

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

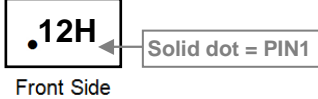
Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, high level ESD protection makes them a flexible solution for applications such as Digital cameras, cellular phones, and MP3 Players. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

FEATURES

- Uni-directional ESD protection of one line
- Low reverse stand-off voltage: 12V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- Peak pulse power: 5700W (IEC61000-4-5 8/20 μ s)
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN2x2-3L	3K	7 inch

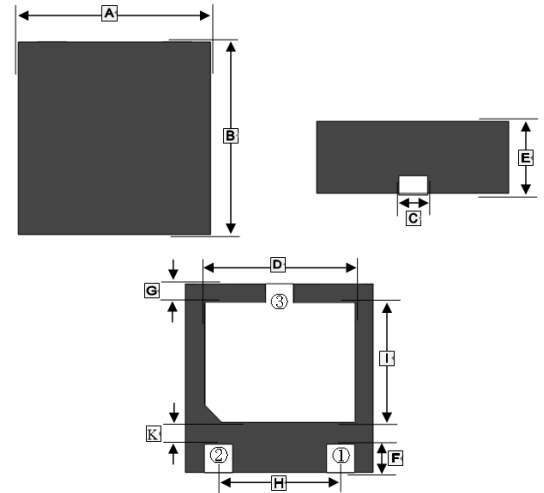
ORDER INFORMATION

Part Number	Type
SQESD12-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Parameter		Symbol	Rating	Unit	
IEC 61000-4-2 ESD Voltage ¹	Air Model	V _{ESD}	±30	kV	
	Contact Model		±30		
	JESD22-A114-B ESD Voltage ¹		Per Human Body Model		±20
	ESD Voltage ¹		Machine Model		±0.4
Peak Pulsed Power ²		P _{PP}	5700	W	
Peak Pulsed Current ²		I _{PP}	190	A	
Maximum Lead Solder Temperature @10Second Duration		T _L	260	°C	
Junction and Storage Temperature Range		T _J , T _{STG}	150, -55~150	°C	

DFN2x2-3L



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.90	2.10	F	0.324	0.476
B	1.90	2.10	G	0.20	0.30
C	0.30 BSC.		H	1.30 BSC.	
D	1.40	1.60	I	0.90	1.15
E	0.50	0.65	K	0.20	0.45



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

Parameter	Symbol	Min.	Typ.	Max.	Unit
Working Peak Reverse Voltage	V_{RWM}	-	-	12	V
Reverse Leakage Current @ $V_{RWM}=12\text{V}$	I_R	-	-	1	μA
Breakdown Voltage @ $I_T=1\text{mA}$	V_{BR}	13.3	-	16.5	V
Clamping Voltage ² @ $I_{PP}=190\text{A}$	V_C	-	-	30	V
Junction Capacitance @ $V_R=0\text{V}$, $f=1\text{MHz}$	C_J	-	1200	-	pF

Notes:

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

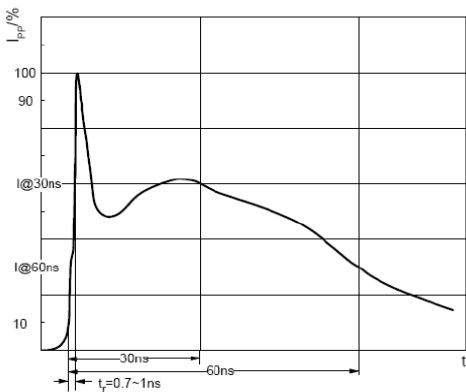
ESD STANDARDS COMPLIANCE

IEC61000-4-2 Standard

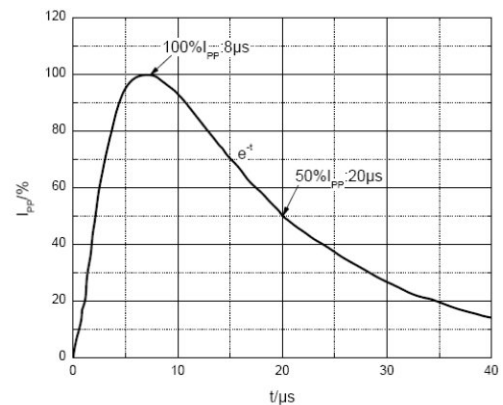
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

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



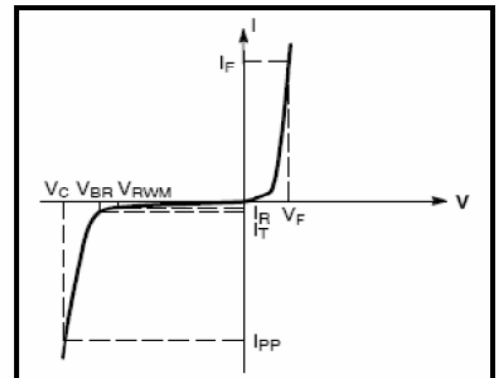
ESD pulse waveform according to IEC61000-4-2



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

ELECTRICAL PARAMETER

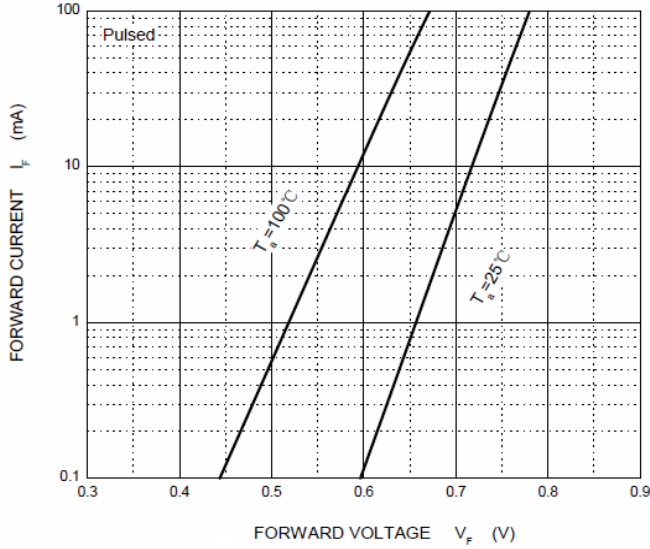
Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage
V_F	Forward Voltage @ I_F
I_F	Forward Current



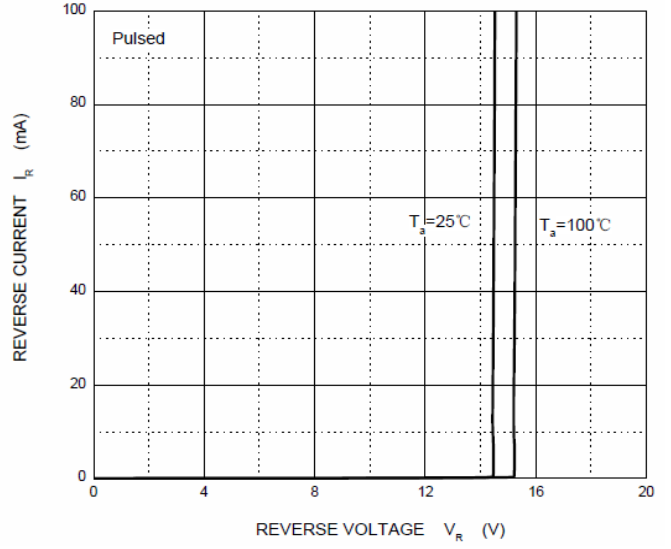
V-I characteristics for a uni-directional TVS

CHARACTERISTICS CURVES

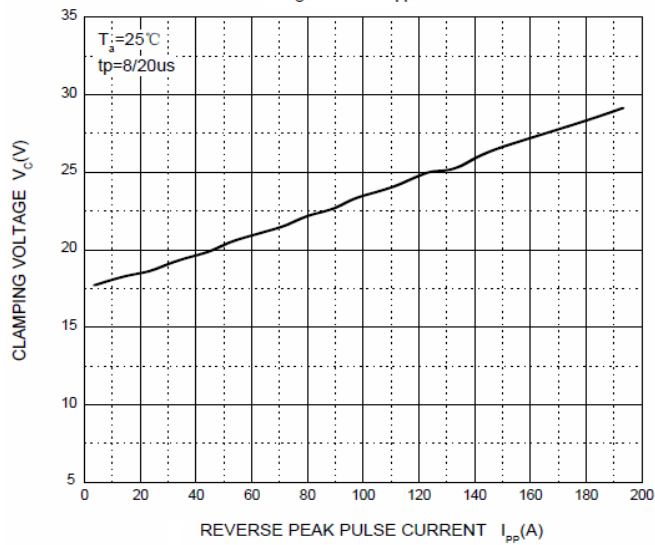
Forward Characteristics



Reverse Characteristics



V_C — I_{PP}



Capacitance Characteristics

