UMW ESDU5V0H3

1.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.

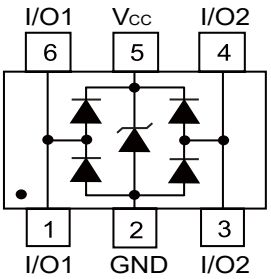
2.Features

- 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×1.1mm
- Fast response time

3.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

4.Pinning information



SOT23-6

5.Absolute Maximum Ratings T_A= 25°C

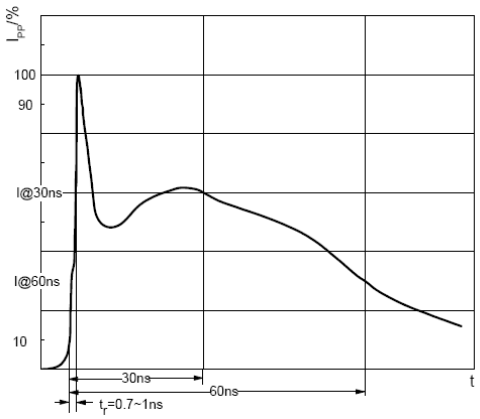
Parameter		Symbol	Maximum	Units
IEC 61000-4-2 ESD Voltage	Air Model	$V_{ESD(1)}$	±25	kV
	Contact Model		±25	kV
JESD22-A114-B ESD Voltage	Per Human Body Model		±16	kV
ESD Voltage	Machine Model		±0.4	kV
Peak Pulse Power		$P_{pp(2)}$	90	W
Peak Pulse Current		$I_{pp(2)}$	3.5	A
Lead Solder Temperature − Maximum (10 Second Duration)		T_L	260	°C
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Notes:

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

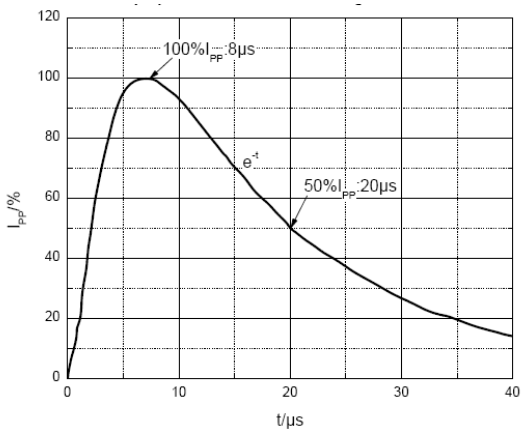
(2)Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

6.ESD standards compliance



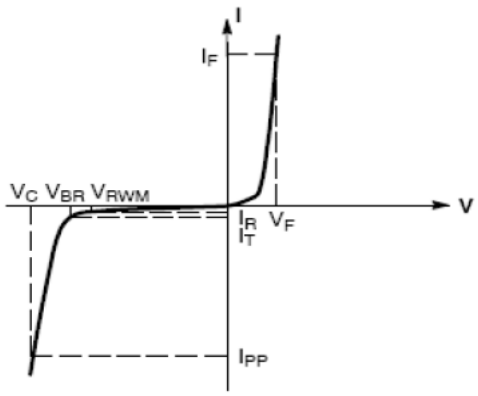
ESD pulse waveform according to IEC61000-4-2

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



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

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



V-I characteristics for a uni-directional TVS

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 Curren

7.Electrical Characteristic (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Per channel(I/O to GND unless otherwise specified)						
Reverse stand off voltage	$V_{RWM(1)}$	Any I/O pin to GND			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

Notes:

(1).Other voltages available upon request.

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

8.Typical characteristic

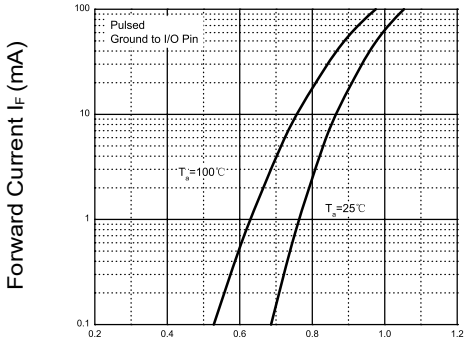


Figure 1: Forward Characteristics

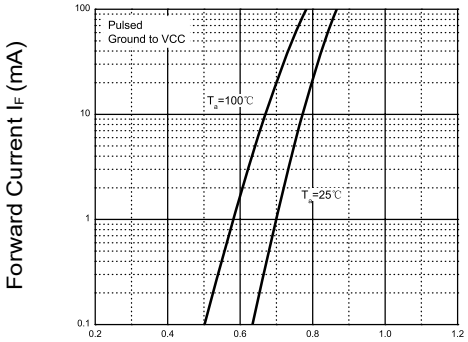


Figure 2: Forward Characteristics

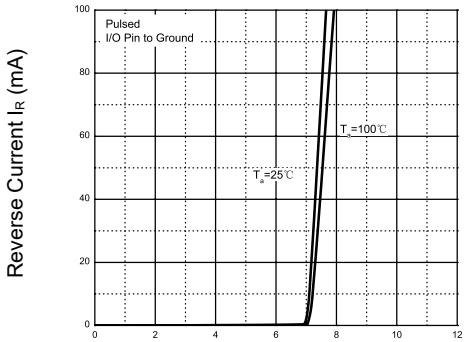


Figure 3: Reverse Characteristics

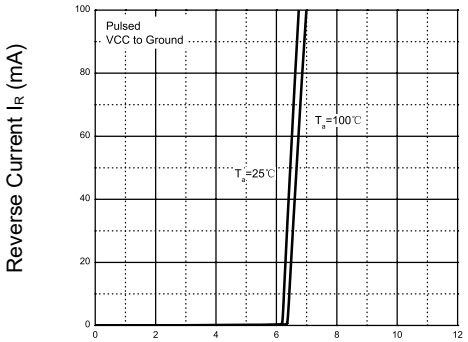


Figure 4: Reverse Characteristics

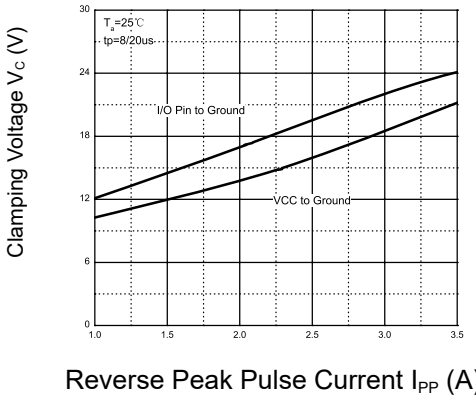


Figure 5: V_C —— I_{PP}

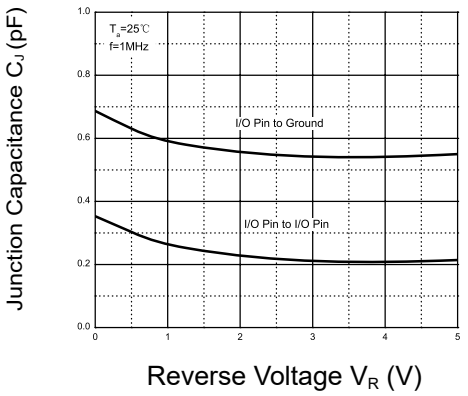
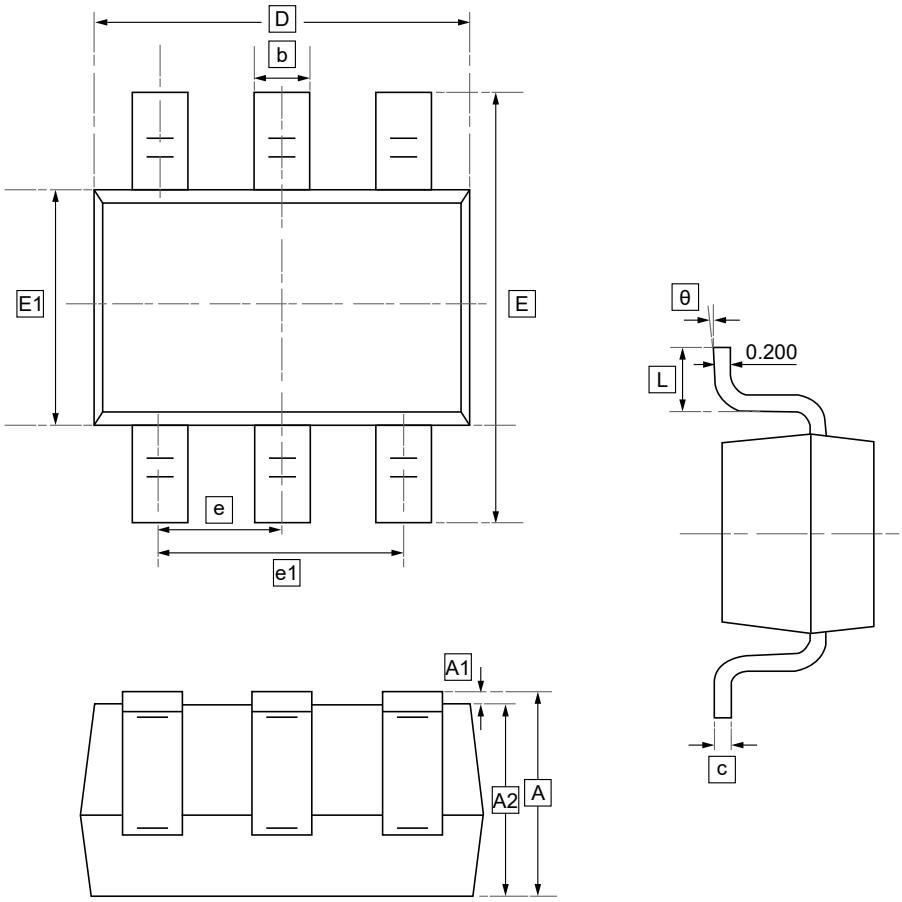


Figure 6: Capacitance Characteristics

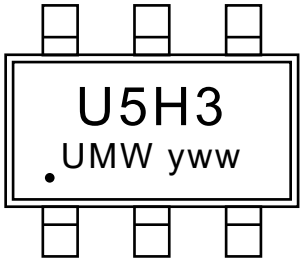
9.SOT-23-6 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E1	E	e	e1	L	θ
Min	1.050	0.000	1.050	0.300	0.100	2.820	1.500	2.650	0.950	1.800	0.300	0°
Max	1.250	0.100	1.150	0.500	0.200	3.020	1.700	2.950	BSC	2.000	0.600	8°

10.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESDU5V0H3	SOT23-6	3000	Tape and reel

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