

ElectroStatic Discharged Protection Devices (ESD) Data Sheet

Description

The UAD8A05L01 includes back-to-back TVS diodes fabricated in a proprietary silicon avalanche technology to provide protection for electronic equipment that may experience destructive electrostatic discharge (ESD). These robust diodes can safely absorb repetitive ESD strikes up to the maximum level specified in the IEC61000-4-2 international standard without performance degradation. The back-to-back configuration provides symmetrical ESD protection for data lines when AC signals are present.

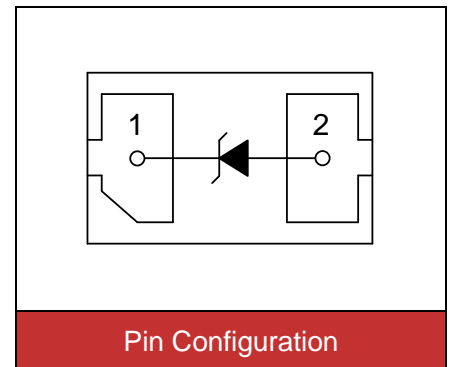


Contact : ±8kV
Air : ±15kV



Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOD882 surface mount package
- Working voltage: 5V
- Low leakage current
- Low operating and clamping voltages
- Lead Free/RoHS compliant
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- AEC-Q101 qualified
- Marking: U5



Applications

- USB 3.0/USB 2.0
- MHL/MIPI/MDDI
- HDMI, Video Port, eSATA
- Set Top Boxes, Game Consoles
- Smart Phones
- External Storage
- Ultrabooks, Notebooks
- Tablets, eReaders

Maximum Ratings

Rating	Symbol	Value	Unit
Peak pulse current (tp=8/20µs)	I _{PP}	4	A
ESD voltage (Contact discharge)	V _{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Storage & operating temperature range	T _{STG} , T _J	-55~+150	°C

Electrical Characteristics ($T_J=25^{\circ}\text{C}$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	$I_{BR}=1\text{mA}$	6		8.5	V
Reverse leakage current	I_R	$V_R=5\text{V}$			1	μA
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=1\text{A}$			9.8	V
Clamping voltage ($t_p=8/20\mu\text{s}$)	V_C	$I_{PP}=4\text{A}$			15	V
Clamping voltage TLP (Note1)	V_C	16A		24		V
Off state junction capacitance	C_J	0Vdc, f=1MHz		0.6		pF

Note1. Electrostatic Discharge Sensitivity Testing using Transmission Line Pulse(TLP) Model, See Figure 4.

Typical Characteristics Curves

Figure 1. Pulse Waveform

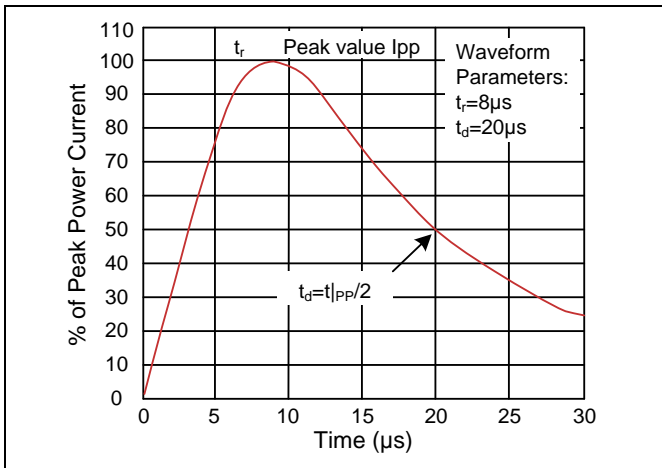


Figure 2. Clamping Voltage vs. Peak Pulse Current

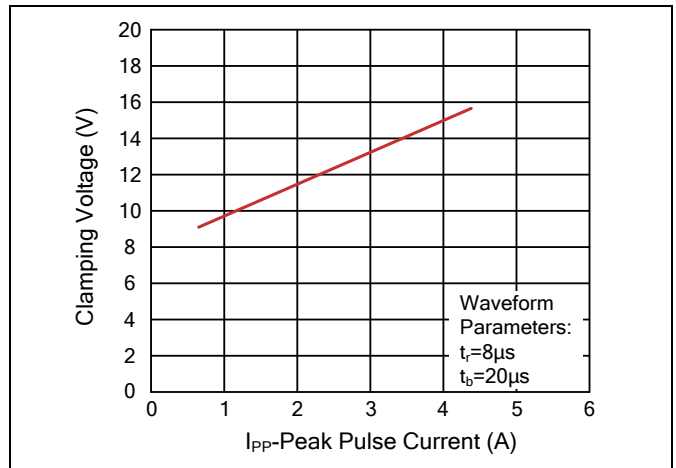


Figure 3. Capacitance vs. Reverse Voltage

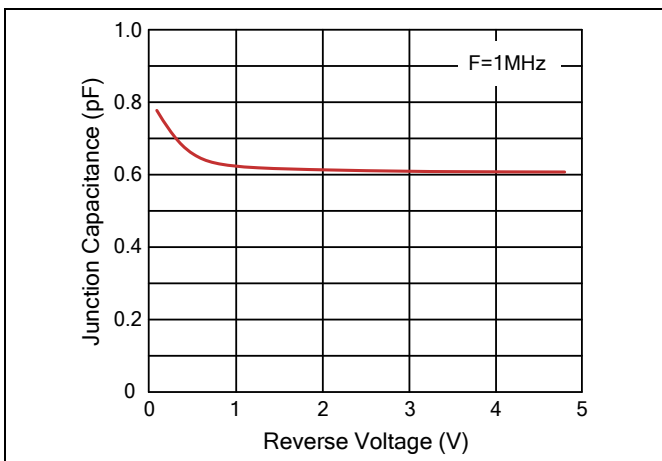
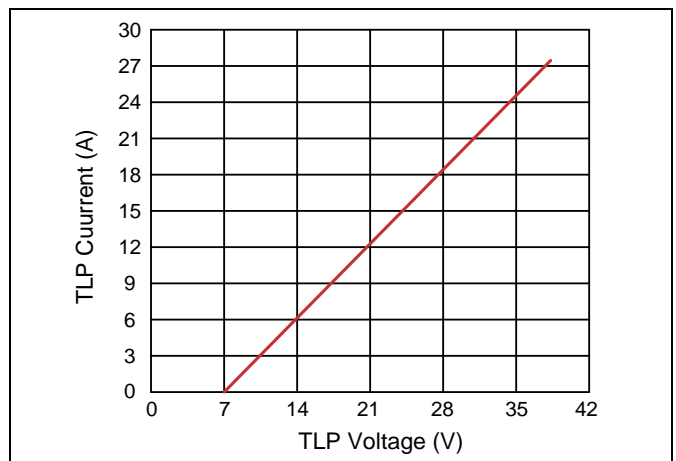
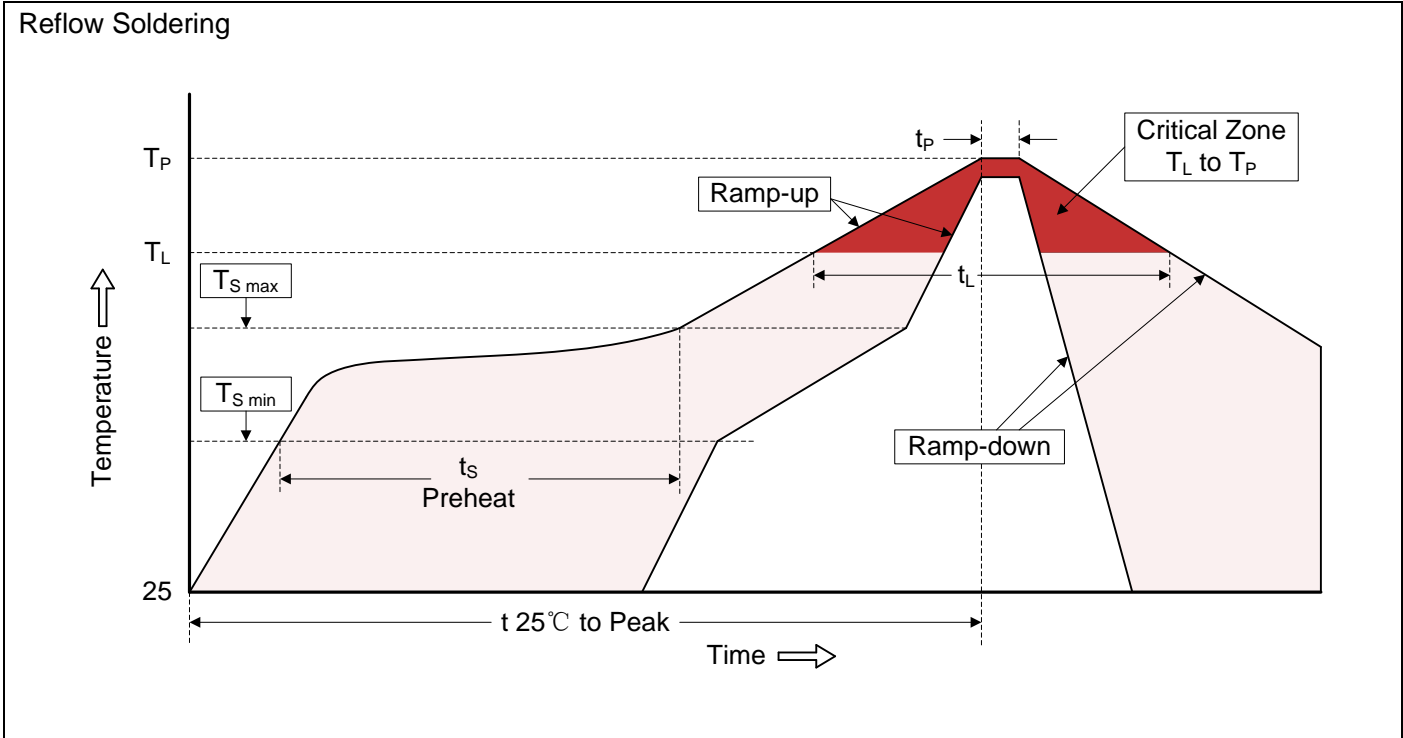


Figure 4. Transmission Line Pulsing (TLP)



Recommended Soldering Conditions



Recommended Conditions

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

Dimensions (SOD882)

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	0.65 BSC		0.026 BSC	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

The technical drawings show the component from four perspectives: Top View (width A, height B), Side View (height C), Bottom View (width D, height F, and lead length E), and Recommended Soldering Pad Layout (pad width 0.60, pad length 0.55, and pad-to-pad distance 1.40).

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	

The carrier tape drawing shows dimensions for hole diameters (øD0, øD1), pitch (P0, P1, P2), and tape width (W). The reel drawing shows dimensions for reel diameter (D), inner diameter (D2), and reel width (W1).

Mouser Electronics

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