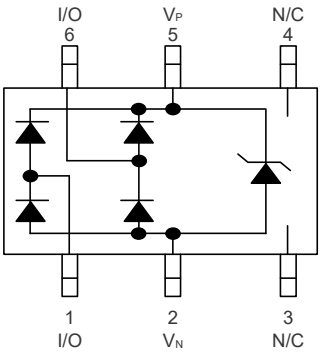
1.Features

- Protection for the Following IEC Standards:
- IEC 61000−4−2 Level 4 ESD Protection
- These Devices are Pb−Free and are RoHS Compliant
- Low Clamping Voltage
- Stand−Off Voltage: 5 V
- Low Leakage

2.Applications

- High Speed Communication Line Protection
- • USB 1.1 and 2.0 Power and Data Line Protection
- Digital Video Interface (DVI)
- Monitors and Flat Panel Displays

3.Pinning information



SOT23-6

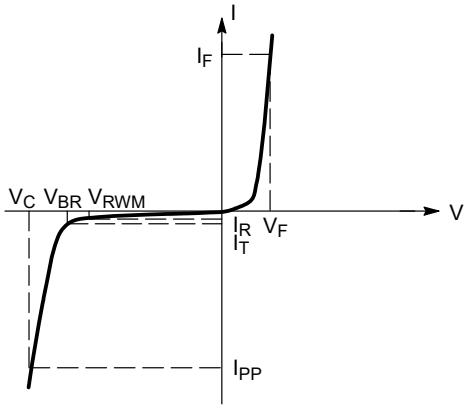
4.Absolute Maximum Ratings T_J= 25°C

Parameter	Symbol	Maximum	Units
Peak Power Dissipation 8 x 20 μs @ T_A =25°C (Note 1)	P_{PK}	500	W
Junction Temperature Range	T_J	-40 to 125	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C
Lead Solder Temperature − Maximum (10 Seconds)	T_L	235	°C
Human Body Model (HBM)	E_{SD}	16000	V
Machine Model (MM)		400	V
IEC 61000−4−2 Air (ESD)		20000	V
IEC 61000−4−2 Contact (ESD)		40000	V
IEC 61000−4−4 (5/50 ns)	EFT	40	A

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_{RWM}	(Note 2)			5	V
Breakdown Voltage	V_{BR}	I_T=1mA, (Note 3)	6			V
Reverse Leakage Current	I_R	V_{RWM}=5V			5	μA
Clamping Voltage	V_C	I_{PP}=5A (Note 4)			12.5	V
Clamping Voltage	V_C	I_{PP}=8A (Note 4)			20	V
Maximum Peak Pulse Current	I_{PP}	8x20μs Waveform (Note 4)			25	A
Junction Capacitance	C_J	V_R=0V, f=1MHz,I/O Pins and GND		3	5	pF
Junction Capacitance	C_J	V_R=0V, f=1MHz, between I/O Pins		1.5	3	pF
Clamping Voltage	V_C	Per IEC 61000−4−2 (Note 6)	Figure 1 and 2			V

6.Electrical Parameters (TA=25°C unless otherwise noted)



Uni−Directional TVS

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{PK}	Peak Power Dissipation
C	Capacitance @ V_R=0 and f=1MHz

Notes:

2. TVS devices are normally selected according to the working peak reverse voltage (VRWM), which should be equal or greater than the DC or continuous peak operating voltage level.

3. VBR is measured at pulse test current IT.

4. Non−repetitive current pulse per Figure 5 (Pin 5 to Pin 2)

5. Surge current waveform per Figure 5.

6.1Typical characteristic

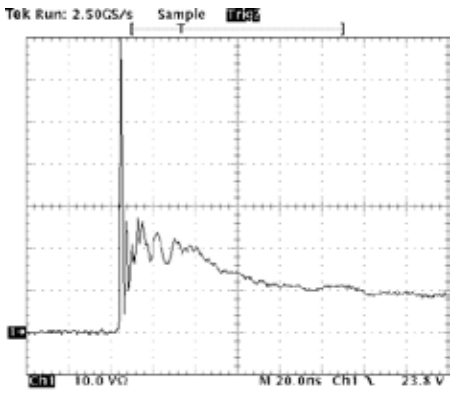


Figure 1: ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000−4−2

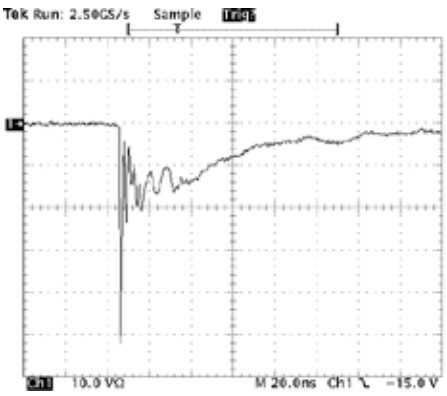
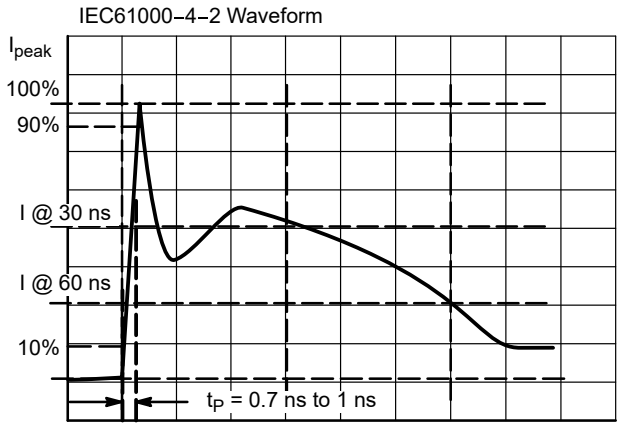


Figure 2: ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000−4−2



Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

6.2Typical characteristic

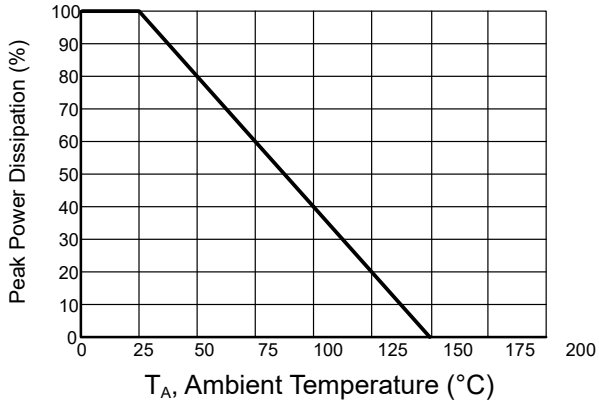


Figure 12: Pulse Derating Curve

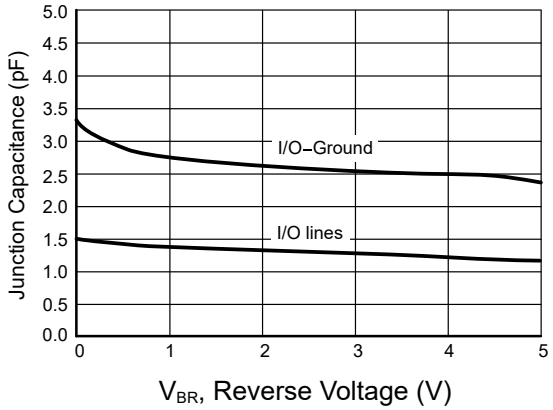


Figure 13: Junction Capacitance vs Reverse Voltage

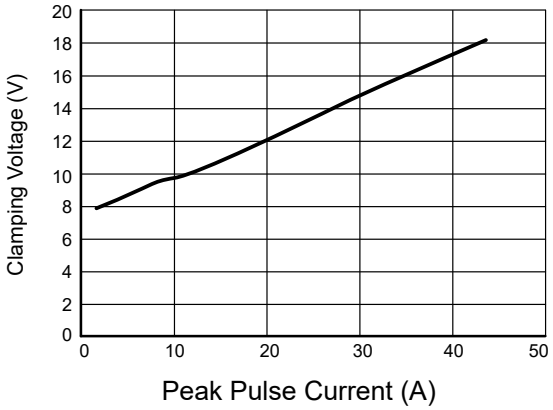
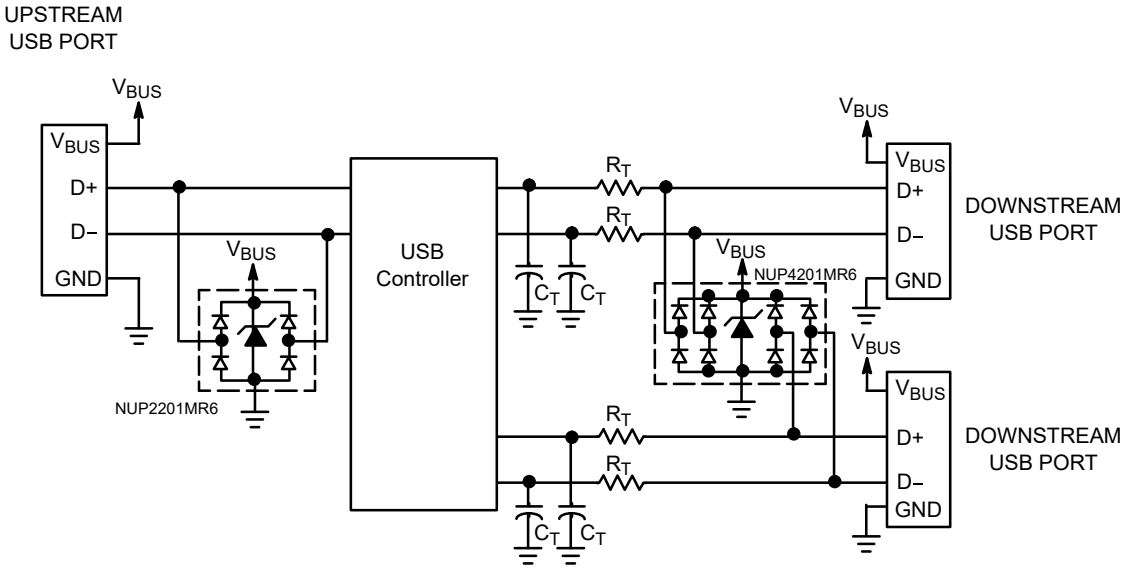
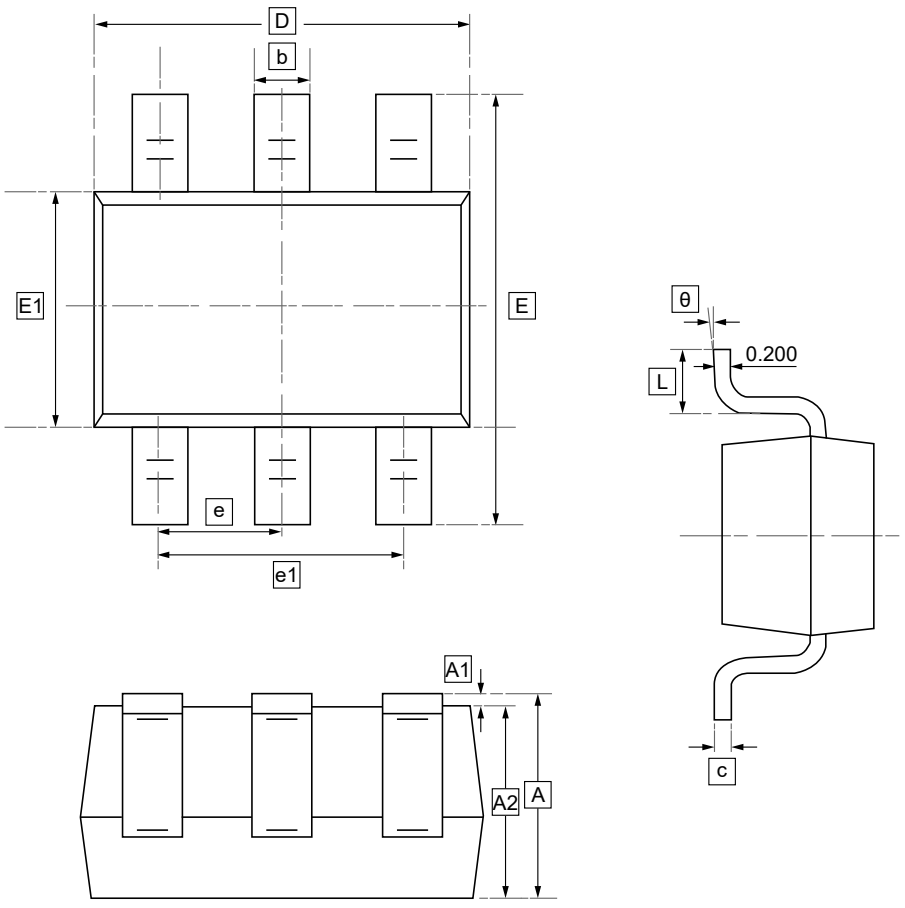


Figure 14: Clamping Voltage vs. Peak Pulse Current (8 x 20 μs Waveform)

7.Typical Applications



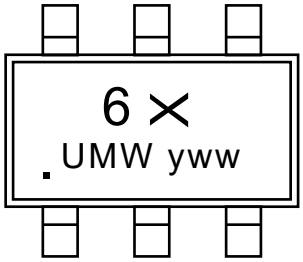
8.SOT-23-6 Package Outline Dimensions



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°

9.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW NUP2201MR6T1G	SOT23-6	3000	Tape and reel

10.Disclaimer

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