

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

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 multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

FEATURES

- Low Reverse Clamping Voltage
- Low Leakage Current
- Fast Response Time
- JESD22-A114-B ESD Rating of Class 3B Per Human Body Model
- IEC 61000-4-2 Level 4 ESD Protection

MARKING

BM12

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-323	3K	7 inch

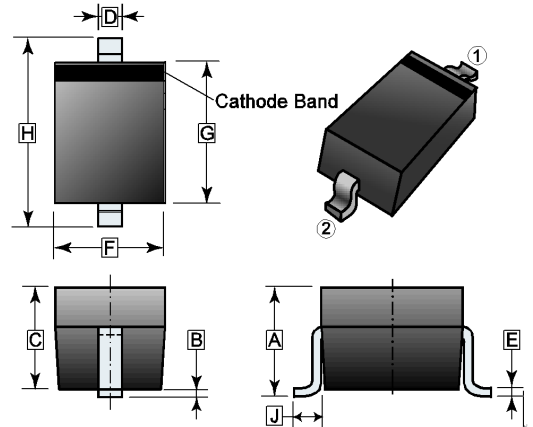
ORDER INFORMATION

Part Number	Type
SD12C	Lead (Pb)-free
SD12C-C	Lead (Pb)-free and Halogen-free

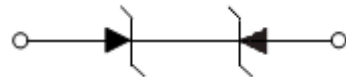
ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit	
IEC 61000-4-2 ESD Voltage ¹	Air Model	±25	kV	
	Contact Model	±25		
	JESD22-A114-B ESD Voltage ¹	Per Human Body Model		±16
	ESD Voltage ¹	Machine Model		±0.4
Peak Pulse Power ²	P _{PP}	224	W	
Peak Pulse Current ²	I _{PP}	8	A	
Maximum Lead Solder Temperature @10 Second Duration	T _L	260	°C	
Operating Junction and Storage Temperature Range	T _J , T _{STG}	150, -55~150	°C	

SOD-323



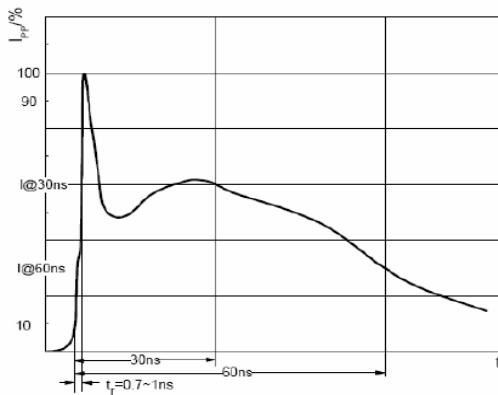
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.05 REF.		F	1.15	1.45
B	0.20 REF.		G	1.60	1.90
C	0.80	1.00	H	2.30	2.75
D	0.25	0.40	J	0.475 REF.	
E	0.08	0.20			



ESD STANDARDS COMPLIANCE

IEC61000-4-2 Standard

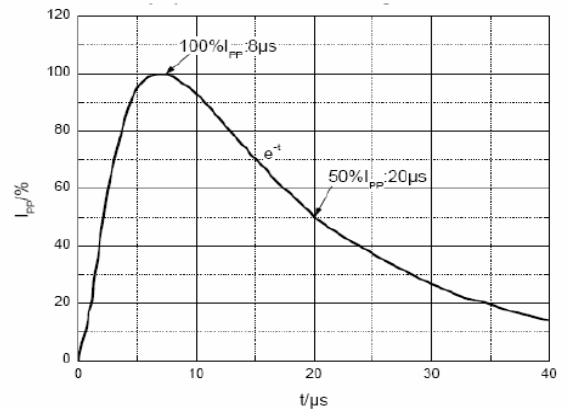
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15



ESD pulse waveform according to IEC61000-4-2

JESD22-A114-B Standard

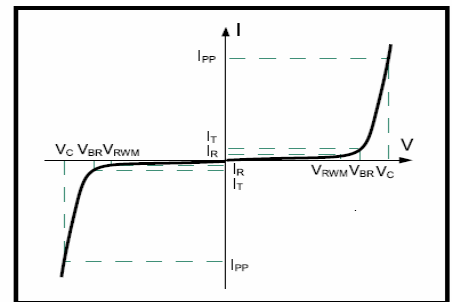
ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999



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

ELECTRICAL PARAMETER

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



V-I characteristics for a Bi-directional TVS

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

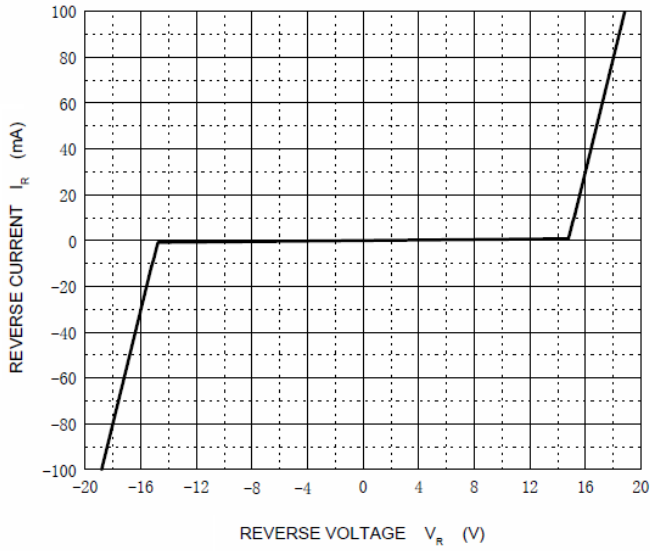
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Reverse Stand-off Voltage	V_{RWM}	-	-	12	V	
Breakdown Voltage	$V_{(BR)}$	13.3	-	16	V	$I_T=1\text{mA}$
Clamping Voltage ²	V_C	-	26	28	V	$I_{PP}=8\text{A}$
Reverse Leakage Current	I_R	-	-	0.1	μA	$V_{RWM}=12\text{V}$
Junction Capacitance	C_J	-	18	30	pF	$V_R=0\text{V}$, $f=1\text{MHz}$

Notes:

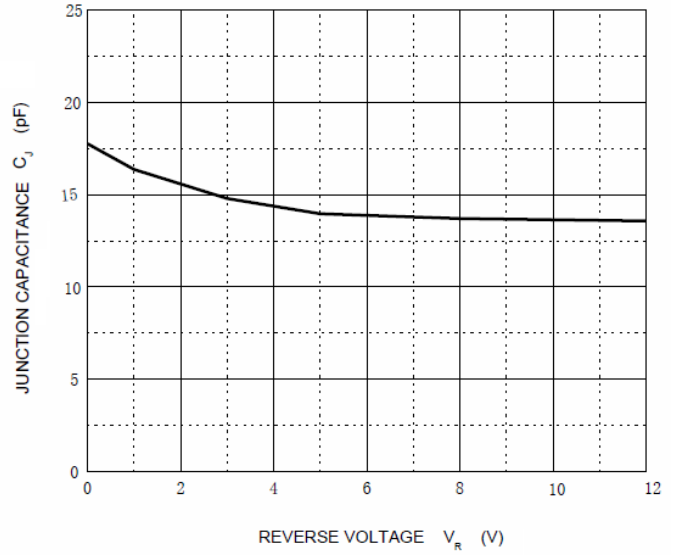
1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20µs exponential decay waveform according to IEC61000-4-5.

TYPICAL CHARACTERISTICS

Reverse Characteristics



Capacitance Characteristics



V_c — I_{pp}

