

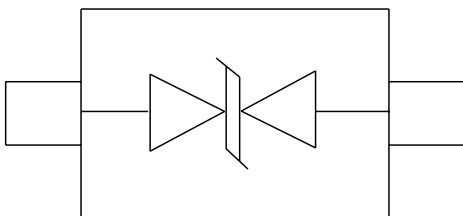
## Description

The LY523AC03L is a 3.3V bi-directional ESD protection diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The LY523AC03L complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm DFN lead-free package. The small size and high ESD surge protection make LY523AC03L an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

## Features

- Protects one data line
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 8A (8/20 $\mu\text{s}$ )
- RoHS Compliant

## Dimensions and Pin Configuration



Circuit and Pin Schematic

## Mechanical Characteristics

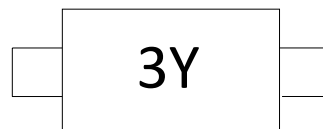
- Package: SOD-523
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

## Marking Information

3Y = Device Marking Code



## Ordering Information

Part Number	Packaging	Reel Size
LY523AC03L	3000/Tape & Reel	7 inch

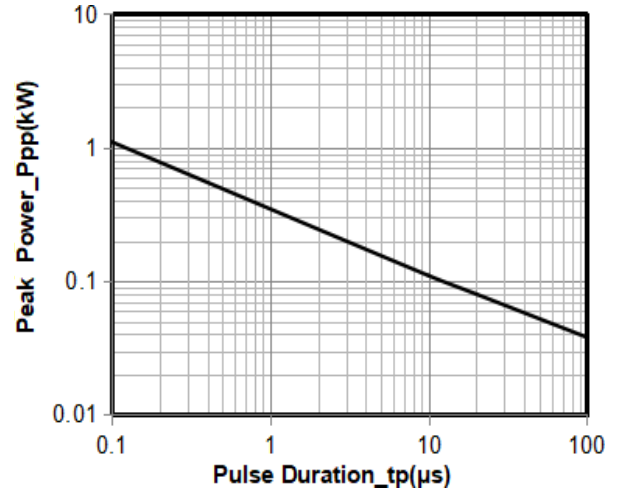
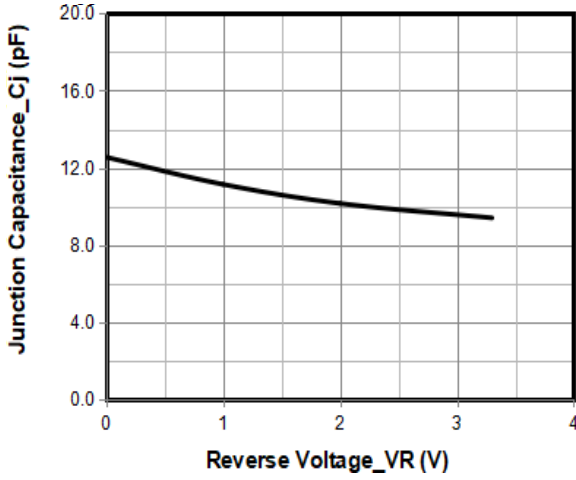
**Absolute Maximum Ratings (TA=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	80	W
Peak Pulse Current (8/20μs)	Ipp	8	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

**Electrical Characteristics (TA=25°C unless otherwise specified)**

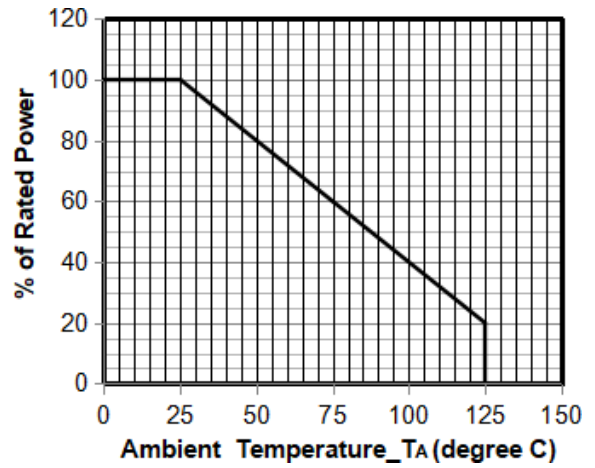
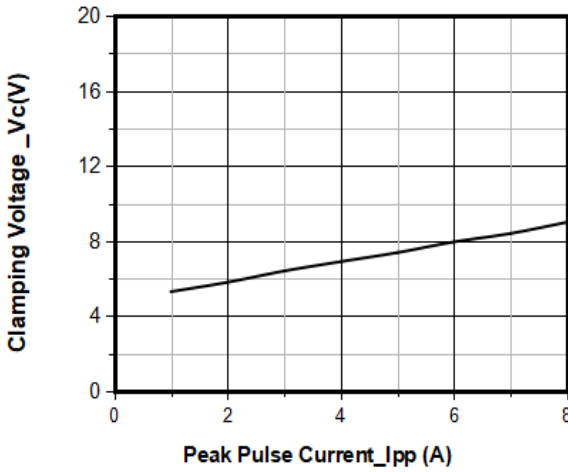
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			3.3	V	
Punch-Through Voltage	VPT	3.8			V	IT = 2μA
Snap-Back Voltage	VSB	3.5			V	IT = 50mA
Reverse Leakage Current	IR		0.01	0.2	μA	VRWM = 3.3V
Clamping Voltage	VC			6	V	I <sub>PP</sub> = 1A (8 x 20μs pulse)
				8	V	I <sub>PP</sub> = 5A (8 x 20μs pulse)
				10	V	I <sub>PP</sub> = 8A (8 x 20μs pulse)
Junction Capacitance	CJ		12.5	25	pF	VR = 0V, f = 1MHz

**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



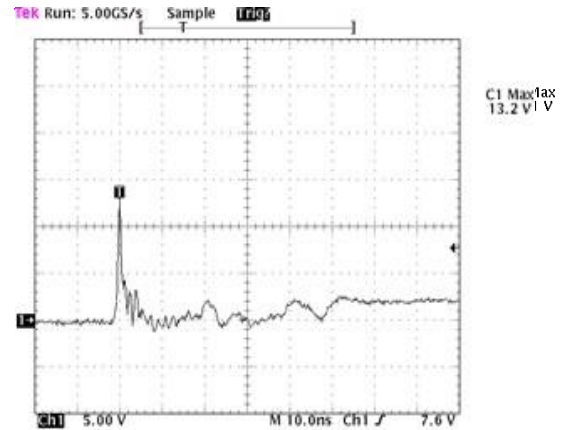
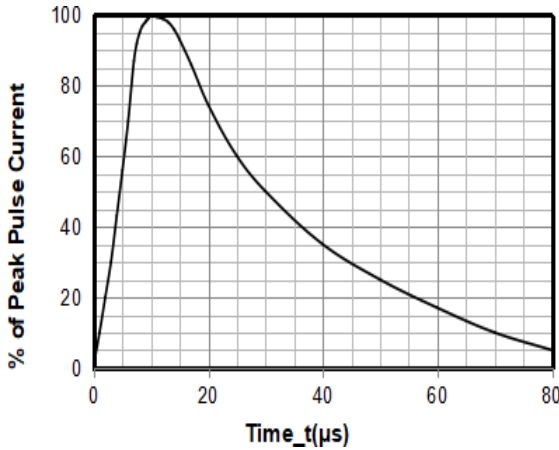
**Junction Capacitance vs. Reverse Voltage**

**Peak Pulse Power vs. Pulse Time**



**Clamping Voltage vs. Peak Pulse Current**

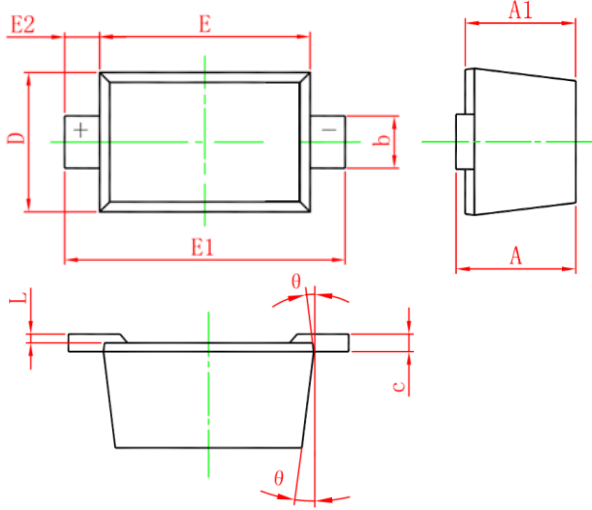
**Power Derating Curve**



**8 X 20μs Pulse Waveform**

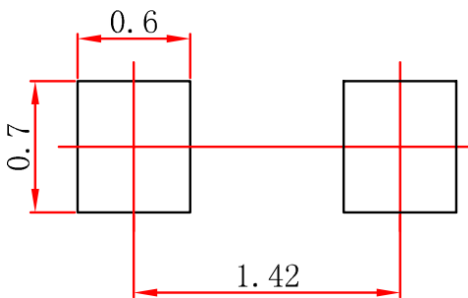
**Note: Data is taken with a 10x attenuator  
ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

### SOD-523 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	--	0.77	0.020	--	0.031
A1	0.50	--	0.70	0.020	--	0.028
b	0.25	--	0.35	0.010	--	0.014
c	0.08	--	0.15	0.003	--	0.006
D	0.75	--	0.85	0.030	--	0.033
E	1.10	--	1.30	0.043	--	0.051
E1	1.50	--	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	--	0.07	0.001	--	0.003
Θ	7° REF			7° REF		

### Suggested Land Pattern



**Unit: mm**