamping Voltage	V_C	I_{PP} = 1A , tp = 8/20us		24		V
Clamping Voltage	V_C	I_{PP} = 10A, tp = 8/20us			38	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		68		pF
SSCT24V22D2						
Parameter	**Symbol**		**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				24	V
Breakdown Voltage	V_{BR}	I_T = 1mA	26.7			V
Reverse Leakage Current	I_R	V_{RWM} = 24V			1	uA
Clamping Voltage	V_C	I_{PP} = 1A , tp = 8/20us		43		V
Clamping Voltage	V_C	I_{PP} = 7A , tp = 8/20us			52	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		57		pF
SSCT36V22D2						
Parameter	**Symbol**		**Min**	**Typ**	**Max**	**Unit**
Reverse Working Voltage	V_{RWM}				36	V
Breakdown Voltage	V_{BR}	I_T = 1mA	40			V
Reverse Leakage Current	I_R	V_{RWM} = 36V			1	uA
Clamping Voltage	V_C	I_{PP} = 1A, tp = 8/20us		63		V
Clamping Voltage	V_C	I_{PP} = 5A , tp = 8/20us			80	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		35		pF

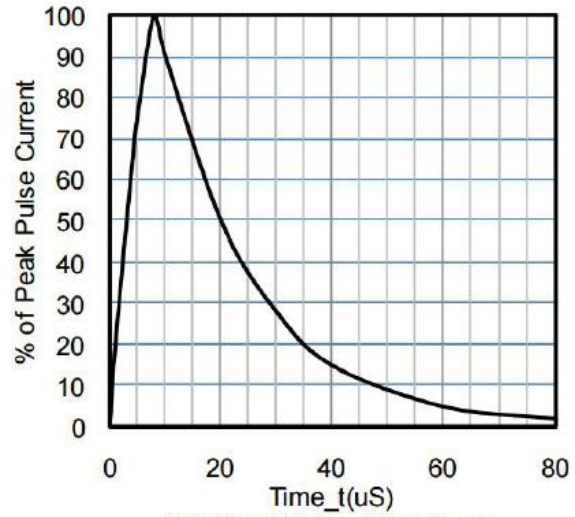
- **Typical Performance Characteristics**



Peak Pulse Power vs. Pulse Time



Power Derating Curve



8 X 20uS Pulse Waveform

- **Package Information**

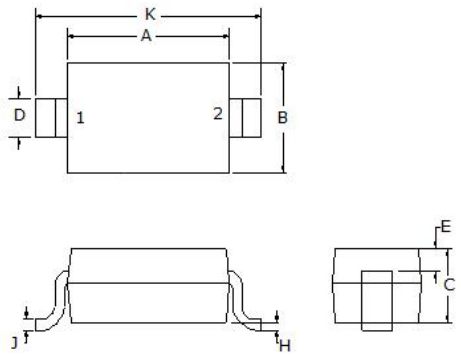
Ordering Information

Device	Making	Package	Qty per Reel	Reel Size
SSCT3V322D2	03B	SOD-323	3000	7 Inch
SSCT5V022D2	05B	SOD-323	3000	7 Inch
SSCT12V22D2	12B	SOD-323	3000	7 Inch
SSCT15V22D2	15B	SOD-323	3000	7 Inch
SSCT24V22D2	24B	SOD-323	3000	7 Inch
SSCT36V22D2	36B	SOD-323	3000	7 Inch

Mechanical Data

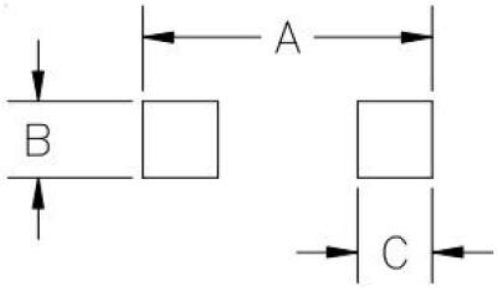
Case: SOD-323

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	
	Millimeter	Inches
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031

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