JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

AD-ESDVD5V0H4 Plastic-Encapsulated Diode

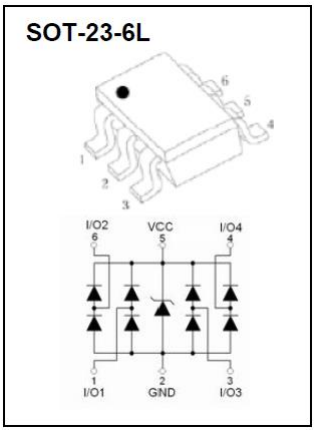
AD-ESDVD5V0H4 Uni-direction ESD protection diode

DESCRIPTION

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 which are exposed to ESD.

The combination of small size, low capacitance and high level of ESD protection makes the product a flexible solution for applications such as HDMI, Display Port TM and MDDI interfaces. It is designed to replace multiplayer varistors (MLV).

FEATURES

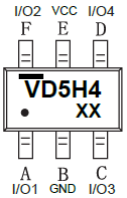


- Uni-directional ESD protection of one line
- Low capacitance: 2.0pF(max)
- Low reverse stand−off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 2.92mm X 1.60mm X 1.10mm
- Fast response time
- JESD22-A114-B ESD rating of class 3B per human body model
- IEC 61000-4-2 level 4 ESD protection
- AEC-Q101 qualified

APPLICATIONS

- Computers and peripherals
- Audio and video equipment
- High speed data lines
- Cellular handsets and accessories
- High definition multi-media interface (HDMI)
- Digital visual interface (DVI)
- Other electronics equipment communication systems

MARKING



$\overline{V}$D5H4 = Device code
Solid dot = Pin1
XX = Date code

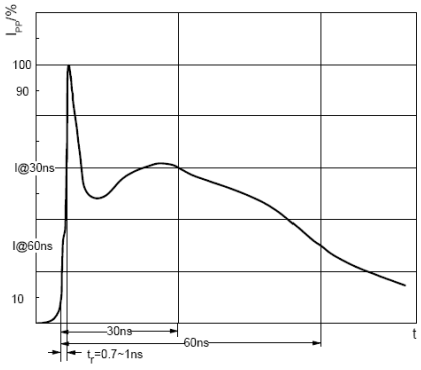
MAXIMUM RATINGS (T_j = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
IEC 61000-4-2 ESD voltage	Air model	V_{ESD} 1)	±30	kV
	Contact model		±30	
JESD22-A114-B ESD voltage per human body model			±25	
ESD voltage per machine model			±0.4	
Peak pulse power		P_{PP} 2)	240	W
Peak pulse current		I_{PP} 2)	12	A
Maximum lead solder temperature (10 second duration)		T_L	260	°C
Operation junction and storage temperature range		T_j, T_{stg}	-55 ~ 150	°C

ESD STANDARD COMPLIANCE

IEC61000-4-2 standard

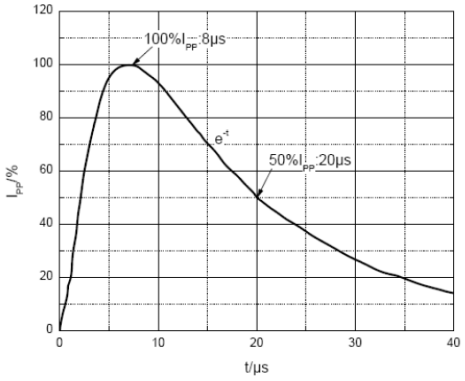
Contact discharge		Air discharge	
Level	Test voltage (kV)	Level	Test voltage (kV)
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15



ESD pulse waveform according to IEC61000-4-2

JESD22-A114-B standard

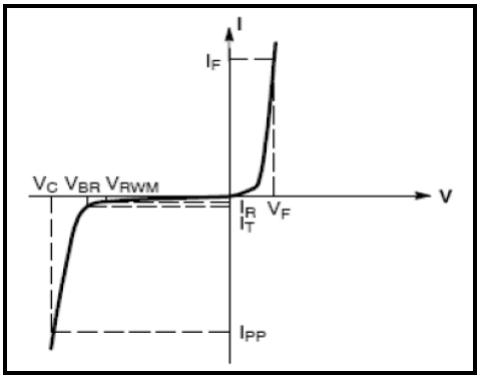
ESD class	Human body discharge (V)
0	0 ~ 249
1A	250 ~ 499
1B	500 ~ 999
1C	1000 ~ 1999
2	2000 ~ 3999
3A	4000 ~ 7999
3B	8000 ~ 15999



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

ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)

Parameter	Symbol
Clamping voltage @ I_{PP}	V_C
Peak pulse current	I_{PP}
Breakdown voltage @ I_T	V_{BR}
Test current	I_T
Reverse leakage current @ V_{RWM}	I_R
Reverse standoff voltage	V_{RWM}
Forward voltage @ I_F	V_F
Forward current	I_F



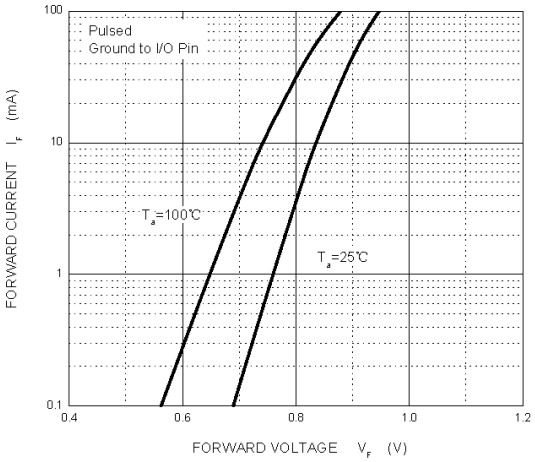
V-I characteristics for a uni-directional TVS

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Per channel (I/O to GND unless otherwise specified)						
Reverse standoff voltage	V_{RWM} 3)		-	-	5	V
Reverse leakage current	I_R	V_{RWM} = 5V (I/O to GND & V_{CC} to GND)	-	-	5.0	μA
Breakdown voltage	V_{BR}	I_T = 1mA	5.8	-	10	V
		I_T = 1mA (V_{CC} to GND)	5.8	-	10	V
Clamping voltage	V_C 2)	I_{PP} = 9A (I/O to GND & V_{CC} to GND)	-	-	15	V
		I_{PP} = 12A (I/O to GND & V_{CC} to GND)	-	-	20	V
Forward voltage	V_F	I_F = 15mA (GND to I/O & GND to V_{CC})	-	-	1.15	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz	-	-	2.0	pF
		V_R = 0V, f = 1MHz (I/O to I/O)	-	-	1.0	pF

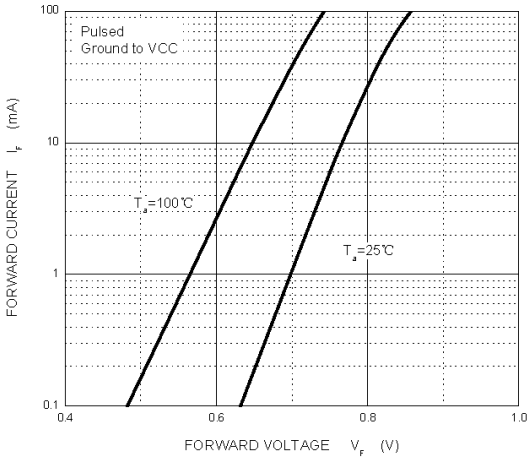
1) Device stressed with ten non-repetitive ESD pulses.
2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
3) Other voltages available upon request.

TYPICAL CHARACTERISTICS

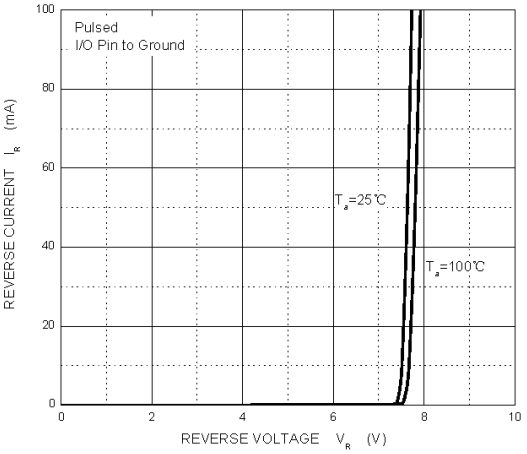
Forward Characteristics



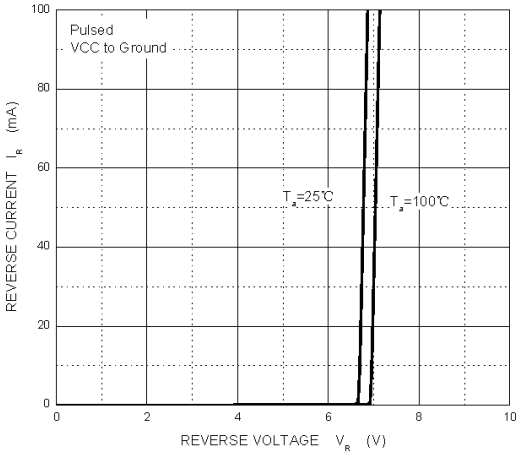
Forward Characteristics



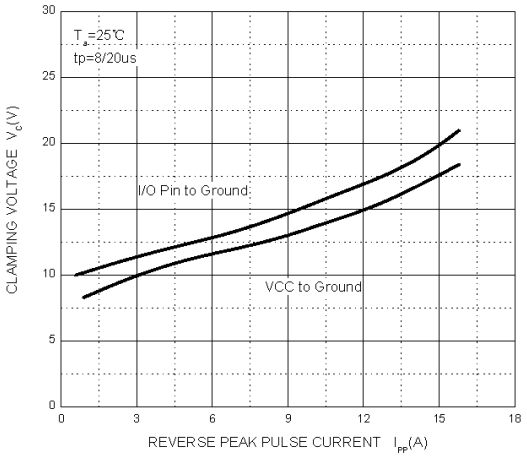
Reverse Characteristics



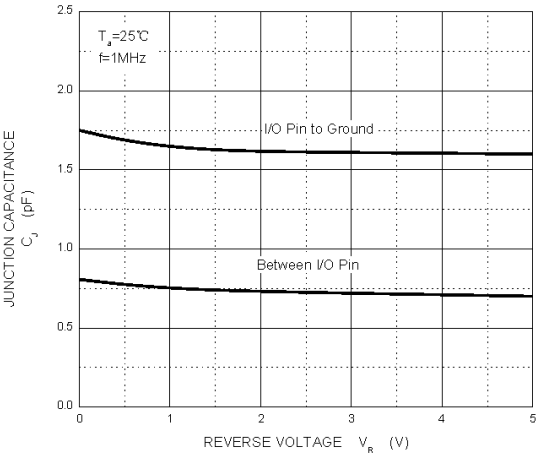
Reverse Characteristics



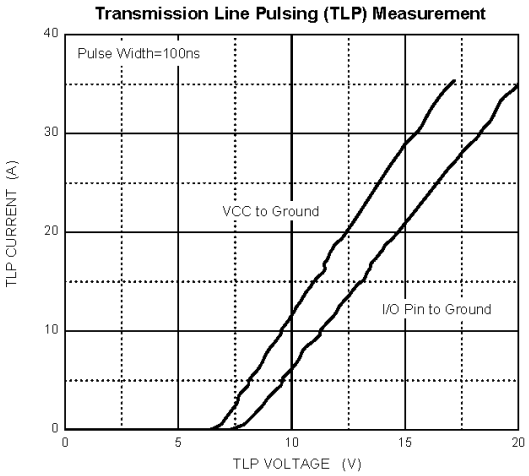
V_C —— I_{PP}



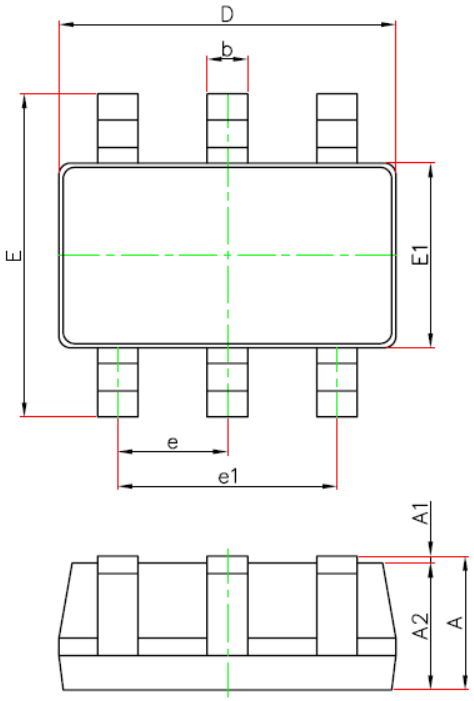
Capacitance Characteristics

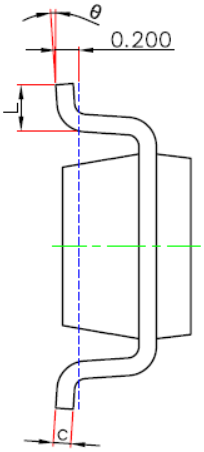


TYPICAL CHARACTERISTICS



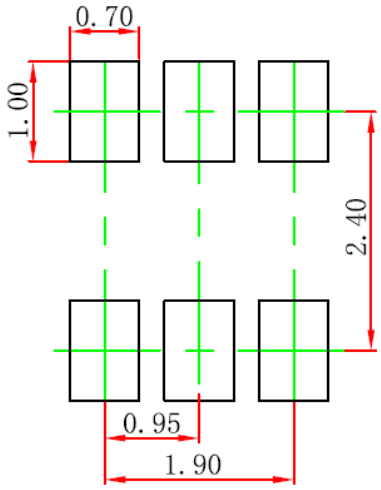
SOT-23-6L PACKAGE OUTLINE DIMENSIONS





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-23 SUGGESTED PAD LAYOUT

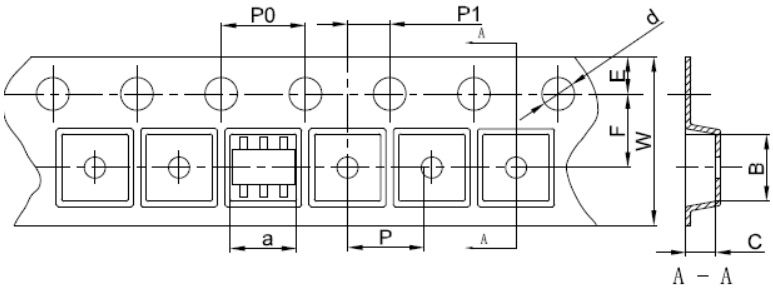


Note:

1. Controlling dimension in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purpose only.

SOT-23-6L TAPE AND REEL

SOT-23-6L Embossed Carrier Tape

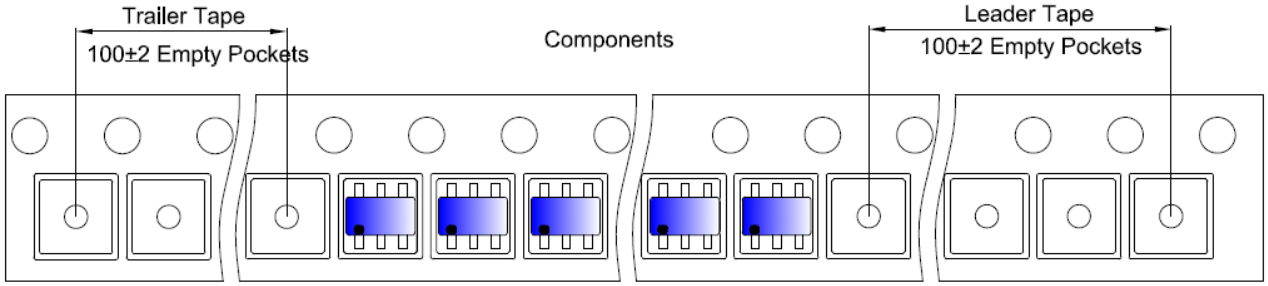


Packaging Description:

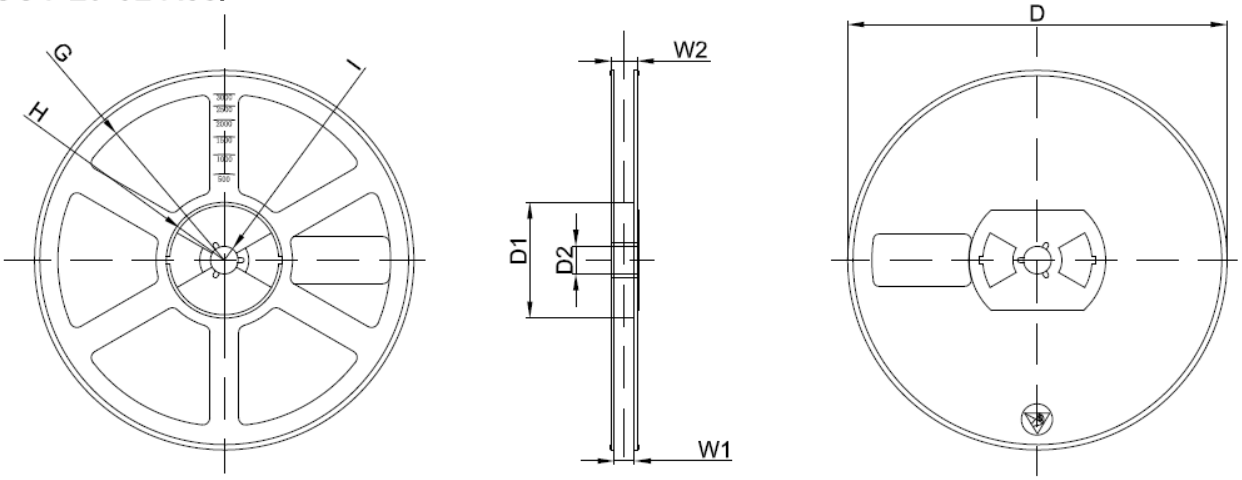
SOT-23-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOT-23-6L	3.17	3.23	1.37	Ø1.55	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-6L Tape Leader and Trailer



SOT-23-6L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	

PUBLISHED BY

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