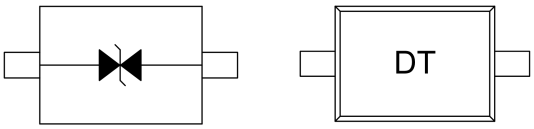
LY523AC05L1
General Purpose ESD Protection

HF RoHS Pb

Description

The LY523AC05L1 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. It complies with IEC 61000-4-2 (ESD), ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SOD-523 package. The small size and high ESD surge protection make it an ideal choice to protect cell phone, digital cameras and many other portable application.

Pin Configuration and Marking



Circuit and Pin Schematic

Features

- Low clamping voltage
- Low leakage current
- Operating voltage: 5V
- RoHS compliant
- IEC-61000-4-2 ESD ±30kV Air, ±30kV Contact

Applications

- Microprocessor Based Equipment
- Personal Digital Assistants
- Notebooks, Desktops and Servers
- Portable Instrumentation
- Pagers Peripherals

Maximum Ratings
(T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PP}	80	W
Peak Pulse Current (8/20μs)	I_{PP}	8	A
ESD (Air Discharge) ESD (Contact Discharge)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	-55 to 150	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.
Reverse Working Voltage	V_{RWM}		-	-	5V
Breakdown Voltage	V_{BR}	I_T =1mA	5.5V	-	-
Reverse Leakage Current	I_R	V_{RWM} = 5V	-	-	1μA
Clamping Voltage	V_C	I_{PP}= 8A (8/20μs)	-	10V	-
Junction Capacitance	C_J	V_R = 0V, f= 1MHz	-	20pF	-

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Typical Characteristic Curves (T_A=25℃ unless otherwise noted)

Figure 1:
Peak Pulse Power Rating Curve

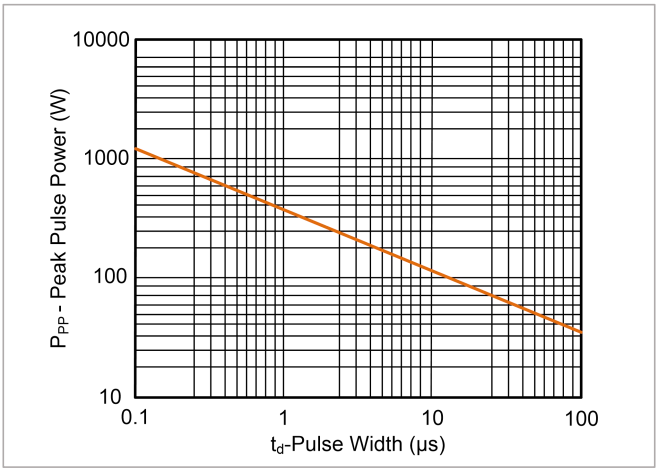


Figure 2:
Pulse Derating Curve

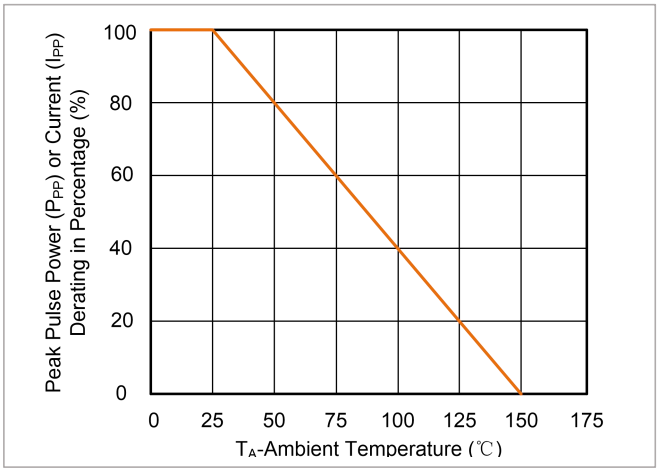


Figure 3:
Pulse Waveform (8/20μs)

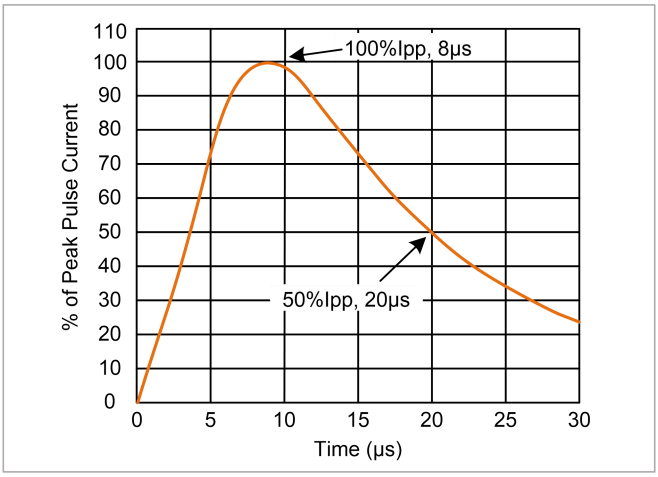
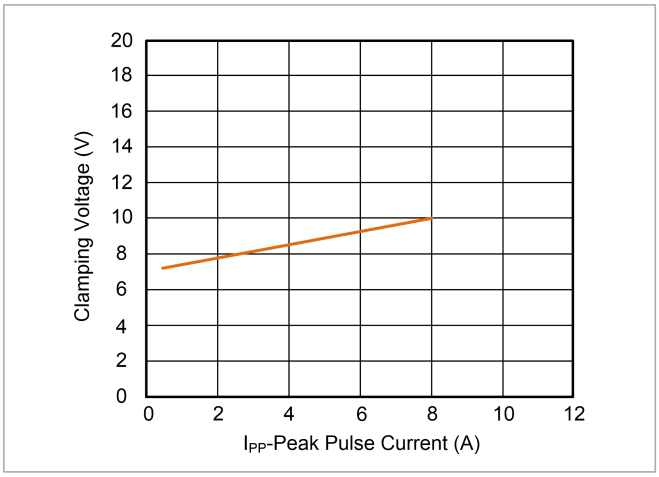


Figure 4:
Clamping Voltage vs. Peak Pulse Current



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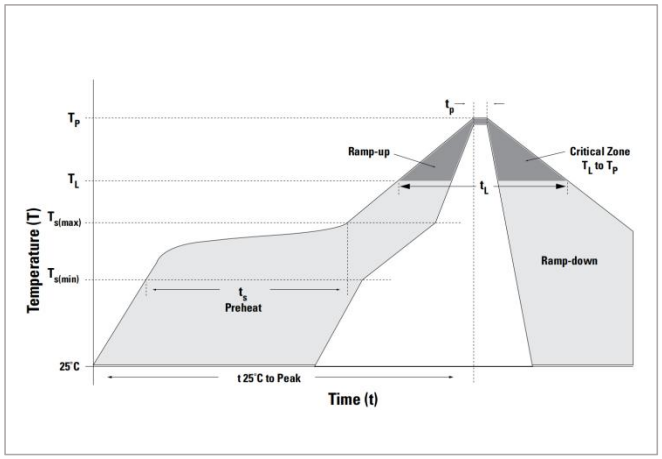
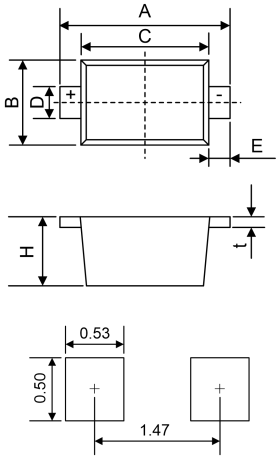
Soldering Parameters

Reflow Condition		Lead–free assembly
Pre Heat	**-Temperature Min ($T_{S\ min}$)**	150℃
	-Temperature Max ($T_{S\ max}$)	200℃
	-Time (min to max) (t_S)	60 – 180 secs
Average ramp-up rate(Liquidus Temp (T_L) to peak		3℃/second max.
$T_{S\ (max)}$ to T_L-Ramp-up Rate		3℃/second max.
Reflow	**-Temperature (T_L) (Liquidus)**	217℃
	-Time (min to max) (t_L)	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.
Do not exceed		260℃



Dimensions

SOD-523



Recommended Solder Pad Layout (mm)

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

Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
LY523AC05L1	SOD-523	5000	Tape & Reel – 8mm tape/7" reel	EIA STD RS-481