

**Bi-direction ESD Protection Diode**

**DESCRIPTION**

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD. The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multi-layer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

**FEATURES**

- ◆ Bi-directional ESD protection of one line
- ◆ Low capacitance: 12pF(Typ.)
- ◆ Low reverse stand-off voltage: 5.0V
- ◆ Low reverse clamping voltage
- ◆ Low leakage current
- ◆ Excellent package: 1.00mm×0.6mm×0.55mm
- ◆ Fast response time
- ◆ JESD22-A114-B ESD Rating of class 3B per human body model
- ◆ IEC 61000-4-2 Level 4 ESD protection

**APPLICATIONS**

- ◆ Computers and peripherals
- ◆ PAD
- ◆ Audio and video equipment
- ◆ Cellular handsets and accessories
- ◆ Subscriber identity module(SIM) card protection
- ◆ Portable electronics
- ◆ Other electronics equipments communication systems

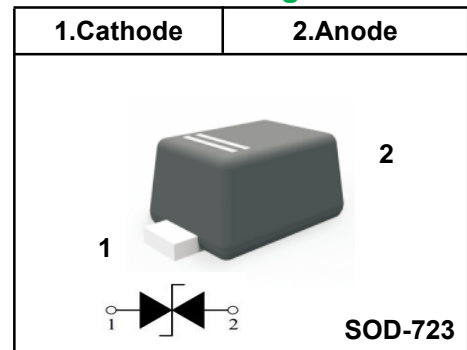
**MAXIMUM RATINGS ( Ta=25°C unless otherwise noted )**

Parameter	Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	Air Model	±25	kV
		Contact Model	
JESD22-A114-B ESD Voltage	Per Human Body Model	±16	
ESD Voltage	Machine Model	±0.4	
Peak Pulse Power	P <sub>PP</sub> <sup>(2)</sup>	50	W
Peak Pulse Current	I <sub>PP</sub> <sup>(2)</sup>	5	A
Lead Solder Temperature – Maximum (10 Second Duration)	T <sub>L</sub>	260	°C
Operation Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 ~ +150	°C

(1). Device stressed with ten non-repetitive ESD pulses.

(2). Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5.

**Pinning**



**Marking Code**

<b>ESD5VAFBD723</b>	<b>H</b>
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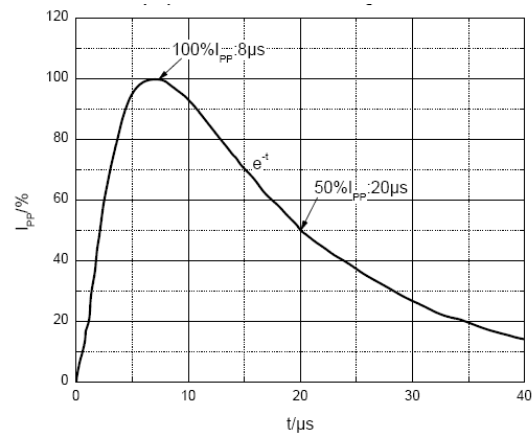
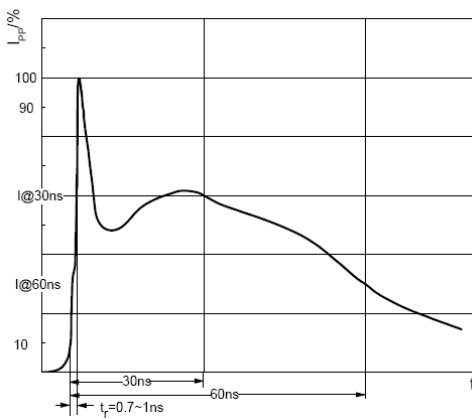
**ESD standards compliance**

**IEC61000-4-2 Standard**

Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

**JESD22-A114-B Standard**

ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999

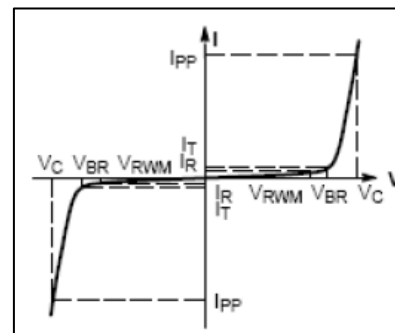


ESD pulse waveform according to IEC61000-4-2

8/20µs pulse waveform according to IEC 61000-4-5

**ELECTRICAL PARAMETER**

Symbol	Parameter
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>PP</sub>	Peak Pulse Current
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>T</sub>	Test Current
I <sub>R</sub>	Reverse Leakage Current @ V <sub>RWM</sub>
V <sub>RWM</sub>	Reverse Standoff Voltage



V-I characteristics for a Bi-directional TVS

**ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise specified)**

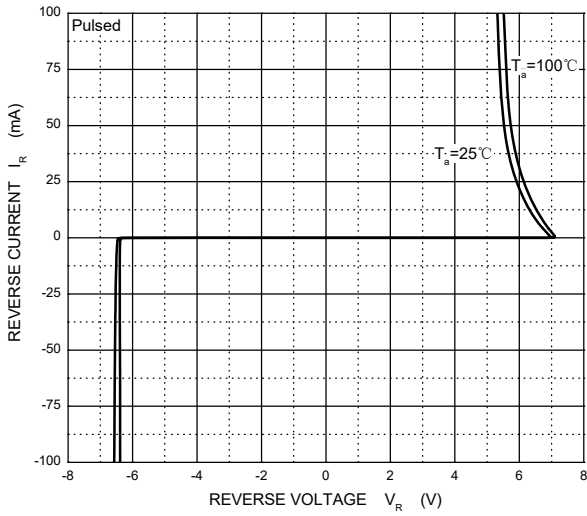
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse stand off voltage	V <sub>RWM</sub> <sup>(1)</sup>				5	V
Reverse leakage current	I <sub>R</sub>	V <sub>RWM</sub> =5V			0.1	µA
Breakdown voltage	V <sub>(BR)</sub>	I <sub>T</sub> =1mA	5.8		8.3	V
Clamping voltage	V <sub>C</sub> <sup>(2)</sup>	I <sub>PP</sub> =5A			10	V
Junction capacitance	C <sub>J</sub>	V <sub>R</sub> =0V,f=1MHz		12	15	pF

(1).Other voltages available upon request.

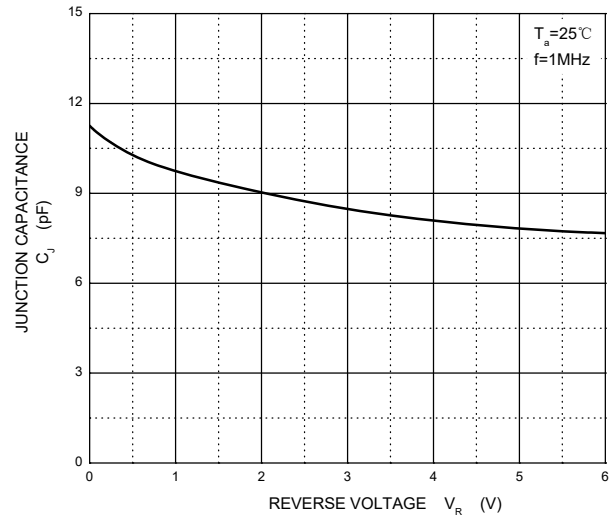
(2).Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5

**TYPICAL CHARACTERISTICS**

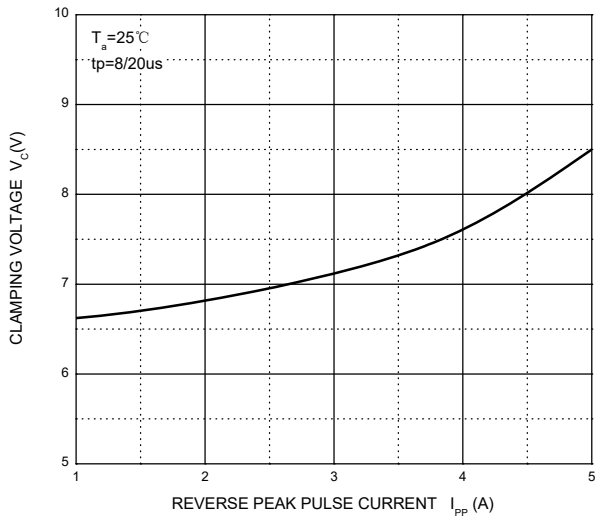
**Reverse Characteristics**



**Capacitance Characteristics**



$V_C$  —  $I_{PP}$



**Ordering information**

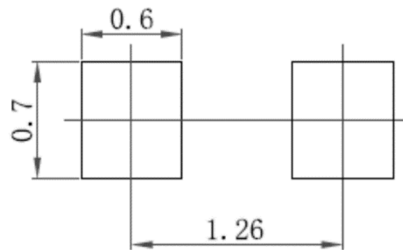
Package	Packing Description	Packing Quantity
SOD-723	Tape/Reel, 7" reel	8000PCS/Reel 320000PCS/Carton

**Package Dimensions**

**SOD-723**

Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	1.30	1.50	51	59
B	0.90	1.10	35	43
C	0.55	0.65	22	26
D	0.01	0.07	1	3
E	0.25	0.35	10	14
F	0.08	0.15	3	6
G	0.52	0.58	20	23
H	0.53	0.65	21	26

**The recommended mounting pad size**



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