



1-Line Unidirectional ESD Protection Diode

General description

Unidirectional ElectroStatic Discharge (ESD) protection diode in a SOD523 plastic package designed to protect one transmission or data line from the damage caused by ESD and other transients

Features and benefits

- Unidirectional ESD protection of one line
- Reverse stand-off voltage: 7.0V Max
- Low leakage current: nA Level
- Response time is typically < 1 ns
- Low clamping voltage: $V_C < 20\text{ V @ } I_{PP} = 5.8\text{ A}$
- ESD Protection: 15kV(air)/ 8kV(contact) (IEC61000-4-2)
- Surge Protection: 5.8 A (IEC 61000-4-5 8/20 μs)

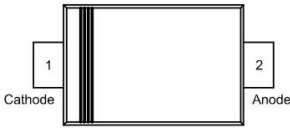
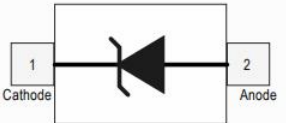
Application information

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

Ordering information

Device	Package	Marking	Packaging
ESD5Z7.0	SOD523	ZH	3000/Tape & Reel

Schematic & Pin configuration

Simplified outline	Graphic symbol
	

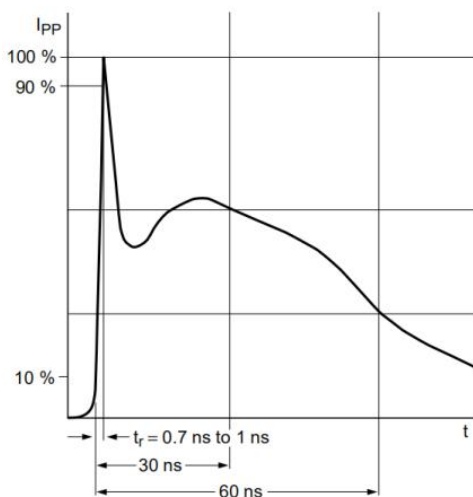
Maximum Ratings ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\text{ }\mu\text{s}$)	P_{PPM}	120	W
Peak Pulse Current($t_p = 8/20\text{ }\mu\text{s}$)	I_{PPM}	5.8	A
Maximum lead temperature for soldering during 10s	T_L	260	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$
Operating Temperature Range	T_{OP}	-40 to +125	$^{\circ}\text{C}$
Maximum junction temperature	T_j	150	$^{\circ}\text{C}$
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	15	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	8	kV

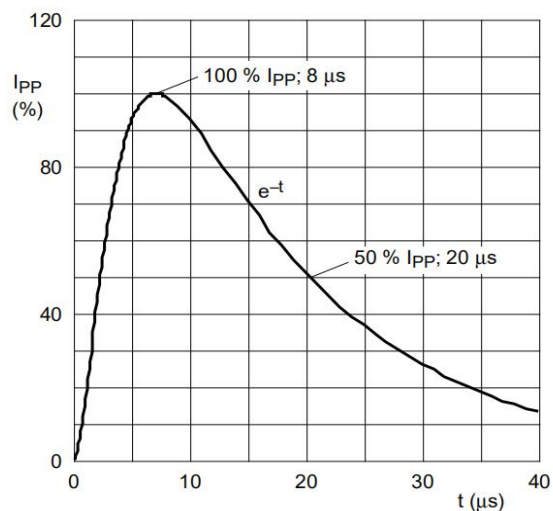
Electrical Characteristics ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	7.0	V	
Breakdown Voltage	V_{BR}	7.5	--	--	V	$I_T=1\text{mA}$
Leakage Current ILeak	I_R	--	--	100	nA	$V_{RWM}=7.0\text{V}$
Clamping Voltage	V_C	--	--	20.0	V	$I_{PP}=5.8\text{A}, T_p=8/20\mu\text{s}$
Junction Capacitance	C_J	--	--	65	pF	$V_R=0\text{V}, f=1\text{MHz}$

Typical Electrical and Thermal Characteristics (Curves)



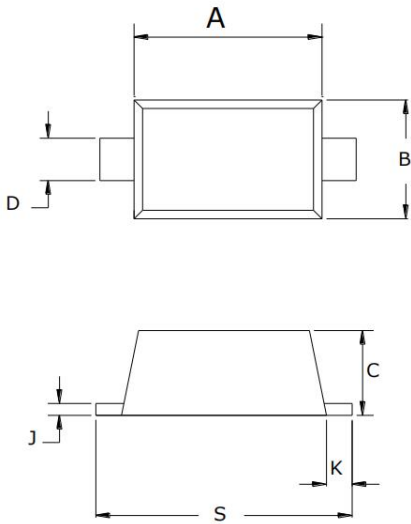
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform(8/20μs pulse)

Package Outline Dimensions

SOD523



SYMBOL	MILLIMETERS		
	MIN	NOR	MAX
A	1.10	1.20	1.30
B	0.70	0.80	0.90
C	0.60	0.65	0.70
D	0.25	0.30	0.35
J	0.08	0.11	0.15
K	0.15	0.20	0.25
S	1.50	1.60	1.70

Soldering Footprint (mm)

