



# THE DATASHEET OF LAD8C05L01



# DATA SHEET

**ELECTROSTATIC DISCHARGE  
PROTECTION DEVICES**

**INDUSTRIAL / CONSUMER**

LAD8C05L01

RoHS compliant & Halogen free



Product specification—June 30, 2023 V.2



## Electrostatic Discharged Protection Devices (ESD) Data Sheet

### Description

The LAD8C05L01 of Transient Voltage Suppressors is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computer, and PDAs.

It offer superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs.

It is designed to protect sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD), lightning, electrical fast transients (EFT), and cable discharge events (CDE).

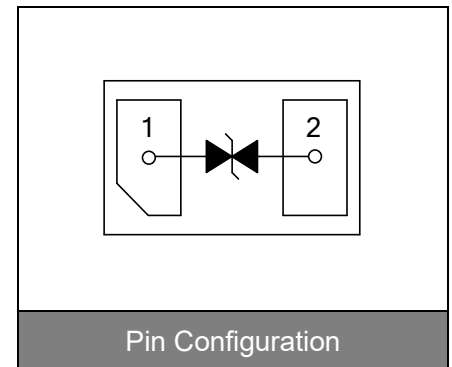


Contact :  $\pm 8\text{kV}$   
Air :  $\pm 15\text{kV}$



### 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
- Solid-state silicon avalanche technology
- RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260~270°C
- Flammability rating UL 94V-0
- Meets MSL level 1, per J-STD-020
- Marking: BB



### Applications

- Cellular Handsets & Accessories
- Notebooks & Handhelds
- Digital Cameras
- Personal Digital Assistants (PDAs)
- Portable Instrumentation

### Maximum Ratings

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	$V_{\text{ESD}}$	$\pm 8$	kV
ESD voltage (Air discharge)		$\pm 15$	
Storage & operating temperature range	$T_{\text{STG}}, T_{\text{J}}$	-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	5.5			V
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =5V			1	μA
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =1A			8.5	V
Clamping voltage (tp=8/20μs)	V <sub>C</sub>	I <sub>PP</sub> =4A			12	V
Peak Pulse Current(tp=8/20μs)	I <sub>PP</sub>				4	A
Off state junction capacitance	C <sub>J</sub>	0Vdc,f=1MHz		10		pF

**Typical Characteristics Curves**

Figure 1. Pulse Waveforms

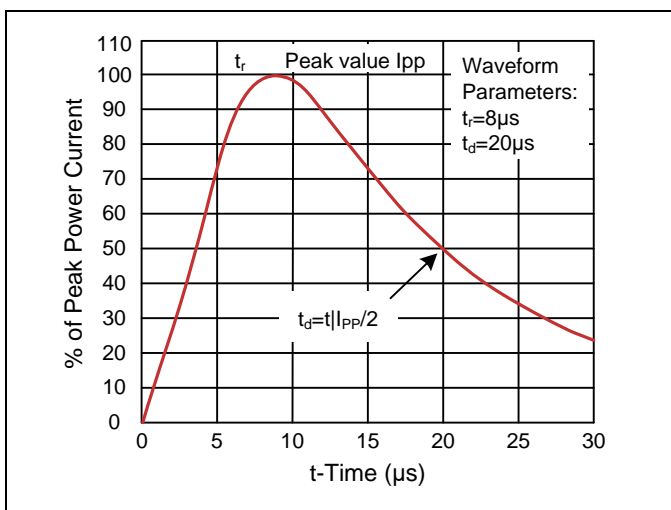


Figure 2. Clamping Voltage vs. Peak Pulse Current

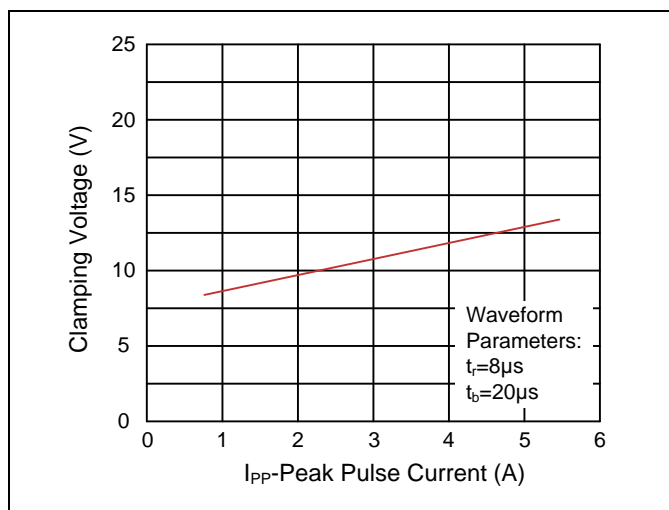
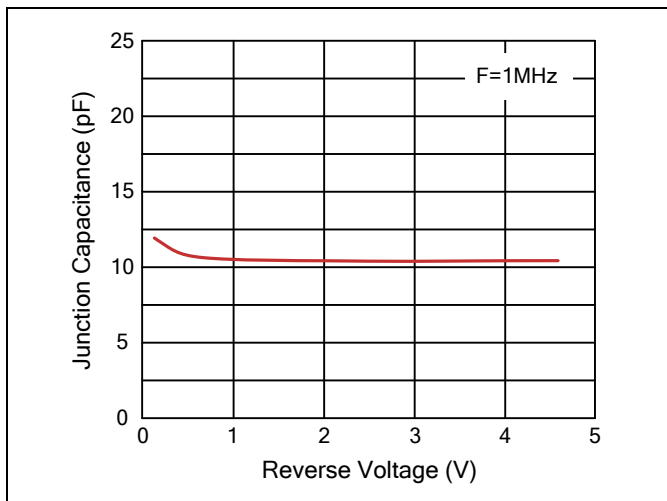
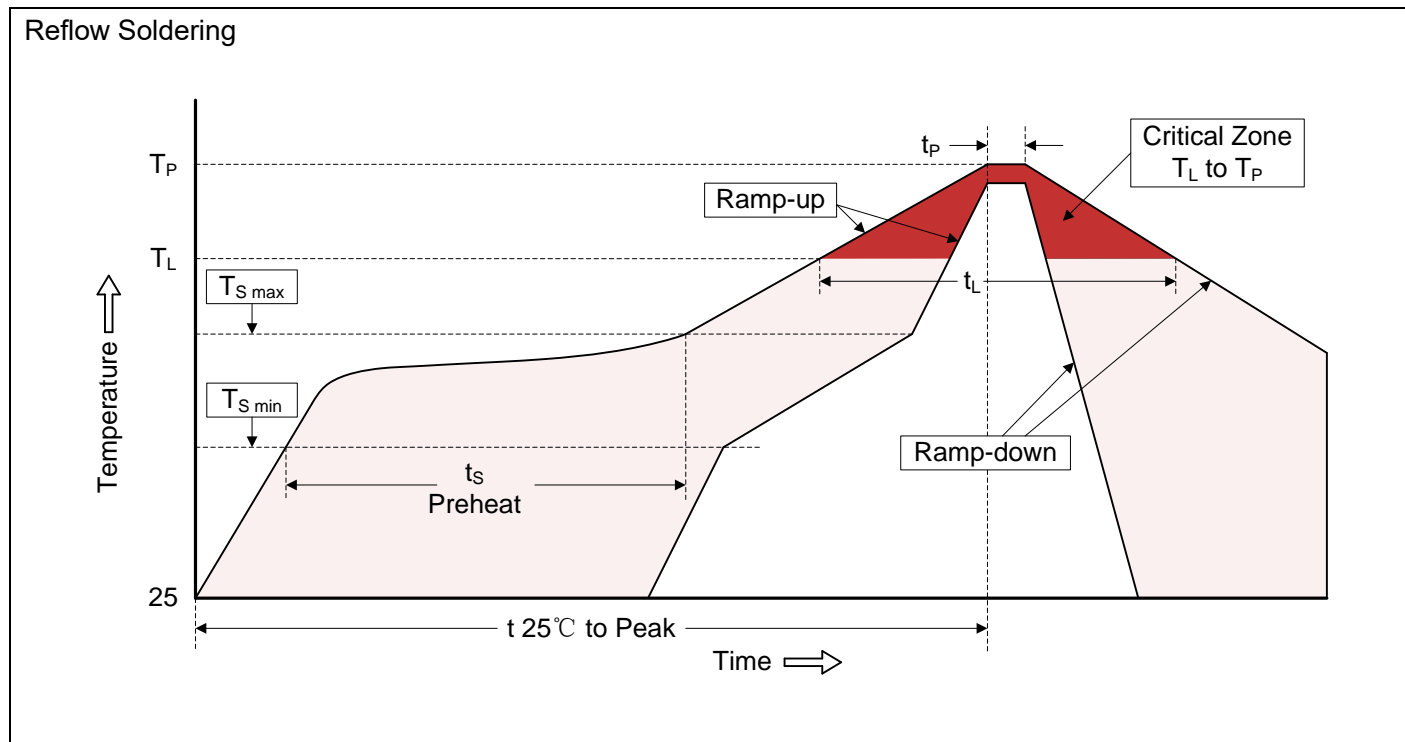


Figure 3. Capacitance vs. Reverse Voltage



**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)**

	Dimension (mm)				
	Symbol	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		0.018		
E	0.20	0.30	0.008	0.012	
F	0.45	0.55	0.018	0.022	

**Packaging**

<p><b>Tape</b></p>	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
<p><b>Reel</b></p>	D	Φ328.0±2.0
	D2	Φ14.4
	W1	10.0
	Quantity: 40000PCS	

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