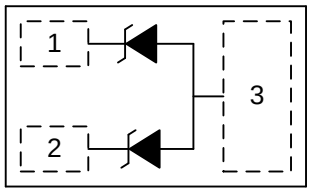
ElectroStatic Discharged Protection Devices (ESD) Data Sheet

Description

The UAD8A05L02 is designed to protect sensitive electronic from damage or latch-up due to ESD. It is designed to replace multilayer viristors (MLVs) in portable applications such as cell phone, note-book computers and other portable electronics. It features large cross-sectional area junctions for conducting high transient currents. The device may be used to meet the immunity requirements of IEC61000-4-2, level 4.

Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- DFN1006-3L 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
- Marking: 5U



Pin Configuration

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}	2.5	A
ESD voltage (Contact discharge)	V_{ESD}	±8	kV
ESD voltage (Air discharge)		±15	
Storage & operating temperature range	T_{STG} ,T_J	-55~+150	℃

Electrical Characteristics (T_J=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				5	V
Reverse breakdown voltage	V_{BR}	I_{BR}=1mA	6		8.5	V
Reverse leakage current	I_R	V_R=5V			0.5	μA
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=1A		11		V
Clamping voltage (tp=8/20μs)	V_C	I_{PP}=2A		14		V
Off state junction capacitance	C_J	0Vdc,f=1MHz Pin1/2 to Pin3		0.75		pF
		0Vdc,f=1MHz Pin1 to Pin2		0.5		pF

Typical Characteristics Curves

Figure 1. Pulse Waveform

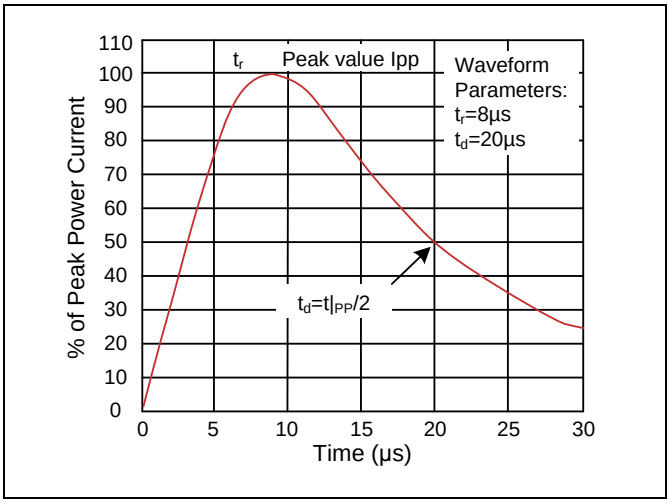


Figure 2. Clamping Voltage vs. Peak Pulse Current

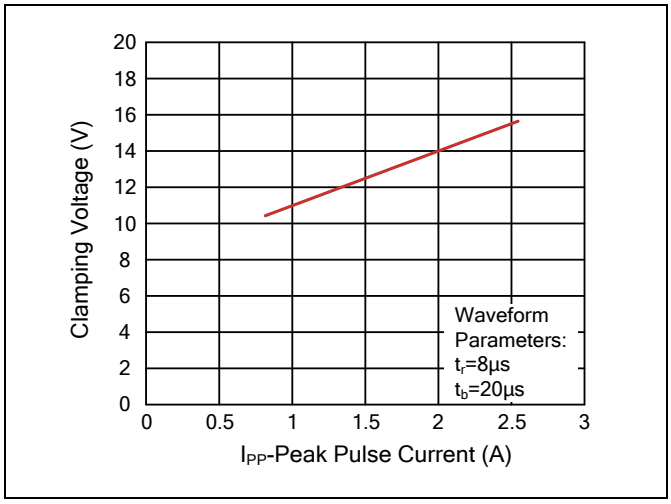


Figure 3. Capacitance vs. Reverse Voltage

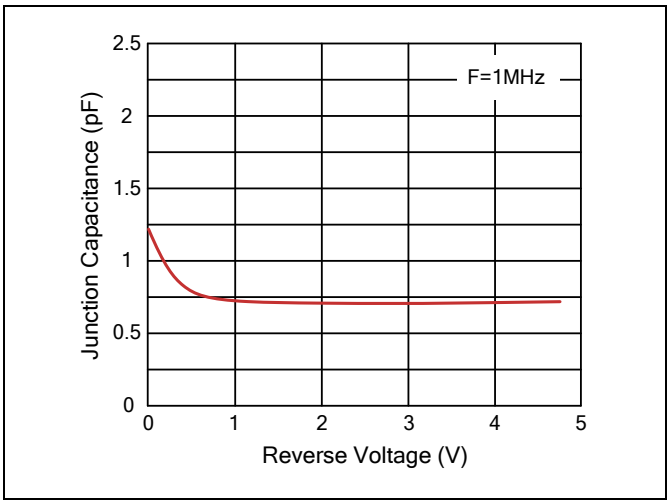
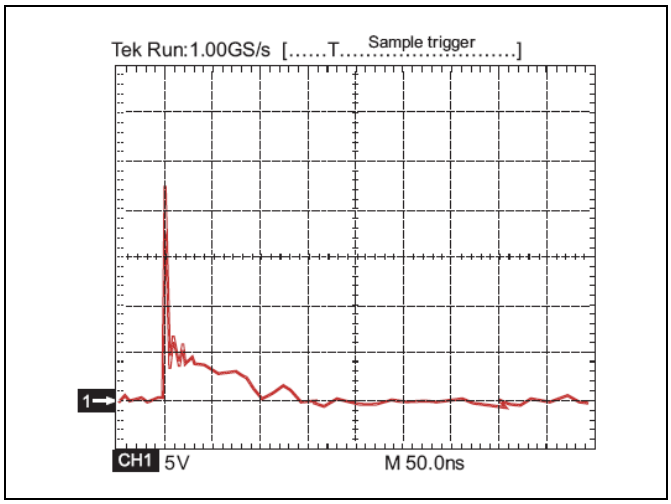
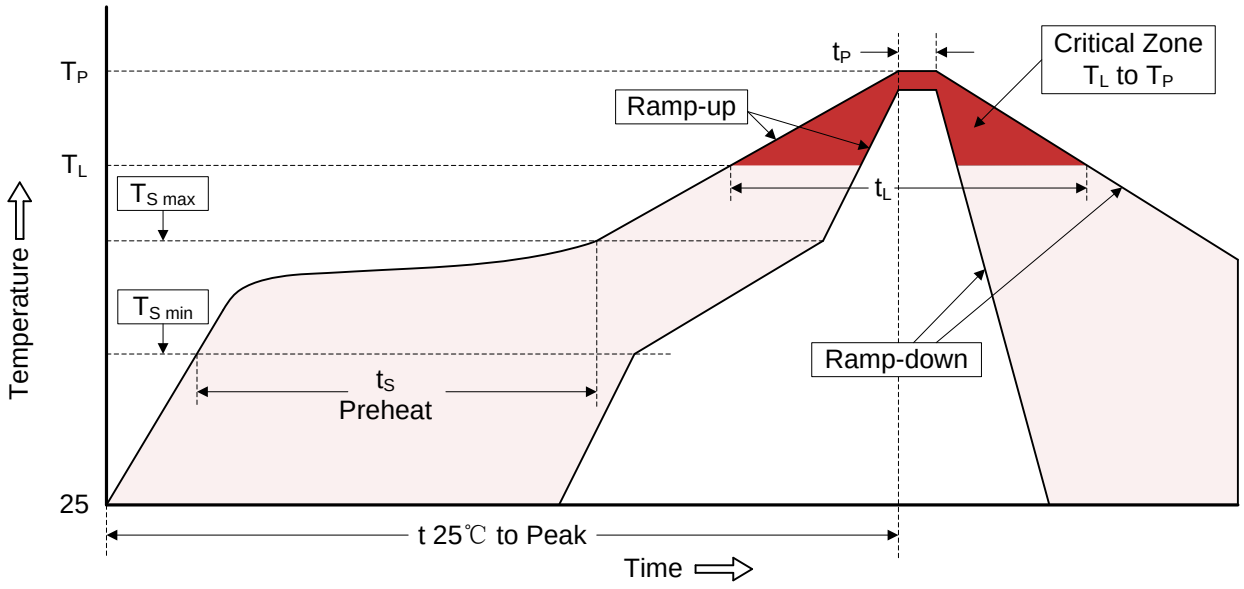


Figure 4. ESD Clamping (8kV Contact IEC61000-4-2)



Recommended Soldering Conditions

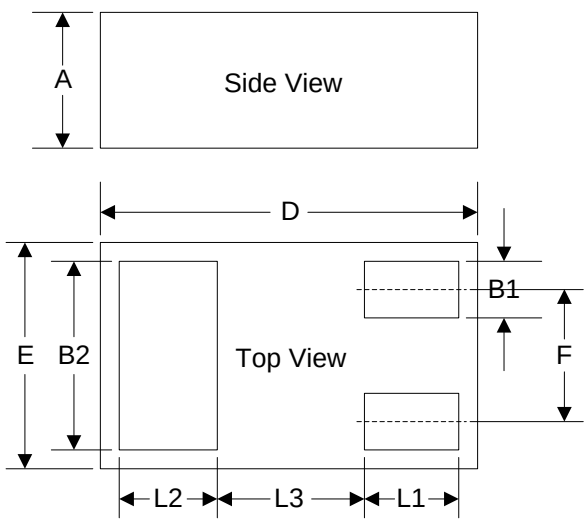
Reflow Soldering



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.

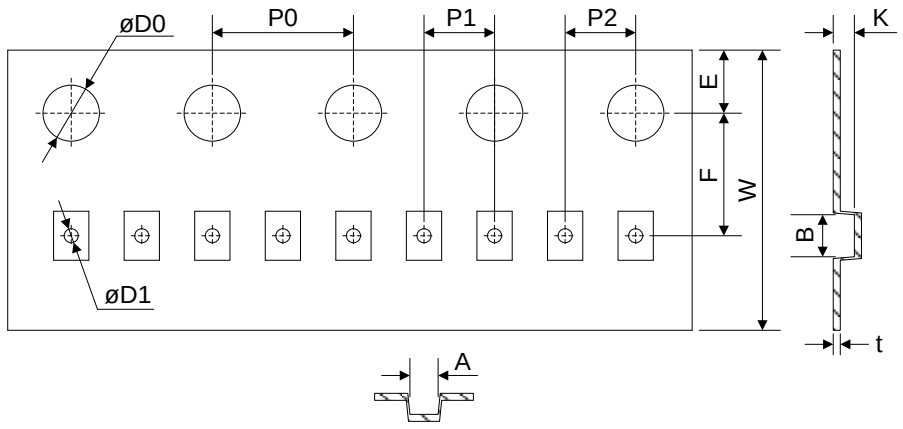
Dimensions (DFN1006-3L)



Symbol	Dimension (mm)			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.33	0.39	0.013	0.015
B1	0.10	0.20	0.004	0.008
B2	0.45	0.55	0.018	0.022
D	0.85	1.15	0.033	0.045
E	0.45	0.75	0.018	0.030
F	0.35Typ.		0.014Typ.	
L1	0.20	0.30	0.20	0.30
L2	0.21	0.31	0.21	0.31
L3	0.39Typ.		0.015Typ.	

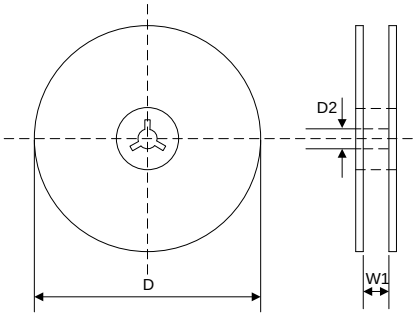
Packaging

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	Φ0.50±0.05
E	1.75±0.10
F	3.50±0.10
A	0.71±0.10
B	1.11±0.10
K	0.48±0.05
t	0.20±0.05

Reel



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