UMW CS0816

1.Description

CS0816 is a low capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.7pF only, CS0816 is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events.

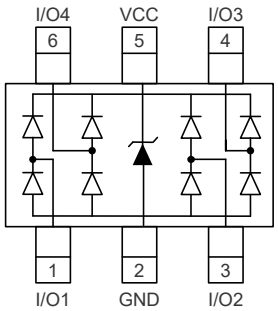
2.Applications

- Video Graphics Cards
- Desktops, Servers and Notebooks
- IEEE 1394 Ports
- USB2.0 Power and Data Line Protection
- Display Ports
- SIM Ports

3.Features

- Transient protection for high-speed data lines
- IEC 61000-4-2 (ESD) ±15kV (Air)
- ±8kV (Contact)
- IEC 61000-4-4 (EFT) 40A (5/50 ns)
- Cable Discharge Event (CDE)
- Small package (2.9mm × 2.8mm × 1.4mm)
- Protects four data lines
- Low capacitance: 0.7pF Typical (I/O-GND)
- Low clamping voltage
- Green Part
- Low leakage current: 0.1μA @ VRWM (Typical)
- Each I/O pin can withstand over 1000 ESD strikes for ±8kV contact discharge

4.Pinning information



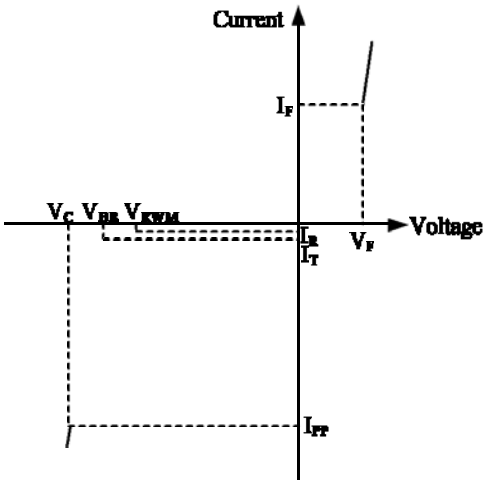
SOT23-6

5.Absolute Maximum Ratings T_A= 25°C

Parameter	Symbol	Max	Units
ESD per IEC 61000-4-2(Air)	V_{ESD}	±15	kV
ESD per IEC 61000-4-2(Contact)		±8	kV
Junction Temperature	T_{OPT}	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 125	°C

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

Symbol	Conditions	Min	Typ	Max	Units
V_{RWM}				5	V
I_R	V_{RWM}=5V, T=25°C, Between I/O and GND		0.1	1	μA
V_{BR}	I_T=1mA, T=25°C, Between I/O and GND	6	8	10	V
V_C	I_{PP}=1A, t_p=8/20μs, Between I/O and GND			12	V
C_{ED}	V_R=0V, f=1MHz, Between I/O and GND		0.7	0.8	pF
C_{ESD}	V_R=0V, f=1MHz, Between I/O and GND		0.35		pF



Uni-Directional TVS

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ VRWM
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency
I_F	Forward Current
V_F	Forward Voltage @ I_F

7.Typical characteristic

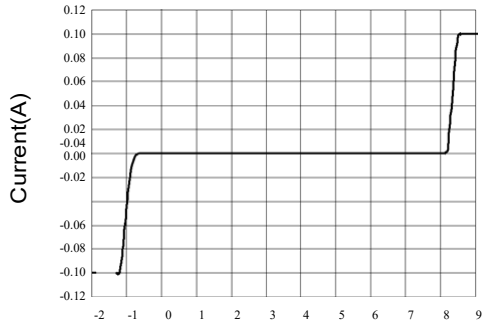


Figure 1: Voltage Sweeping of I/O to GND

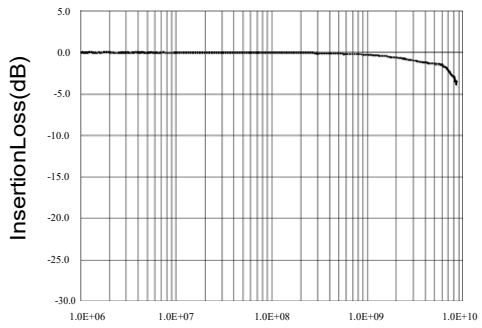


Figure 2: Insertion Loss S21 of I/O to GND

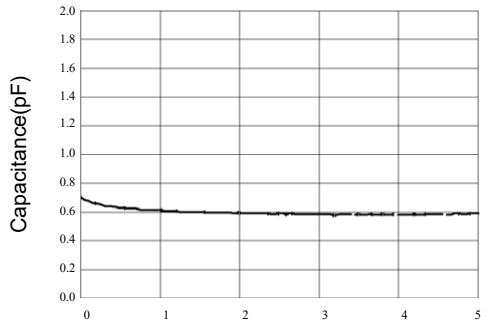


Figure 3: Capacitance vs. Reverse Voltage

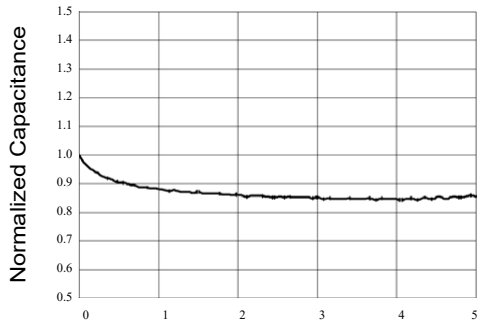


Figure 4: Normalized Capacitance vs. Reverse Voltage

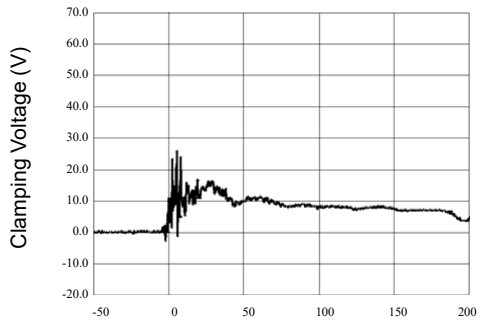


Figure 5: ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

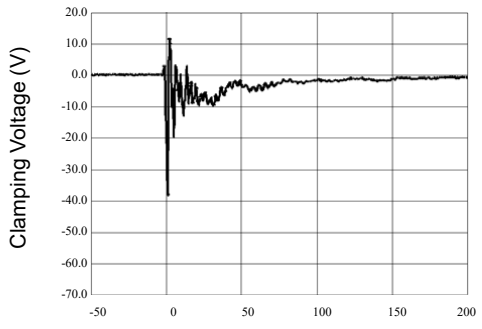
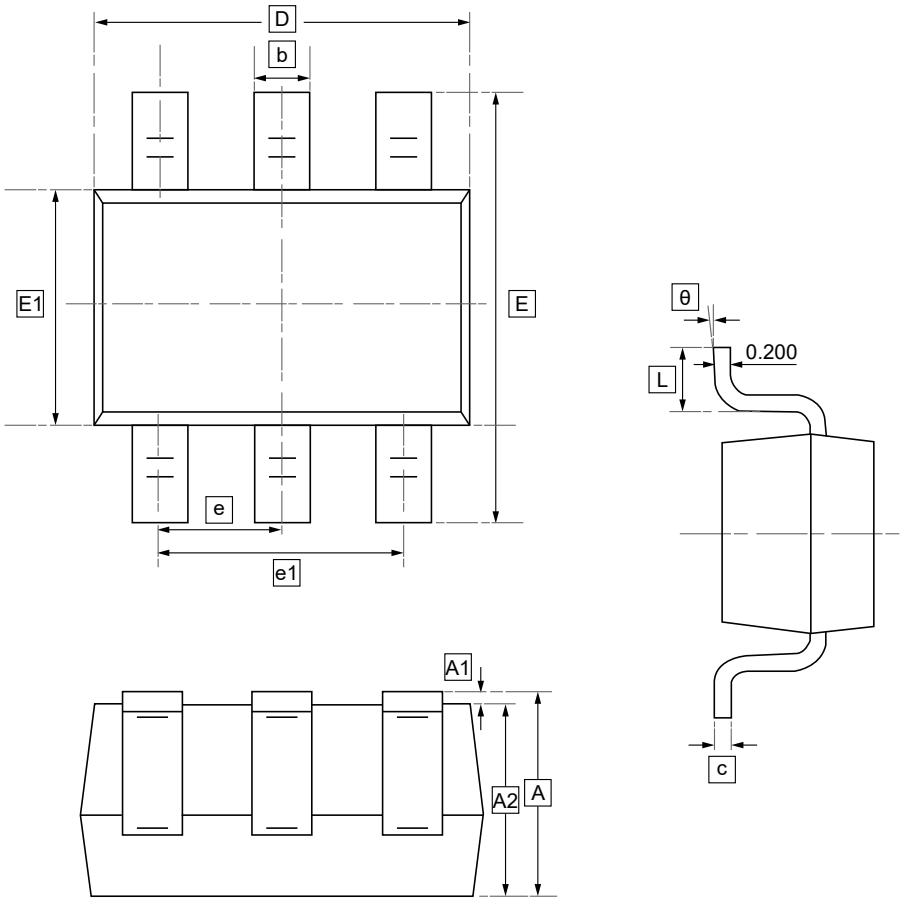


Figure 6: ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)

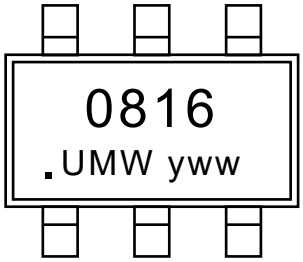
8.SOT-23-6 Package Outline Dimensions



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 CS0816	SOT23-6	3000	Tape and reel

10.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.

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