DATA SHEET

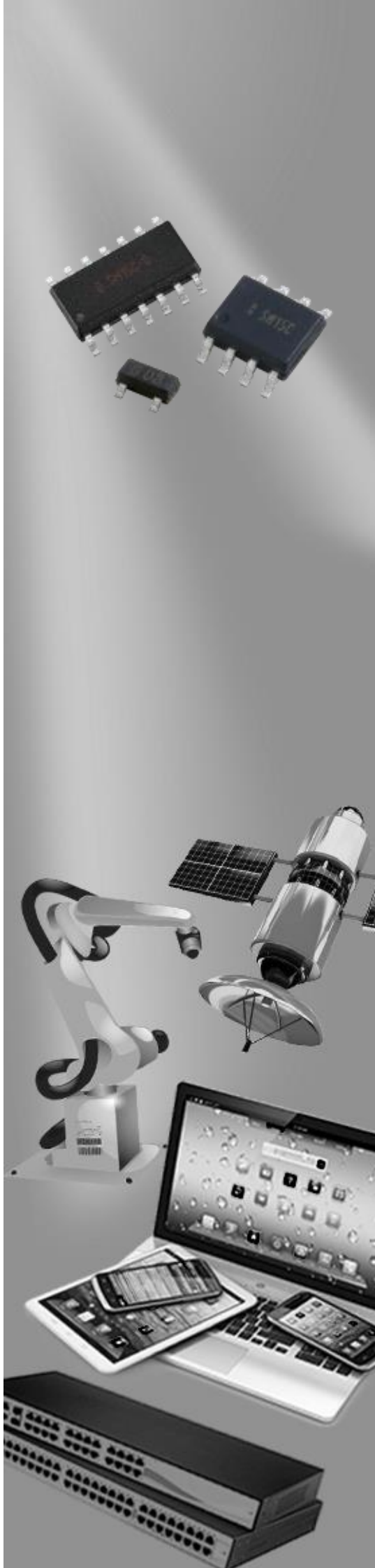
ELECTROSTATIC DISCHARGE PROTECTION DEVICES

INDUSTRIAL / CONSUMER

UAD8C05L01-IP4

RoHS compliant & Halogen free

Product specification– October 20, 2023 V.0



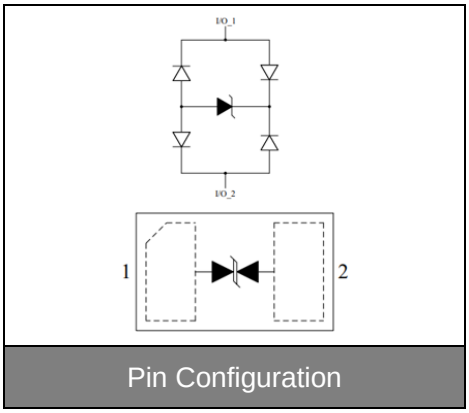
Electrostatic Discharged Protection Devices (ESD) Data Sheet

Features

- Transient protection for high-speed data lines
  IEC 61000-4-2（ESD）：±25KV（Air）
  ±20KV（contact）
  Cable Discharge Event (CDE)
- SOD882 package
- Package optimized for high-speed lines
- Protects one data, control or power line
- Low capacitance: 0.50pF (Typical)
- Low leakage current: 0.1uA @ V_{RWM} (Typical)
- Low clamping voltage
- Flammability Rating: UL 94V-0
- ROHS compliant
- Marking: S

Applications

- Serial ATA
- PCI Express
- Desktops, Servers and Notebooks
- Cellular Phones
- MDDI Ports
- USB2.0/3.0 Power and Data Line Protection
- Display Ports
- Digital Visual Interfaces (DVI)
- HDMI 1.4/2.0

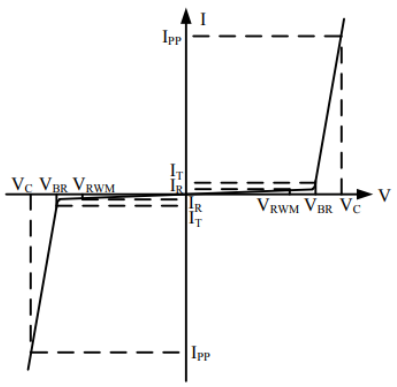


Pin Configuration

Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P_{PP}	40	W
ESD voltage (Contact discharge)	V_{ESD}	±20	kV
ESD voltage (Air discharge)		±25	
Operating Temperature	T_J	-55~+120	℃
Storage Temperature	T_{stg}	-55~+150	℃

Electrical Characteristics (T_J=25℃)

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

Bi-Directional TVS

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off Voltage	V_{RWM}				5.0	V
Reverse breakdown Voltage	V_{BR}	I_T=1mA	6.0			V
Reverse leakage current	I_R	V_R=5V			0.1	μA
Clamping Voltage (tp=8/20μs)	V_C	I_{PP}=1A,tp=8/20us			13	V
Clamping Voltage (tp=8/20μs)	V_C	I_{PP}=4A,tp=8/20us			16	V
Peak pulse current (tp=8/20μs)	I_{PP}				4	A
Clamping voltage	Vc	I_{PP}=8.0A, tp=100ns(1)		14.5		V
		I_{PP}=16.0A, tp=100ns(1)		18.5		V
Off state junction capacitance	C_J	0Vdc,f=1MHz		0.50		pF

Notes:(1)Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

Typical Characteristics Curves

Figure 1. Voltage Sweeping of I/O to I/O

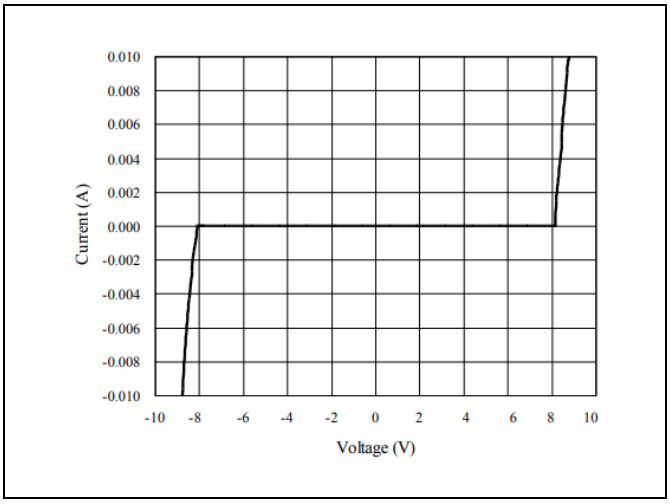


Figure 2. TLP Measurement of I/O to I/O

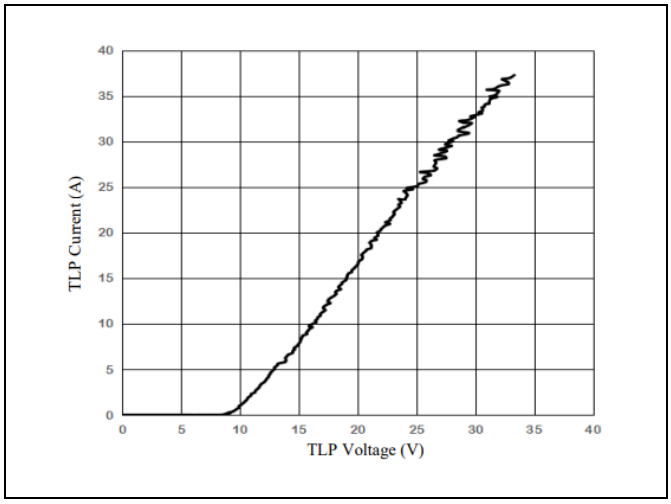


Figure 3. Capacitance vs. Reverse Voltage

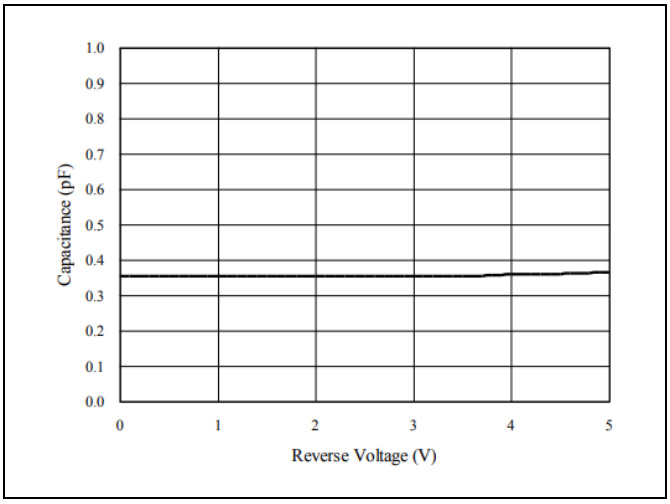
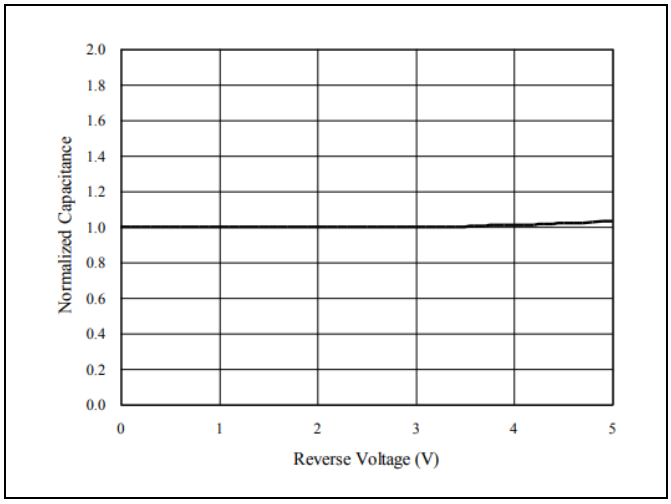
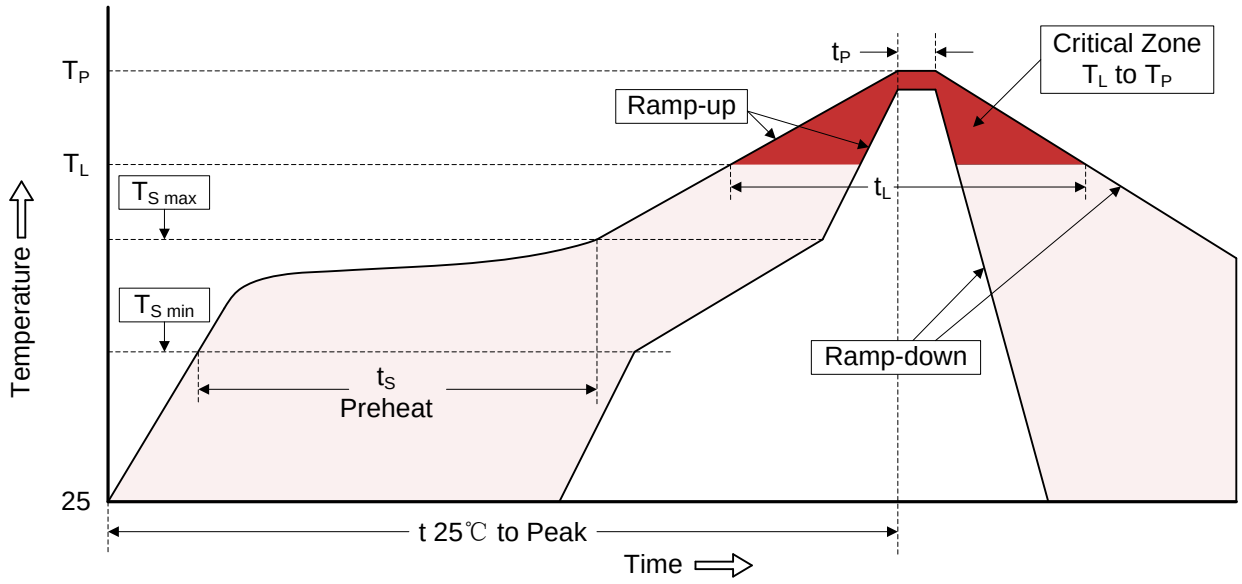


Figure 4. Normalized Capacitance vs. Reverse Voltage



Recommended Soldering Conditions

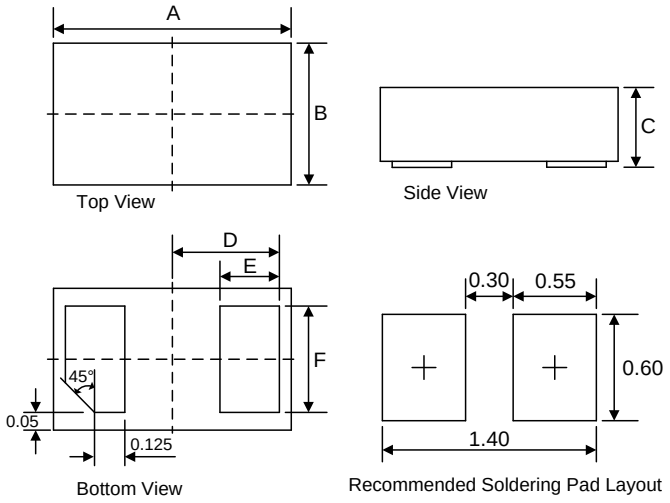
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\,min}$) -Temperature Max ($T_{S\,max}$) -Time (min to max) (ts)	 150℃ 200℃ 60-180 seconds
$T_{S\,max}$ to T_L -Ramp-up Rate	3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

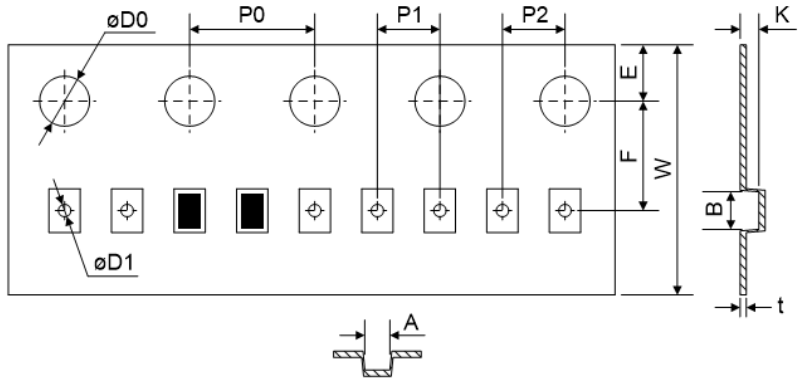
Dimensions (SOD882/DFN1006)



Symbol	Dimension (mm)			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.32	0.55	0.013	0.022
D	0.45 BSC		0.018 BSC	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

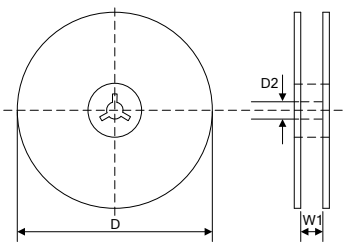
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ0.40±0.05
E	1.75±0.10
F	3.50±0.10
A	0.75±0.10
B	1.15±0.10
K	0.60±0.05
t	0.20±0.05

Reel



D	Φ178.0±2.0
D2	Φ13.00.
W1	9.50
Quantity: 10000PCS	

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