

Description

The LY03LAXX is a uni-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), $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small lead-free DFN1610-2 package. The small size and high ESD surge protection make it an ideal choice to protect cell phone, digital cameras and many other portable applications.

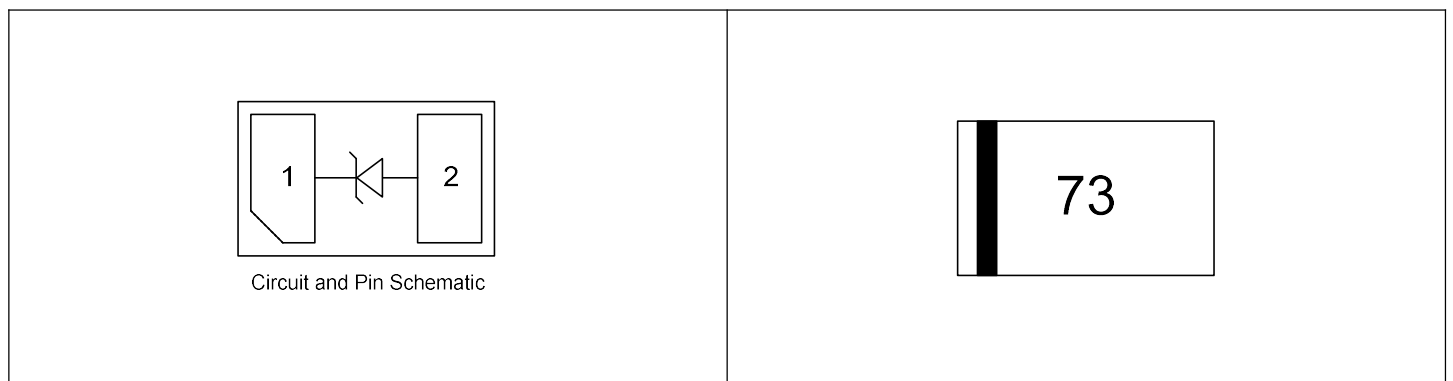
Features

- Low clamping voltage
- Low leakage current
- Operating voltage: 3.3V~36V
- RoHS compliant
- IEC-61000-4-2 ESD $\pm 30\text{kV}$ Air, $\pm 30\text{kV}$ Contact
- Packaging: 7 inch reel, 3000pcs/reel

Applications

- Mobile Phones and Accessories
- Hand Held Portable Applications
- Power Line Protection
- Battery Protection
- USB VBus

Pin Configuration and Marking



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Value
Peak Pulse Power (8/20 μs)	P_{PP}	1875W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	$\pm 30\text{kV}$ $\pm 30\text{kV}$
Ambient Temperature Range	T_A	-55°C to $+125^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55°C to $+150^\circ\text{C}$

Electrical Characteristics ($T_A=25^\circ\text{C}$)

Part Number	Marking	Reverse Working Voltage	Reverse Breakdown Voltage @ $I_T=1\text{mA}$	Reverse Leakage Current @ V_{RWM}	Clamping Voltage @8/20 μs		Peak Pulse Current	Junction Capacitance @ $V_R=0\text{V}$, $f=1\text{MHz}$
		V_{RWM} (V)	V_{BR} (V)	I_R (μA)	V_C (V)		I_{PP} (A)	C_J (pF)
		Max.	Min.	Max.	@10A	@ I_{PP} Max.	Max.	Max.
LY03LA03	73	3.3	3.5	1.0	5.5	12.5	150	750
LY03LA05	91	5.0	6.0	1.0	9.0	15.0	125	650
LY03LA07	76	7.0	7.5	0.5	12.0	16.5	115	550
LY03LA09	96	9.0	10.0	0.5	15.0	23.0	90	525
LY03LA12	72	12.0	12.6	0.1	18.0	25.0	75	500
LY03LA15	75	15.0	16.5	0.1	22.0	31.25	60	450
LY03LA18	78	18.0	19.6	0.1	26.0	37.5	50	350
LY03LA24	74	24.0	26.7	0.1	42	53.5	35	200
LY03LA36	79	36.0	37.0	0.1	60	75.0	25	150

Typical Characteristic Curves ($T_A=25^\circ\text{C}$)

Figure 1. Peak Pulse Power Rating Curve

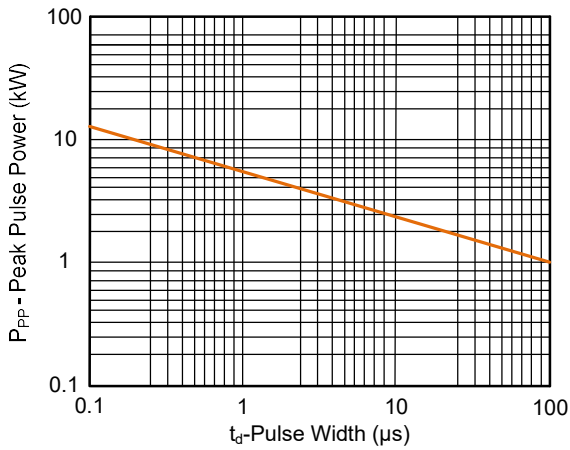


Figure 2. Pulse Derating Curve



Figure 3. Pulse Waveform (8/20 μs)

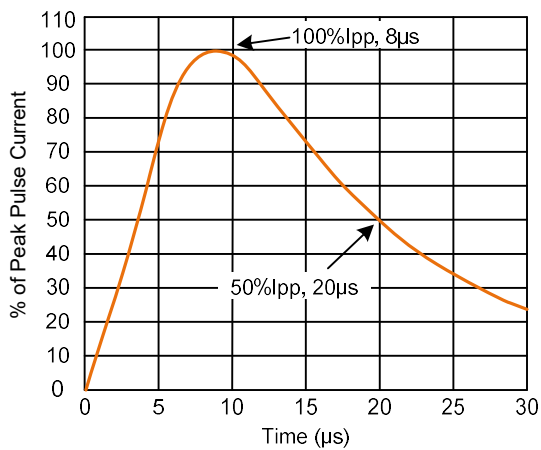
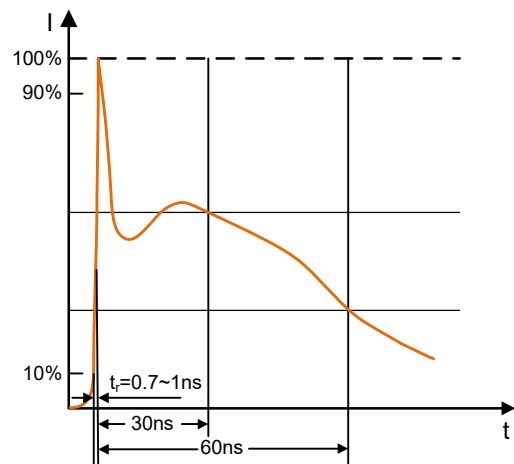


Figure 4. Pulse Waveform (IEC61000-4-2)



Soldering Parameters



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 (DFN1610-2)

