

DATA SHEET

**ELECTROSTATIC DISCHARGE
PROTECTION DEVICES**

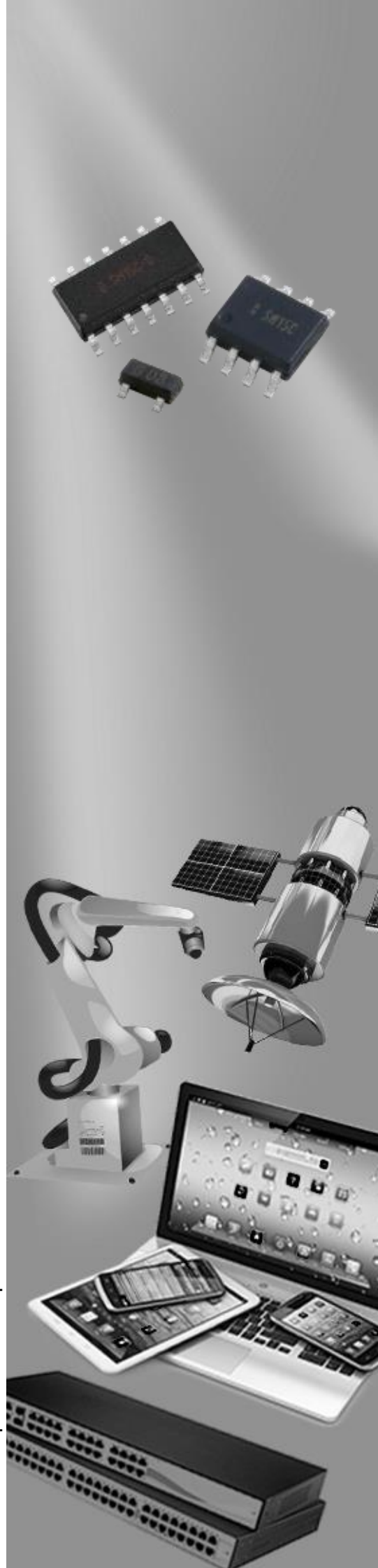
INDUSTRIAL / CONSUMER

LAD52C05L01-IP6

RoHS compliant & Halogen free



Product specification— September 17, 2020 V.0



Electrostatic Discharged Protection Devices (ESD) Data Sheet

Description

The LAD52C05L01-IP6 Series of Transient Voltage Suppressors (TVS) are designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computer, and PDAs. They offer superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs. They are 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).

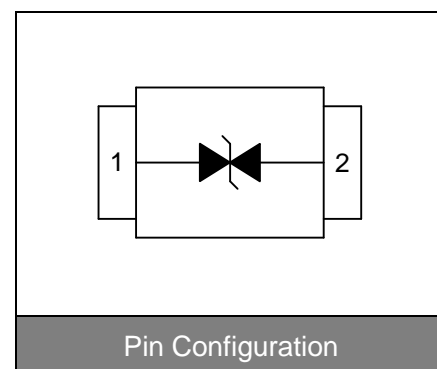


Contact : $\pm 30\text{kV}$
Air : $\pm 30\text{kV}$



Features

- IEC61000-4-2 ESD 30KV Air, 30KV contact compliance
- SOD523 surface mount package
- Working voltage: 5V
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology
- Lead Free/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:5C.



Maximum Ratings

Rating	Symbol	Value	Unit
Peak Pulse Current($t_p=8/20\mu\text{s}$)	I_{PP}	6	A
ESD voltage (Contact discharge)	V_{ESD}	± 30	kV
ESD voltage (Air discharge)		± 30	
Storage & operating temperature range	T_{STG}, T_J	-55~+150	°C

Electrical Characteristics (T_J=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				5.0	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1.0mA	6.0			V
Reverse leakage current	I _R	V _R =5.0V			1.0	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =6.0A		10	15	V
ESD Clamping voltage (TLP)	V _C	I _{PP} =12A		11.5		V
ESD Clamping voltage (TLP)	V _C	I _{PP} =16A		13		V
ESD Dynamic Turn-on Resistance	R _{dy}			0.38		Ω
Off state junction capacitance	C _J	0Vdc,f=1MHz		13	15	pF

Typical Characteristics Curves

Figure 1. Pulse Waveforms

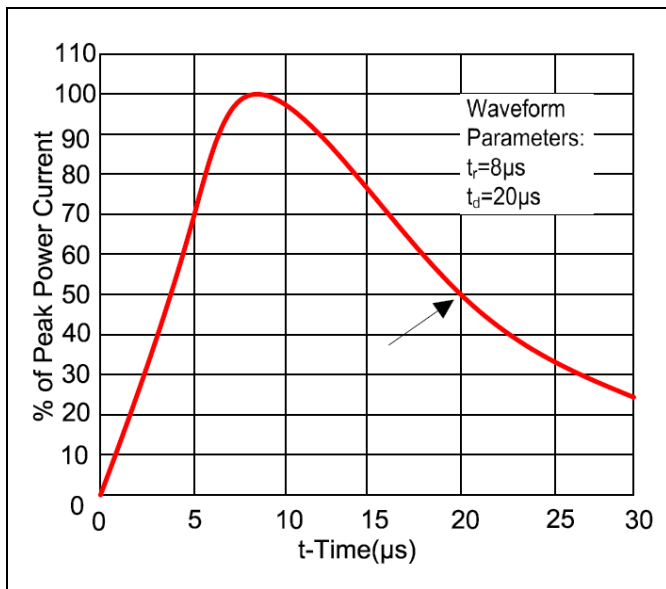


Figure 2. Clamping Voltage vs. Peak Pulse Current

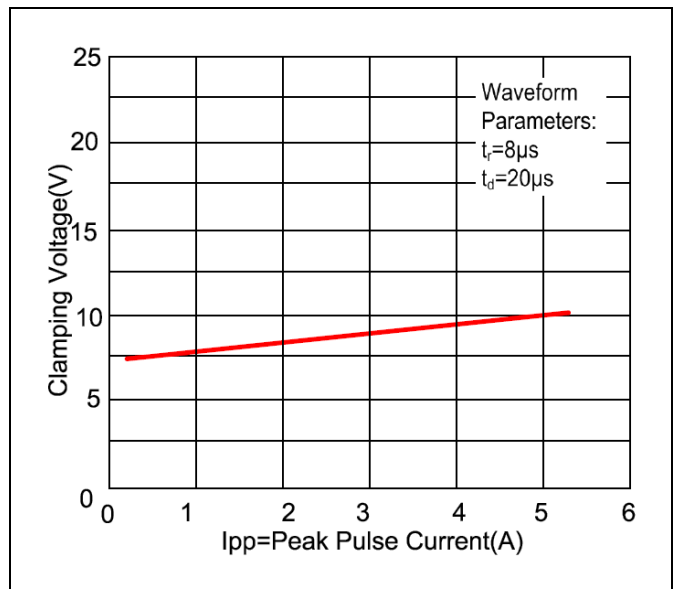


Figure 3. Capacitance vs. Reverse Voltage

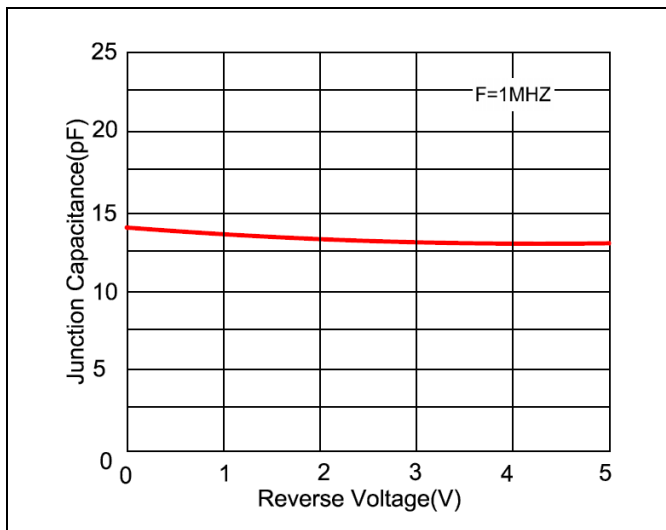
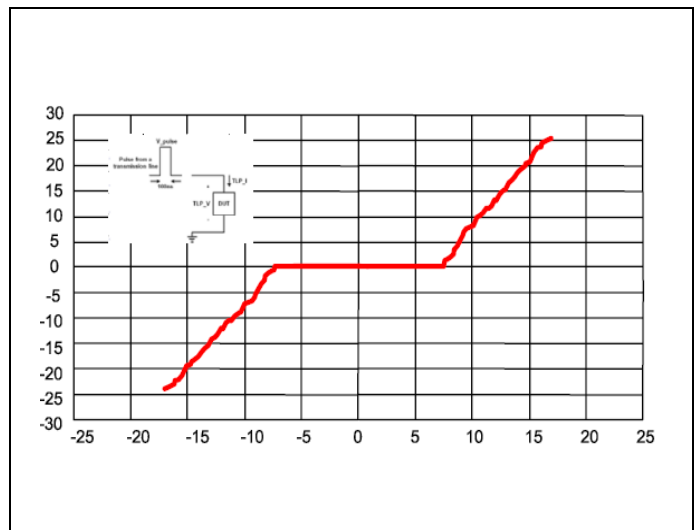
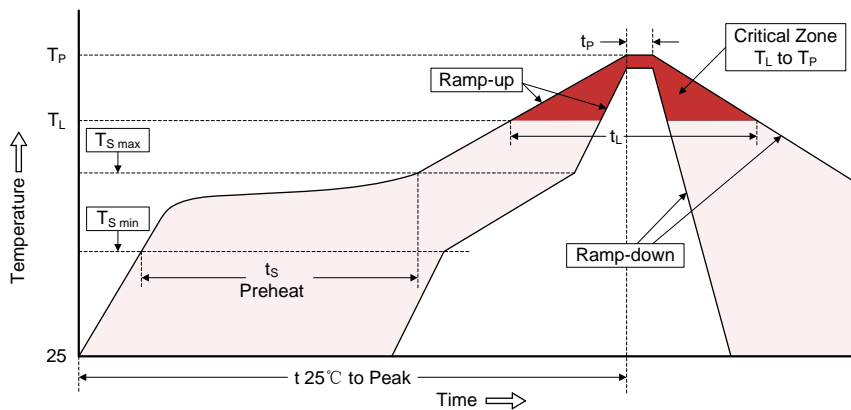


Figure 4. Transmission Line Pulsing(TLP)Measurement



Recommended Soldering Conditions

Reflow Soldering

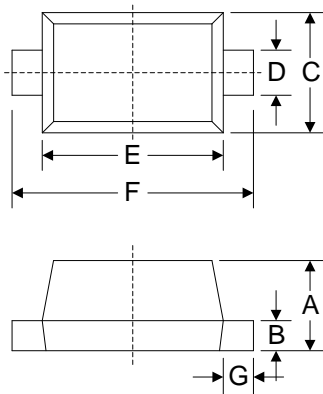


Recommended Conditions

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 (SOD-523)

Symbol	Dimension (mm)			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.70	0.020	0.028
B	0.07	0.20	0.003	0.008
C	0.70	0.90	0.028	0.035
D	0.25	0.35	0.010	0.014
E	1.10	1.30	0.043	0.051
F	1.50	1.70	0.059	0.067
G	0.15	0.25	0.006	0.010



Recommended Soldering Pad Layout

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	1.00±0.10
	A0	0.50±0.10
	B	1.80±0.10
	B0	1.30±0.10
	K	0.65±0.10
t	0.20±0.05	
<p data-bbox="108 981 167 1012">Reel</p>	D	Φ178.0±2.0
	D2	Φ13.0
	W1	9.5
	Quantity: 3000PCS	