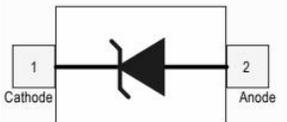




1-Line Unidirectional ESD Protection Diode

SOD523

Schematic & Pin configuration

Simplified outline	Graphic symbol
	

General description

The ESD5U5.0 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 ESD5U5.0 complies with the IEC 61000-4-2 (ESD) standard with $\pm 20KV$ air and $\pm 15KV$ contact discharge. It is assembled into an ultra-small 1.6x0.8x0.6mm lead-free SOD523 package. The small size and high ESD surge protection make ESD5U5.0 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features and benefits

- Low Capacitance 0.5 pF(Typ)
- Reverse stand-off voltage: 5V Max
- Low leakage current: nA Level
- Low Clamping Voltage
- Response time is typically < 1 ns
- IEC61000-4-2 Level 4 ESD Protection

Application information

- | | |
|--|-----------------------------|
| • 10/100/1000 Mbit/s Ethernet | • Portable electronics |
| • FireWire | • Communication systems |
| • High- speed data lines | • Computers and peripherals |
| • Subscriber Identity Module (SIM) card protection | • Audio and video equipment |
| • Cellular handsets and accessories | • Antenna protection |

Ordering information

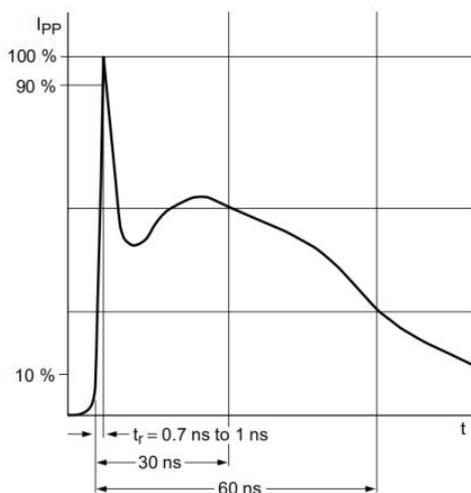
Device	Package	Packaging
ESD5U5.0	SOD523	3000/Tape & Reel

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

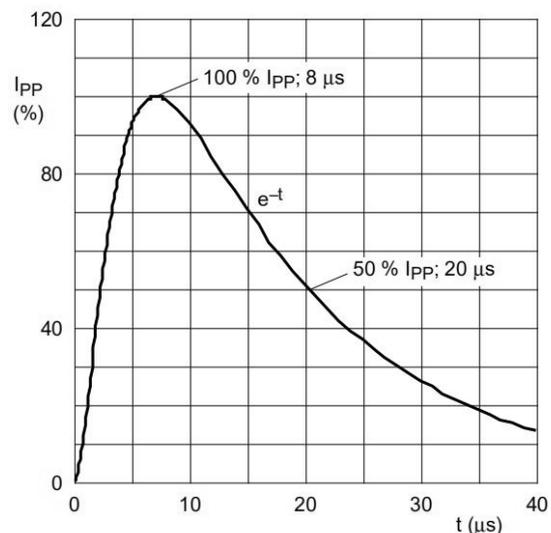
Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\text{ }\mu\text{s}$)	P_{PPM}	80	W
Peak Pulse Current ($t_p = 8/20\text{ }\mu\text{s}$)	I_{PPM}	4.0	A
Maximum lead temperature for soldering during 10s	T_L	260	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$
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}	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	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}	--	--	5.0	V	
Breakdown Voltage	V_{BR}	6.5	--	9.0	V	$I_T=1\text{mA}$
Leakage Current I_{Leak}	I_R	--	--	100	nA	$V_{RWM}=5\text{V}$
Clamping Voltage	V_C	--	12	14	V	$I_{PP}=4.0\text{A}, T_p=8/20\mu\text{s}$
Junction Capacitance	C_J	--	0.5	0.6	pF	$V_R=0\text{V}, f=1\text{MHz}$



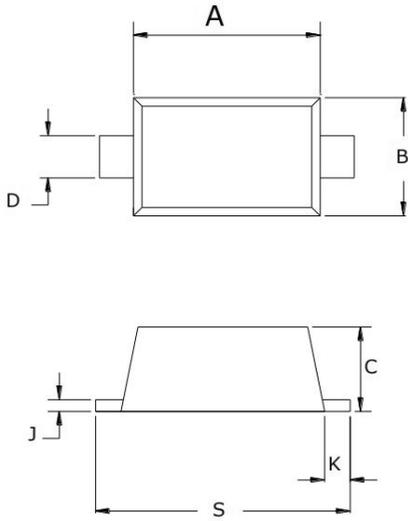
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform($8/20\mu\text{s}$ 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)

