



## 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  $\mu\text{s}$ )

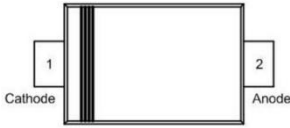

### Application information

- 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
	

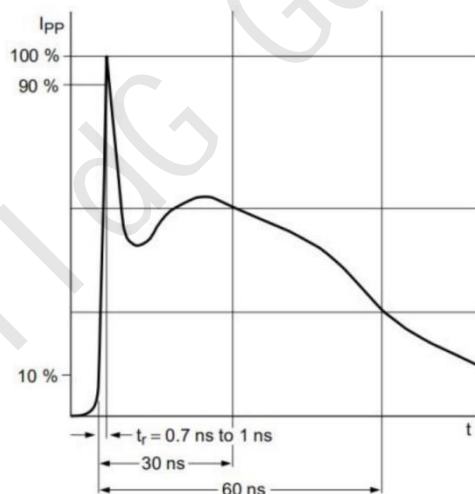
**Maximum Ratings** ( $T_{OP} = 25 \text{ } ^\circ\text{C}$ , unless otherwise specified)

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

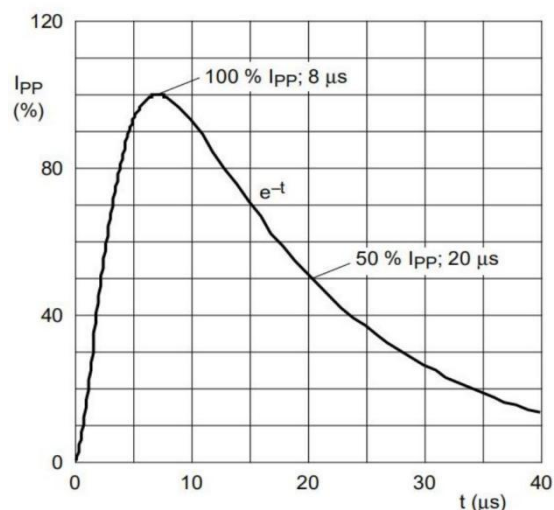
**Electrical Characteristics** ( $T_{OP} = 25 \text{ } ^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	$V_{RWM}$	--	--	7.0	V	
Breakdown Voltage	$V_{BR}$	7.5	--	--	V	$I_r=1\text{mA}$
Leakage Current $I_{Leak}$	$I_r$	--	--	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)**



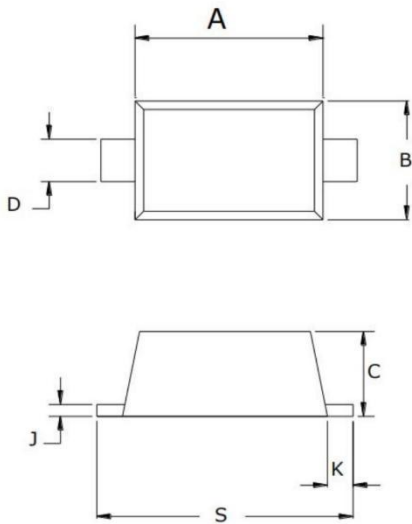
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform( 8/20μs pulse)

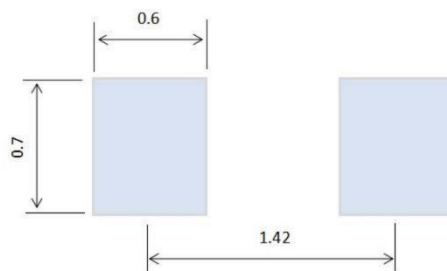
**Package Outline Dimensions**

**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)**



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