

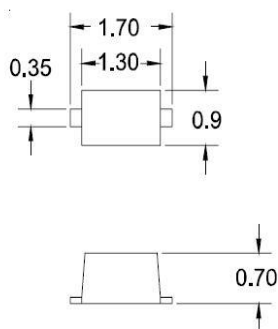
Description

The SDXXXH is an uni-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 data and power line. The SDXXXH complies with the IEC 61000-4-2 (ESD) with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into a small lead-free SOD-523 package. The small size and high ESD surge protection make SDXXXH an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

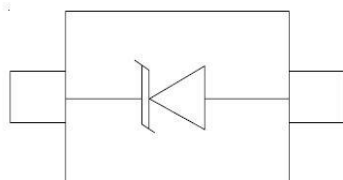
Features

- Protects one data or power line
- Working voltage: 3.3 ~12 V
- 2-pin SOD-523 package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15\text{kV}$
 - Contact discharge: $\pm 8\text{kV}$
- RoHS Compliant

Dimensions & Symbol (Unit: mm Max)



Maximum Dimensions (mm)



SOD-523 (Top View)

Mechanical Characteristics

- Package: SOD-523
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Ordering Information

Part Number	Packaging	Reel Size
SDXXXH	3000/Tape & Reel	7 inch

Package Dimensions

Circuit and Pin Schematic

Absolute Maximum Ratings (T_A=25°C, RH=45%-75%, unless otherwise noted)

SD3V3H

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	150	W
Peak Pulse Current (8/20μs)	Ipp	11	A
ESD per IEC 61000-4-2 (Air)	VESD	±20	kV
ESD per IEC 61000-4-2 (Contact)		±10	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

SD5V0H

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	174	W
Peak Pulse Current (8/20μs)	Ipp	9	A
ESD per IEC 61000-4-2 (Air)	VESD	±20	kV
ESD per IEC 61000-4-2 (Contact)		±10	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

SD7V0H

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	200	W
Peak Pulse Current (8/20μs)	Ipp	8	A
ESD per IEC 61000-4-2 (Air)	VESD	±20	kV
ESD per IEC 61000-4-2 (Contact)		±10	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

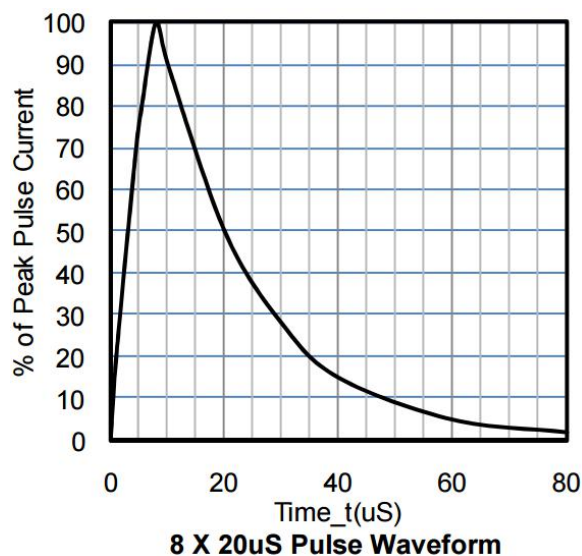
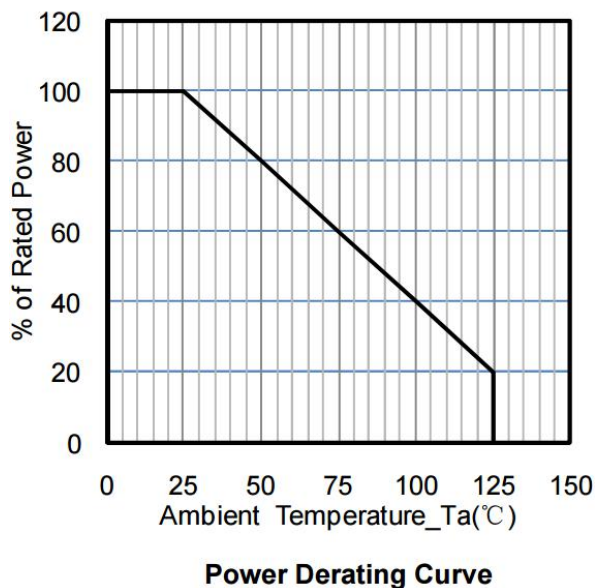
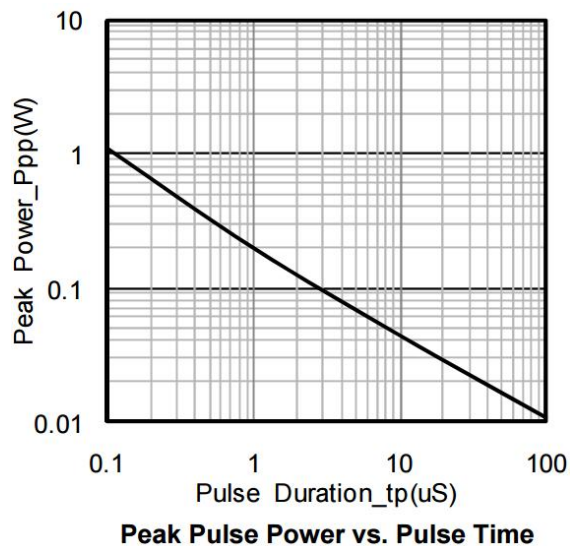
SD12VH			
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	181	W
Peak Pulse Current (8/20μs)	Ipp	6	A
ESD per IEC 61000-4-2 (Air)	VESD	±20	kV
ESD per IEC 61000-4-2 (Contact)		±10	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Electrical Characteristics (T_A=25°C)

SD3V3H						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			3.3	V	
Breakdown Voltage	VBR	5.0			V	IT = 1mA
Reverse Leakage Current	IR			0.9	uA	VRWM = 3.3V
Clamping Voltage	VC		9.4		V	IPP = 1A (8 x 20uS pulse)
Clamping Voltage	VC			15	V	IPP = 11.2A (8 x 20uS pulse)
Junction Capacitance	CJ		105		pF	VR = 0V, f = 1MHz
SD5V0H						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	IT = 1mA
Reverse Leakage Current	IR			10	uA	VRWM = 5V
Clamping Voltage	VC		11.6		V	IPP = 1A (8 x 20uS pulse)
Clamping Voltage	VC			18.6	V	IPP = 9.4A (8 x 20uS pulse)
Junction Capacitance	CJ		80		pF	VR = 0V, f = 1MHz

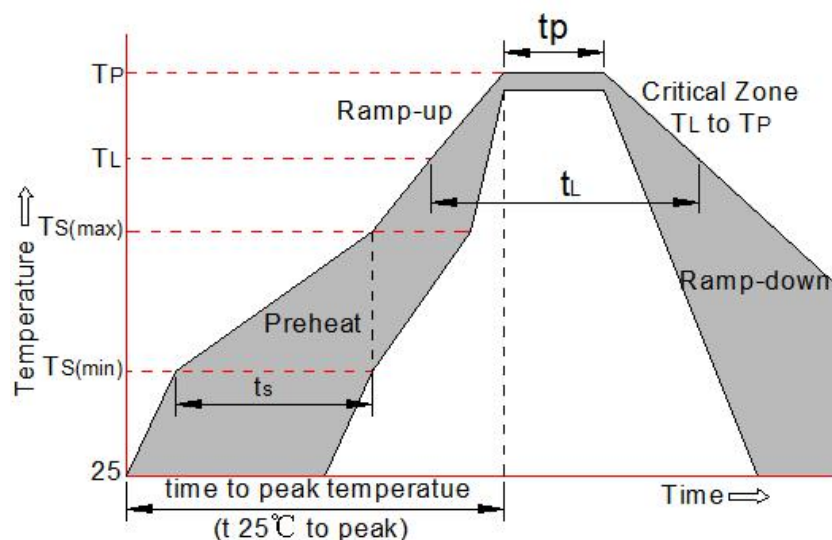
SD7V0H						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			7	V	
Breakdown Voltage	VBR	7.5			V	IT = 1mA
Reverse Leakage Current	IR			1	uA	VRWM = 7V
Clamping Voltage	VC		12		V	IPP = 1A (8 x 20uS pulse)
Clamping Voltage	VC			22.7	V	IPP = 8.85A (8 x 20uS pulse)
Junction Capacitance	CJ		65		pF	VR = 0V, f = 1MHz
SD12VH						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3			V	IT = 1mA
Reverse Leakage Current	IR			0.2	uA	VRWM = 12V
Clamping Voltage	VC		23		V	IPP = 1A (8 x 20uS pulse)
Clamping Voltage	VC			30	V	IPP = 6A (8 x 20uS pulse)
Junction Capacitance	CJ		45		pF	VR = 0V, f = 1MHz

Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

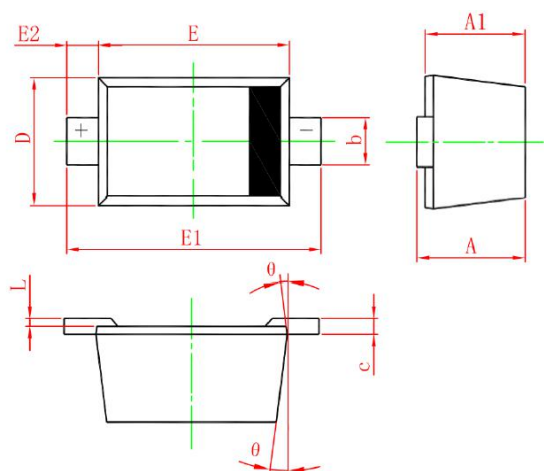


Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Mechanical Data



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	-	0.77	0.020	-	0.031
A1	0.50	-	0.70	0.020	-	0.028
b	0.25	-	0.35	0.010	-	0.014
c	0.08	-	0.15	0.003	-	0.006
D	0.75	-	0.85	0.030	-	0.033
E	1.10	-	1.30	0.043	-	0.051
E1	1.50	-	1.70	0.059	-	0.067
E2	0.20REF			0.008REF		
L	0.01	-	0.07	0.001	-	0.003
Φ	7° REF			7° REF		

Suggested Land Pattern

