TVW MSOP 06 AD0 Engineering Specification

1. Scope

TVW MSOP 06 AD0's are TVS arrays designed to protect power/control lines and high-speed signal lines from overvoltage hazard of Electrostatic Discharge (**ESD**), Electrical Fast Transients (**EFT**) and **Lightning**. These interfaces can be used for **high definition multi-media interface** (**HDMI**) at 1.65 Gb/s and up to 3.2 Gb/s, digital visual interface (DVI), USB3.0 power and data lines protection, notebook and personal computers, monitors and flat panel displays, IEEE 1394 Firewire Ports, etc.

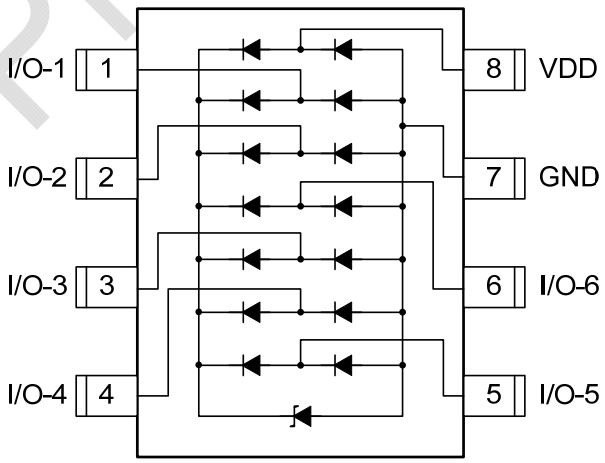
TVW MSOP 06 AD0 incorporates a pair of rail-to-rail diodes with low capacitance for each of four I/O channels. Additional Zener diode is employed to minimize the influence of supply voltage. The ESD protection of TVS arrays meets the immunity standard of IEC 61000-4-2, level 4 (±15kV air, ±8kV contact discharge).

2. Explanation of Part Number

TV	W	MSOP	06	AD0
(1)	(2)	(3)	(4)	(5)

(1) Product Type：TV=TVS Diode
(2) Capacitance Code：W=Ultra Low Capacitance
(3) Package Size Code
(4) Channel Code：06=6 Channels
(5) Specialized Specification Code

3.. Circuit Diagram /Pin Configuration



MSOP-8-0.65
(Top view)

MSOP-8L (Top View)

Preliminary

4.. Specifications

4.1. ABSOLUTE MAXIMUM RATINGS

PARAMETER	PARAMETER	RATING	UNITS
Peak Pulse power (tp = 8/20 μ s)	P_{pp}	150	**W**
Peak Pulse current (tp = 8/20 μ s)	I_{pp}	5	**A**
Operating Supply Voltage (VDD-GND)	V_{DC}	5	**V**
ESD per IEC 61000-4-2 (Air) (I/O pins) ESD per IEC 61000-4-2 (Contact) (I/O pins)	V_{ESD_IO}	15 8	**kV**
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	**°C**
Operating Temperature	T_{OP}	-55 to +125	**°C**
Storage Temperature	T_{STO}	-55 to +150	**°C**
DC Voltage at any I/O pin	V_{IO}	(GND – 0.5) to (VDD + 0.5)	**V**

4.2. ELECTRICAL CHARACTERISTICS (T=25 °C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Reverse Stand-Off Voltage	V_{RWM}	Any I/O pin to Ground			5	**V**
Reverse Leakage Current	I_{Leak}	V_{RWM} = 5V, Any I/O pin to Ground			1	**µA**
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, Any I/O pin to Ground	6			**V**
ESD Clamping Voltage –I/O	V_{C1}	I_{PP}=1A, t_P=8/20µS, Any I/O pin to Ground		8.5	12	**V**
Reverse ESD Clamping Voltage –I/O	V_{C2}	I_{PP}=1A, t_P=8/20µS, Any I/O pin to Ground		1.8		**V**
Channel to Channel Input Capacitance	C_{J1}	V_R=0V, f=1MHz		0.2	0.25	**pF**
Channel I/O to GND Capacitance	C_{J2}	V_R=0V, f=1MHz, Any I/O pin to Ground			0.4	**pF**

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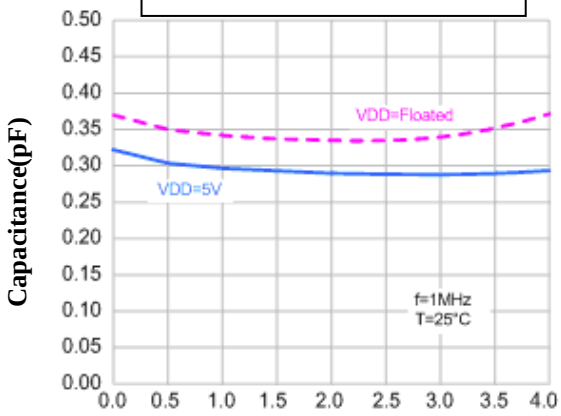
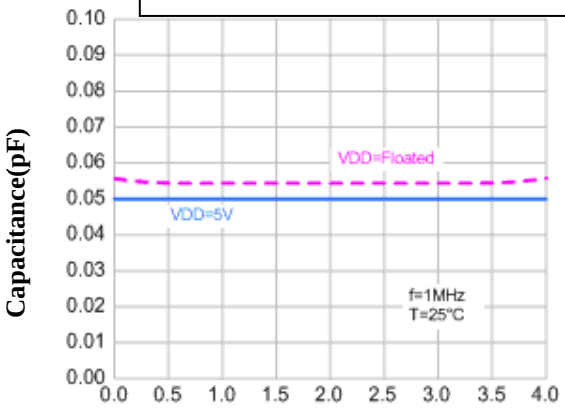
4.3. TYPICAL CHARACTERISTICS

Normalized C_{IN} V.S V_{IN}



Normalized $C_{IO\text{-}TO\text{-}IO}$ V.S V_{IN}



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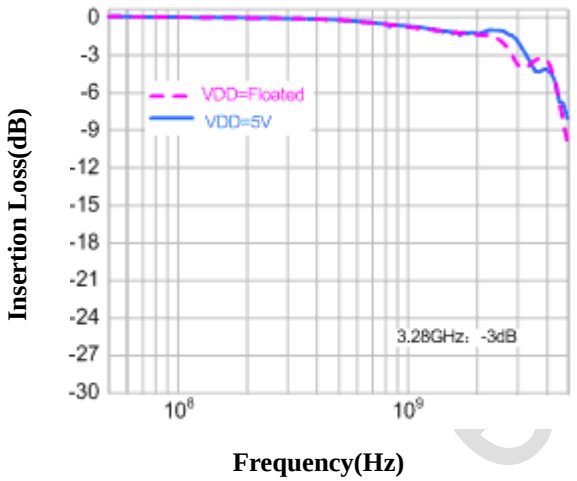
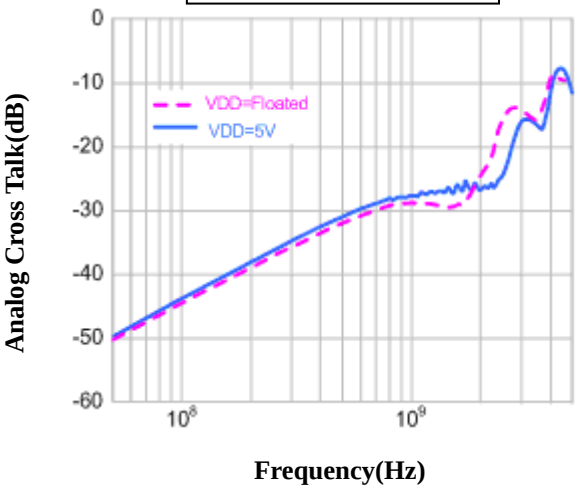
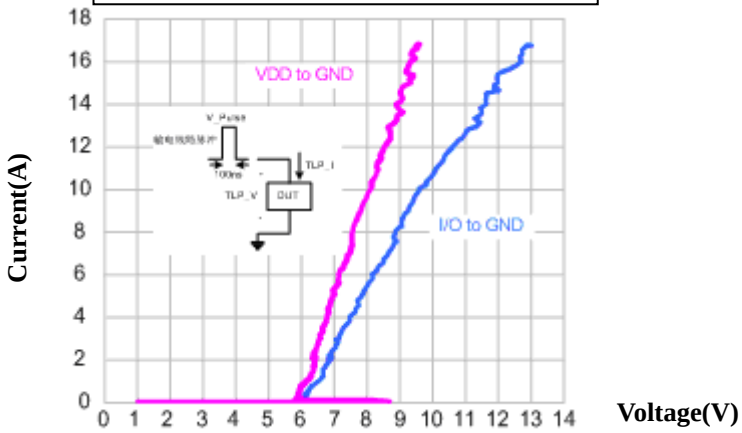
Insertion Loss S21 (I/O to Gnd)



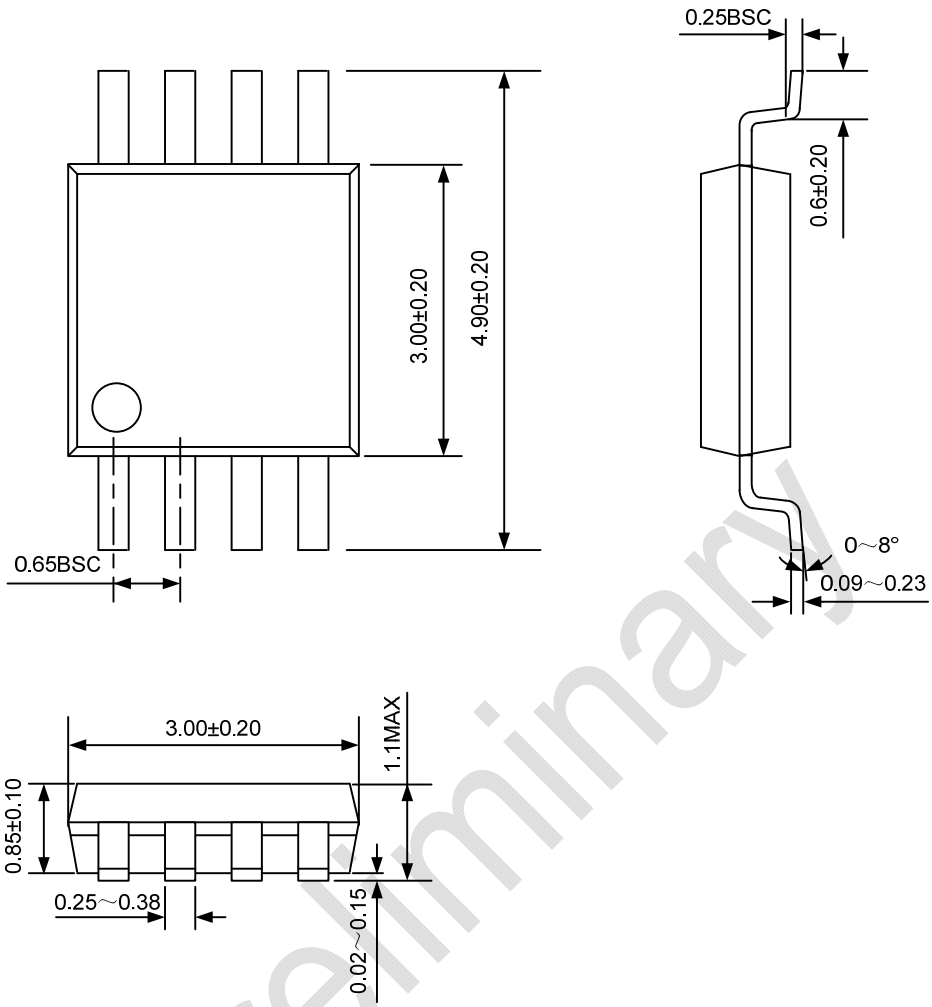
Analog Cross Talk



Transmission Line Pulsing (TLP)



5.. Mechanical Details



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