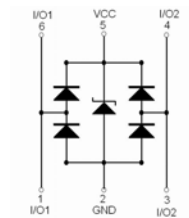


DESCRIPTION

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 USB3.0 power & data line, Video line, and WAN/LAN equipment. 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 two lines
- Low capacitance: 0.8pF(Max)
- Low reverse stand-off voltage: 5V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 2.92mm×1.60mm×1.10mm
- Fast response time

APPLICATIONS

- USB3.0 power & data line protection
- WLAN/LAN equipment
- Mobile phone
- Video line protection
- Microcontroller input Protection
- ISDN S/T Interface
- Other electronics equipments
- Communication systems

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
IEC 61000-4-2 ESD Voltage	$V_{\text{ESD}}^{(1)}$	± 25	kV
Air Model			
Contact Model		± 25	
JESD22-A114-B ESD Voltage		± 16	
ESD Voltage	Machine Model	± 0.4	
Peak Pulse Power	$P_{\text{PP}}^{(2)}$	90	W
Peak Pulse Current	$I_{\text{PP}}^{(2)}$	3.5	A
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^{\circ}\text{C}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~ +150	$^{\circ}\text{C}$

- (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.

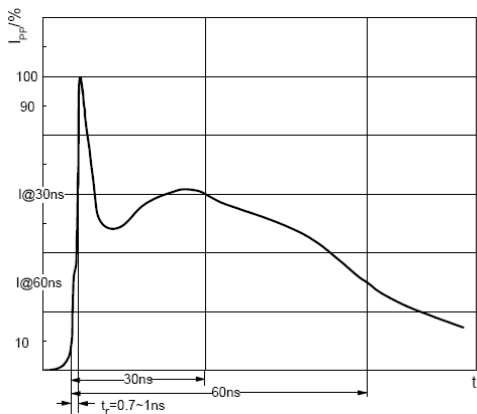
ESD standards compliance

IEC61000-4-2 Standard

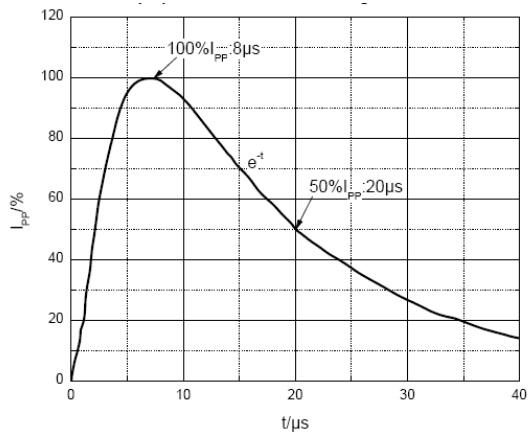
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

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



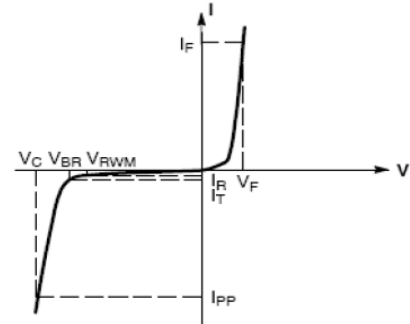
ESD pulse waveform according to IEC61000-4-2



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

a

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

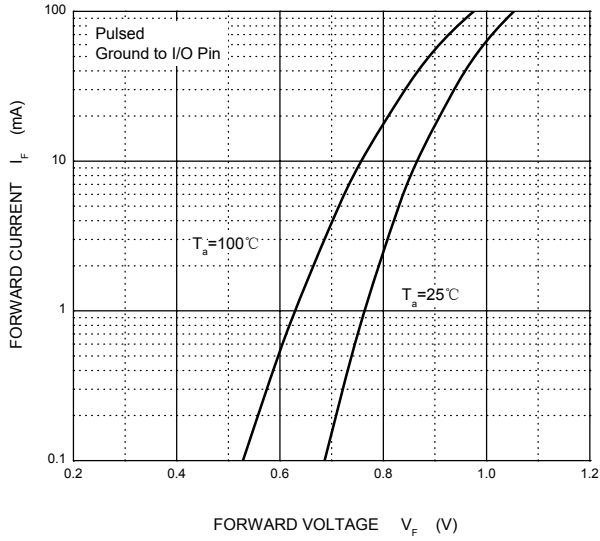
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Per channel(I/O to GND unless otherwise specified)						
Reverse stand off voltage	$V_{RWM}^{(1)}$				5	V
Breakdown voltage	$V_{(BR)}$	$I_T=1mA$	6		10	V
		$I_T=1mA$ V_{CC} to GND	5		12	V
Reverse leakage current	I_R	$V_{RWM}=5V$ (I/O to GND & V_{CC} to GND)			1	μA
Forward voltage	V_F	$I_F=10mA$ (GND to I/O & GND to V_{CC})	0.4		1.5	V
Clamping voltage	$V_C^{(2)}$	$I_{PP}=1A$ (I/O to GND & V_{CC} to GND)			13	V
		$I_{PP}=3.5A$ (I/O to GND & V_{CC} to GND)			25	V
Junction capacitance	C_J	$V_R=0V, f=1MHz$			0.8	pF
		$V_R=0V, f=1MHz$, I/O to I/O			0.4	pF

(1).Other voltages available upon request.

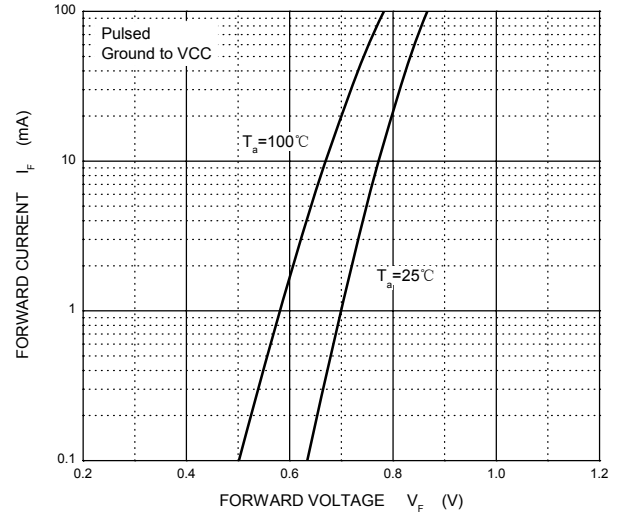
(2).Non-repetitive current pulse 8/20 μs exponential decay waveform

TYPICAL CHARACTERISTICS

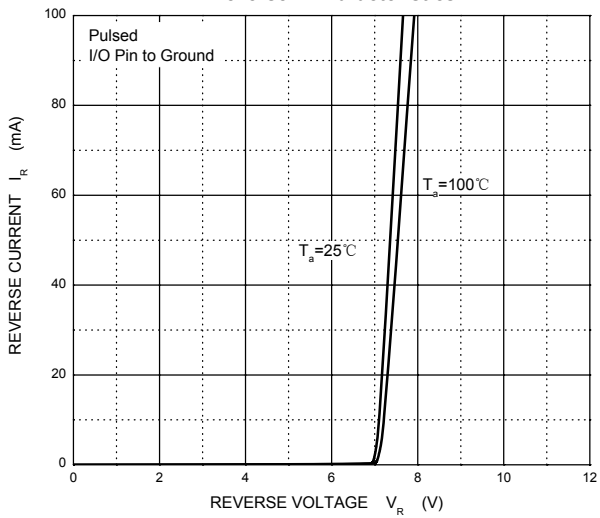
Forward Characteristics



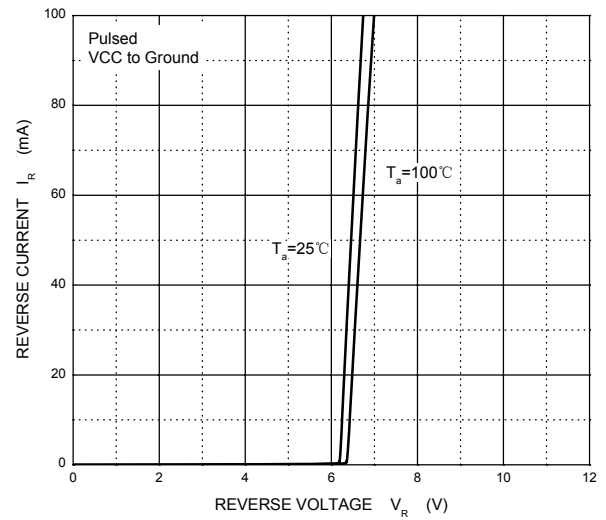
Forward Characteristics



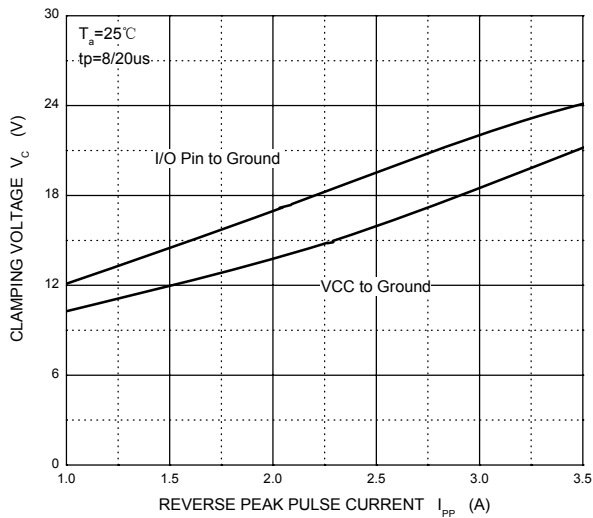
Reverse Characteristics



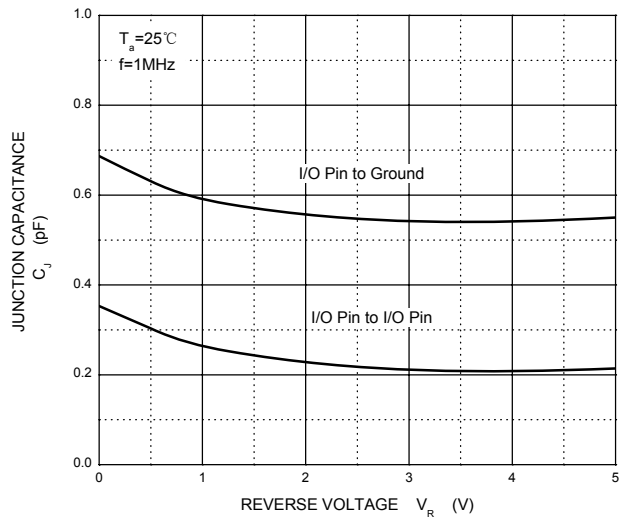
Reverse Characteristics



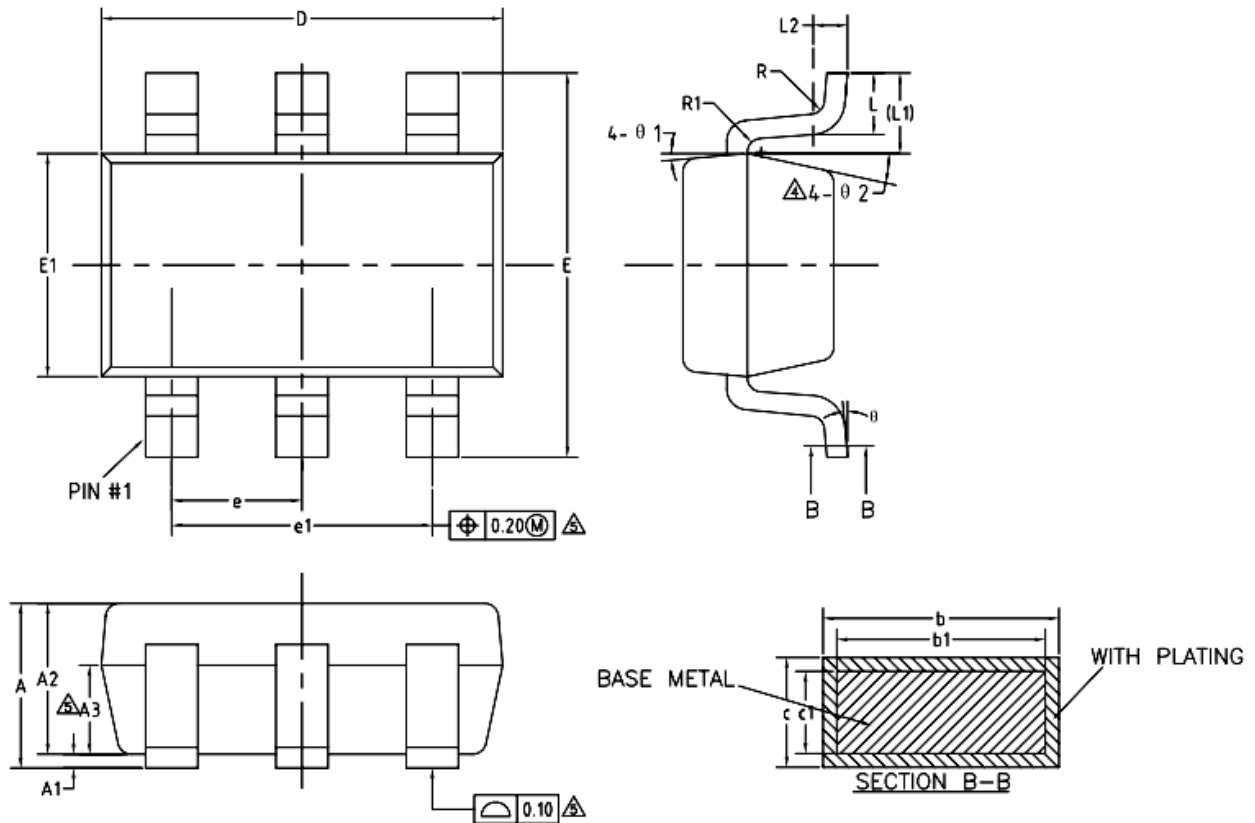
V_C — I_{PP}



Capacitance Characteristics



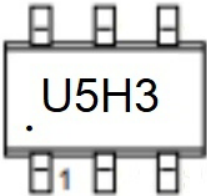
SOT23-6



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.25
A1	0	—	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	—	0.50
b1	0.36	0.38	0.45
c	0.14	—	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	—	—
R1	0.10	—	0.20
θ	0°	—	8°
θ 1	3°	5°	7°
θ 2	6°	—	14°

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
UMW ESDU5V0H3	SOT23-6	3000	Tape and reel