

# DATA SHEET

**ELECTROSTATIC DISCHARGE  
PROTECTION DEVICES**

**INDUSTRIAL / CONSUMER**

UAD8A05L02

RoHS compliant & Halogen free



Product specification – March 26, 2021 V.2



## 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 varistors (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.



Contact : ±8kV  
Air : ±15kV

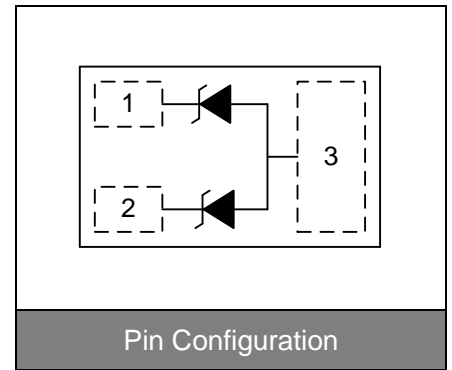


### Features

- 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

### 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
ESD voltage (Contact discharge)	$V_{ESD}$	$\pm 8$	kV
ESD voltage (Air discharge)		$\pm 15$	
Storage & operating temperature range	$T_{STG}, T_J$	-55~+150	°C

**Electrical Characteristics (T<sub>J</sub>=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V <sub>RWM</sub>				5	V
Reverse breakdown voltage	V <sub>BR</sub>	I <sub>BR</sub> =1mA	6		8.5	V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =5V			0.5	μA
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =1A		11		V
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =2A		14		V
Peak pulse current (tp=8/20μs)	I <sub>PP</sub>				3	A
Off state junction capacitance	C <sub>J</sub>	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

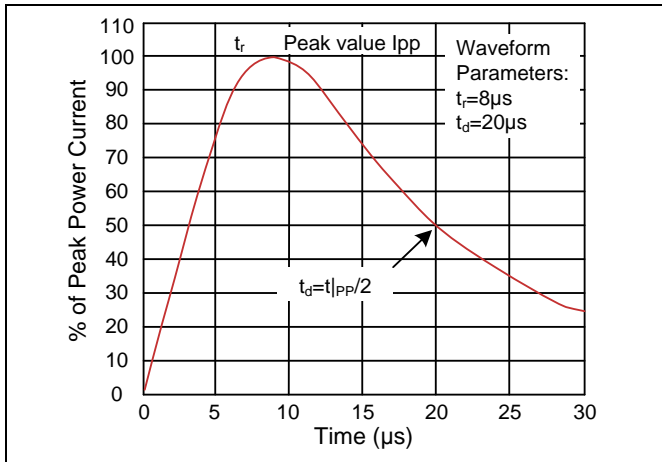


Figure 2. Clamping Voltage vs. Peak Pulse Current

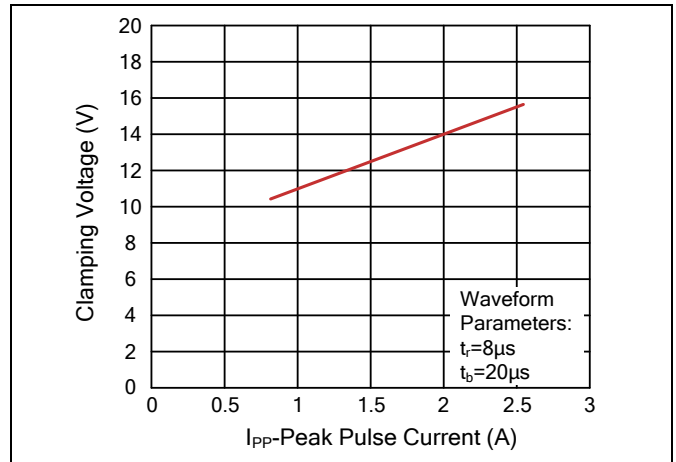


Figure 3. Capacitance vs. Reverse Voltage

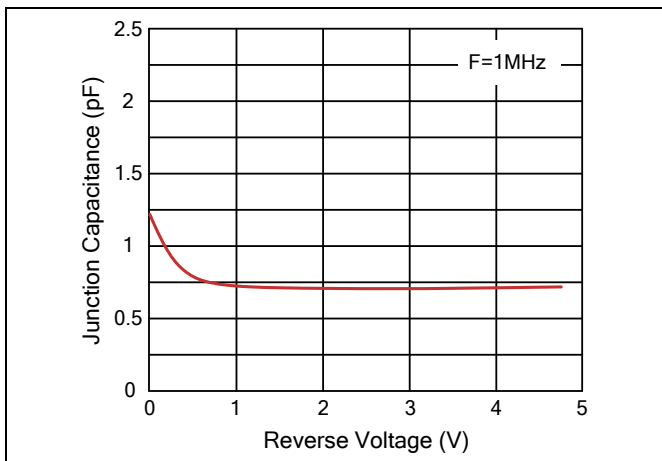
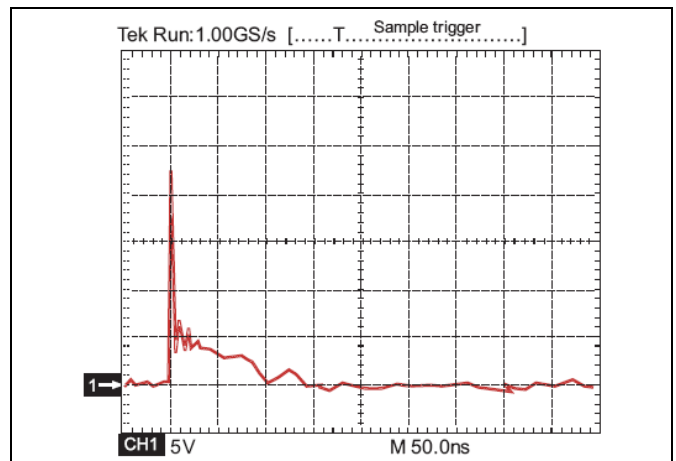
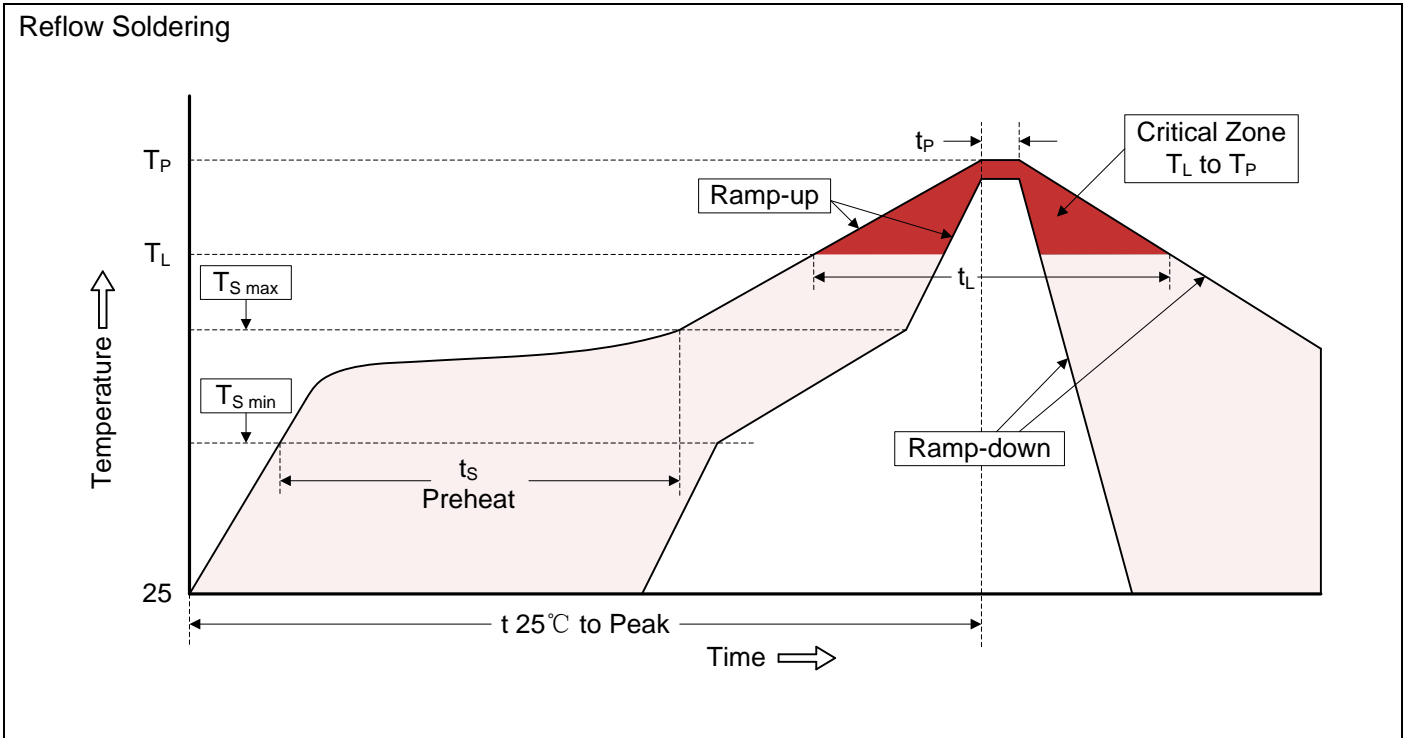


Figure 4. ESD Clamping (8kV Contact IEC61000-4-2)



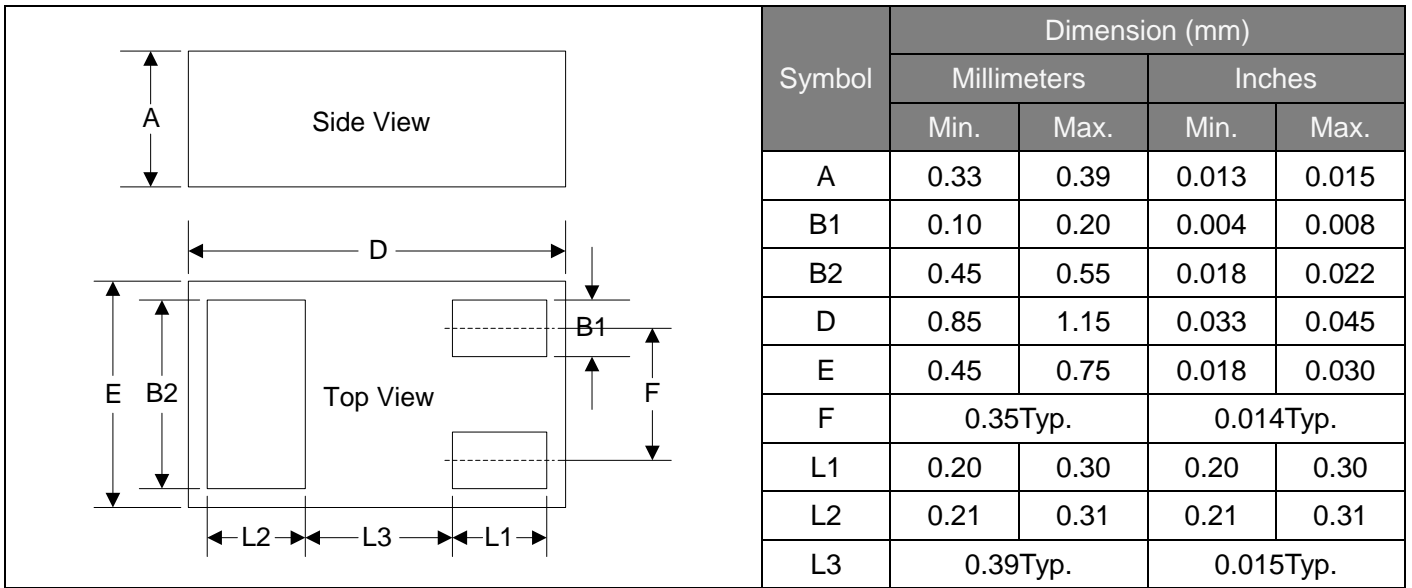
### Recommended Soldering Conditions



#### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	150°C
-Temperature Min ( $T_{S\ min}$ )	200°C
-Temperature Max ( $T_{S\ max}$ )	60-180 seconds
-Time (min to max) ( $t_s$ )	
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	217°C
-Time ( $t_L$ )	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 (DFN1006-3L)**



**Packaging**

