UMW CESD5V0AP

1.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.

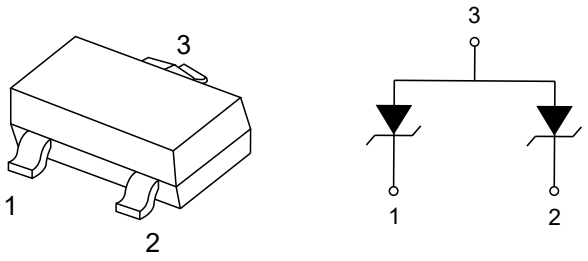
2.Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- Other electronics equipments communi-cation systems

3.Features

- Uni-directional ESD protection of one line
- Reverse stand -off voltage: 5V
- Low reverse clamping voltage
- Fast response time
- Low leakage current
- Excellent package:1.2mm×0.8mm×0.6mm

4.Pinning information



SOT-23

5.Absolute Maximum Ratings T_A= 25°C

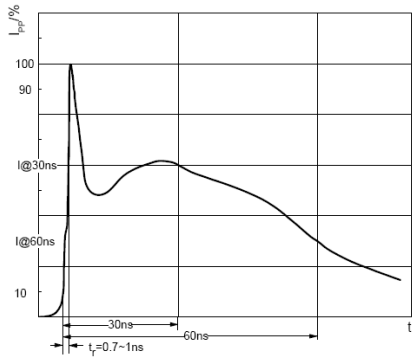
Parameter		Symbol	Limit	Units
IEC 61000-4-2 ESD Voltage	Air Model	$V_{ESD(1)}$	±25	kV
	Contact Model		±25	kV
JESD22-A114-B ESD Voltage	Per Human Body Model		±16	kV
ESD Voltage	Machine Model		±0.4	kV
Peak Pulse Power		$P_{PP(2)}$	170	W
Peak Pulse Current		$I_{PP(2)}$	13	A
Lead Solder Temperature − Maximum (10 Second Duration)		T_L	260	°C
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to 150	°C

Notes:

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

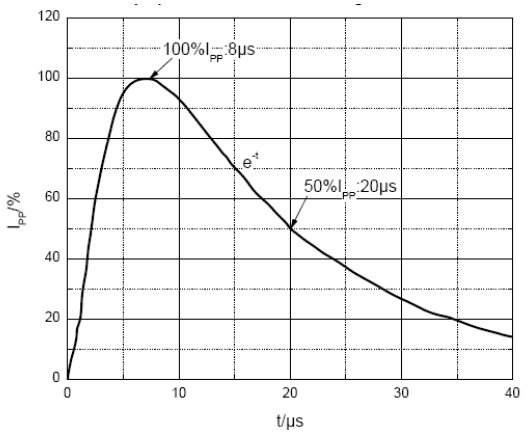
(2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.

6.ESD standards compliance



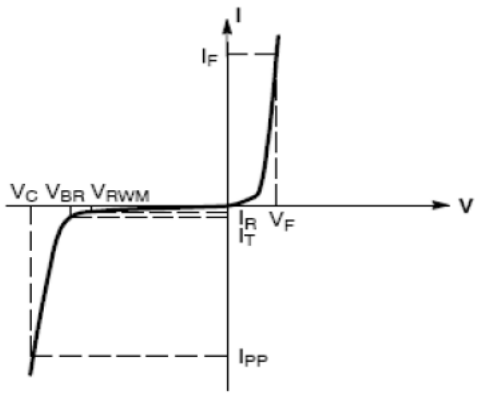
ESD pulse waveform according to IEC61000-4-2

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 Current

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand off voltage	$V_{RWM(1)}$				5	V
Reverse leakage current	I_R	V_{RWM}=5V			10	μA
Breakdown voltage	$V_{(BR)}$	I_T=1mA	6.2		7.3	V
Clamping voltage	$V_{C(2)}$	I_{PP}=13A			13	V
Forward voltage	V_F	I_F=10mA			0.9	V
Junction capacitance	C_J	V_R=0V, f=1MHz		95		pF

Notes:

(1).Other voltages available upon request.

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

8.Typical characteristic

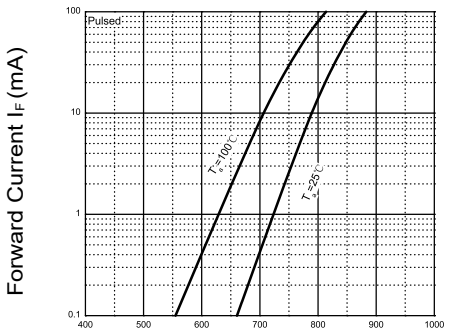


Figure 1: Forward Characteristics

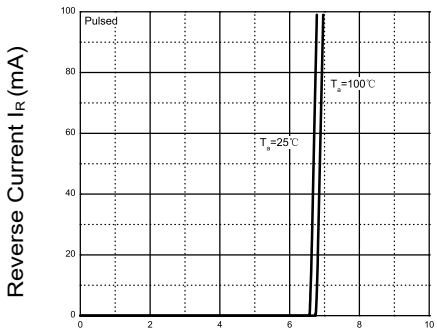


Figure 2: Forward Characteristics

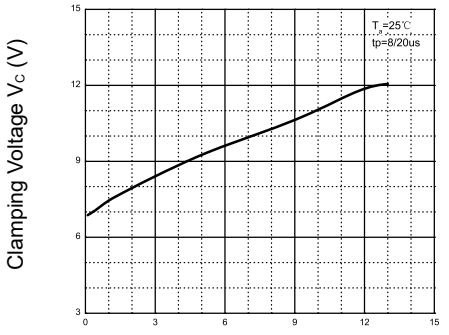


Figure 3: V_C —— I_{PP}

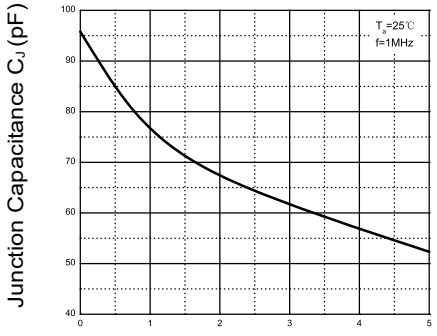
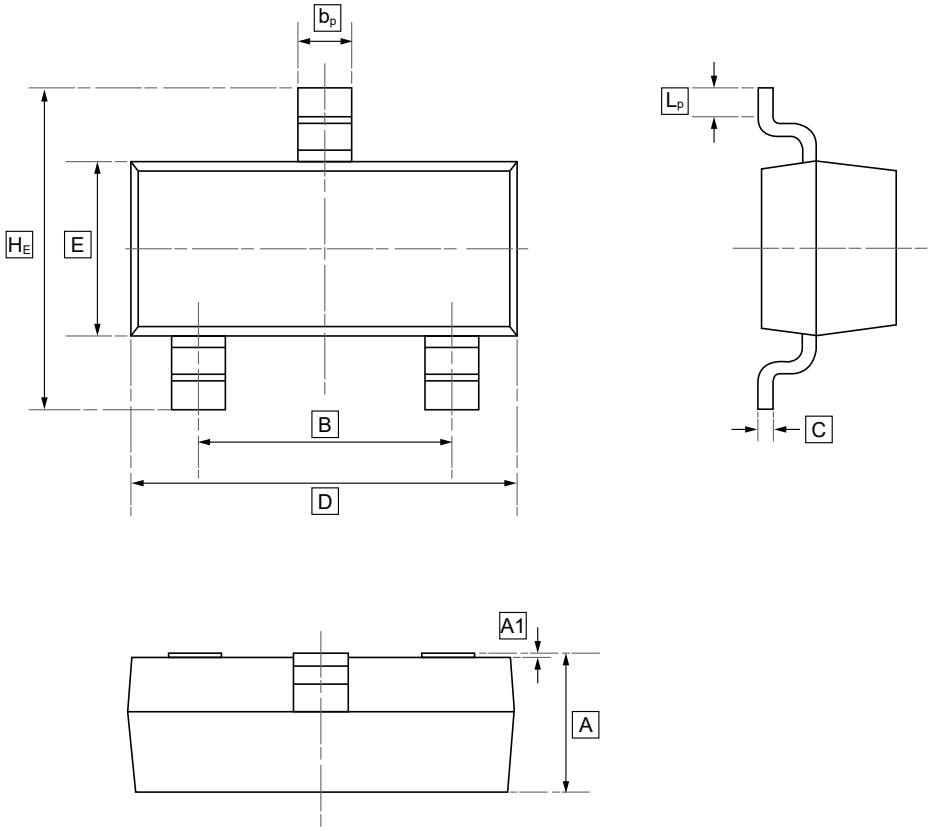


Figure 4: Capacitance Characteristics

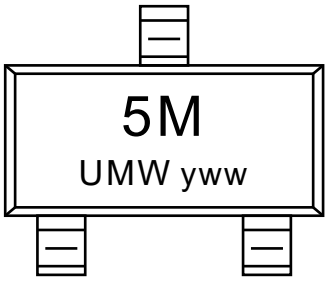
9.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b_p	C	D	E	H_E	A1	L_p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50

10.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW CESD5V0AP	SOT-23	3000	Tape and reel

11.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.