

LY143AA05UL

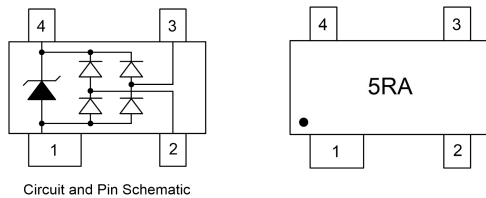
General Purpose ESD Protection



Description

The LY143AA05UL is a TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. It complies with IEC 61000-4-2 (ESD), $\pm 20\text{kV}$ air and $\pm 15\text{kV}$ contact discharge. It is assembled into a lead-free SOT-143 package. It is designed to protect components which are connected to high speed interfaces and transmission lines from voltage surges.

Pin Configuration and Marking



Maximum Ratings

($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	100	W
Peak Pulse Current (8/20 μs)	I_{PP}	6	A
ESD (Air Discharge) ESD (Contact Discharge)	V_{ESD}	± 20 ± 15	kV
Operating Temperature Range	T_J	-55 to 125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to 125	$^\circ\text{C}$

Features

- Low clamping voltage
- Low leakage current
- Operating voltage: 5V
- RoHS compliant
- IEC-61000-4-2 ESD $\pm 20\text{kV}$ Air, $\pm 15\text{kV}$ Contact

Applications

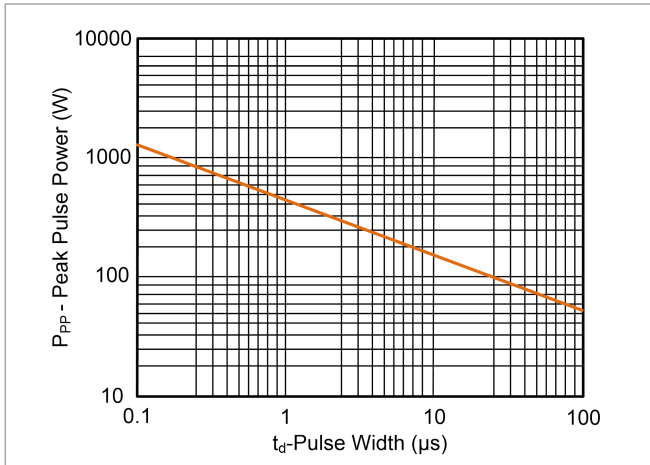
- USB2.0
- Ethernet
- Video Line Protection
- Notebooks, Desktops and Servers

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

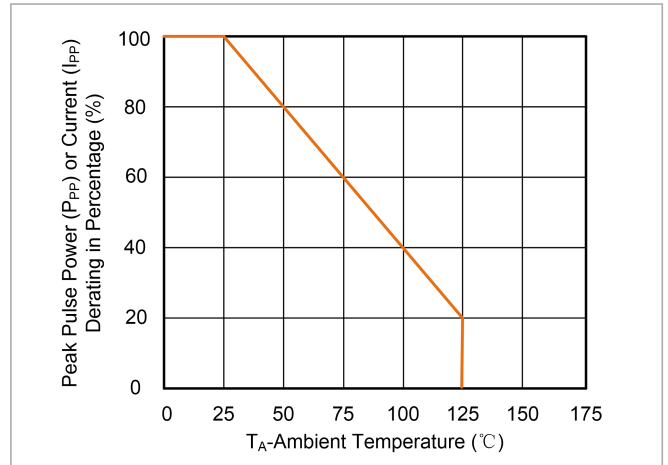
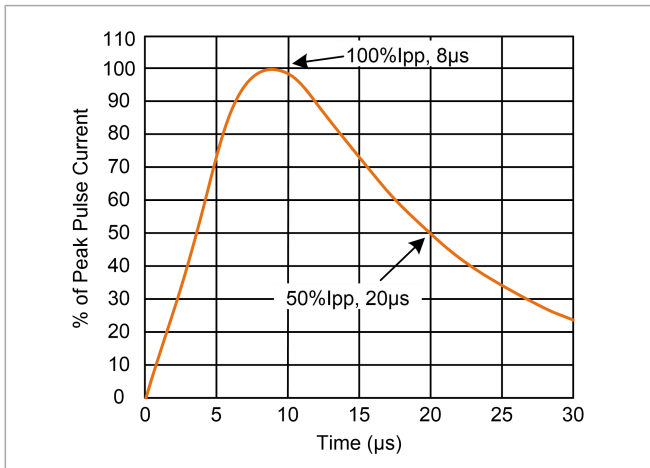
Parameter	Symbol	Test Condition	Min.	Typ.	Max.
Reverse Working Voltage	V_{RWM}		-	-	5V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6V	-	8.5V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$	-	-	0.5 μA
Clamping Voltage	V_C	$I_{PP}=6\text{A}$ (8/20 μs)	-	14V	16V
Junction Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$, between I/O pins	-	0.3pF	0.4pF
		$V_R=0\text{V}$, $f=1\text{MHz}$, any I/O pin to ground	-	0.6pF	0.8pF

LY143AA05UL**General Purpose ESD Protection****Typical Characteristic Curves** ($T_A=25^\circ\text{C}$ unless otherwise noted)**Figure 1:**

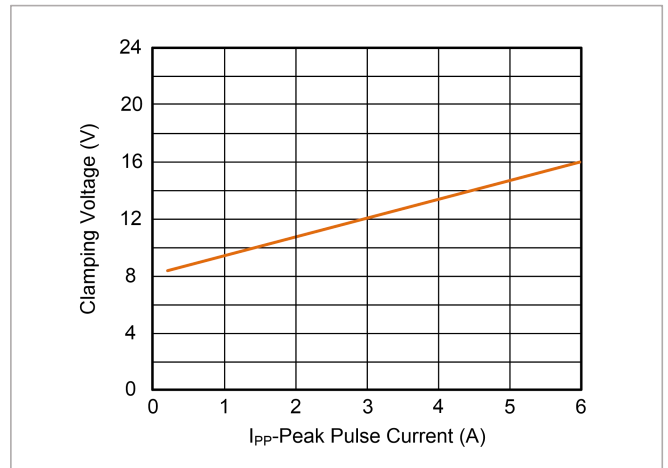
Peak Pulse Power Rating Curve

**Figure 2:**

Pulse Derating Curve

**Figure 3:**Pulse Waveform (8/20 μs)**Figure 4:**

Clamping Voltage vs. Peak Pulse Current

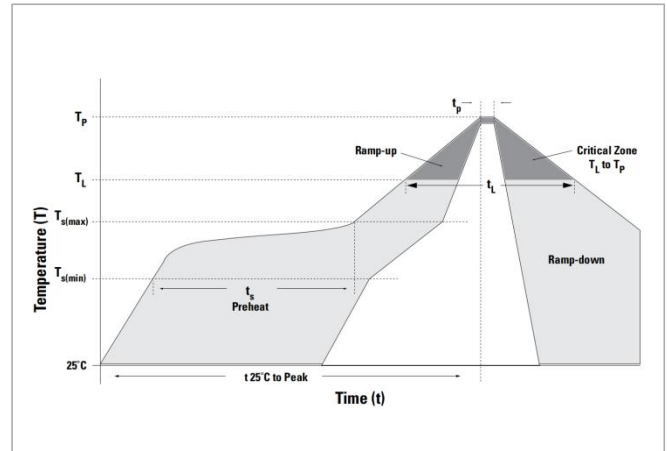


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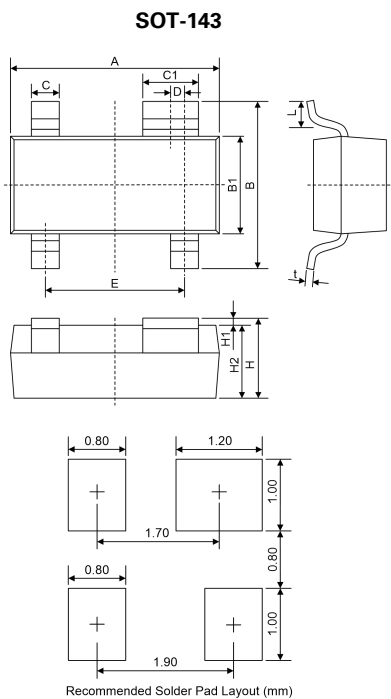
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Soldering Parameters

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



Dimensions



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.04	0.110	0.120
B	2.10	2.64	0.083	0.104
B1	1.20	1.40	0.047	0.055
C	0.30	0.50	0.012	0.020
C1	0.75	0.94	0.030	0.037
D	0.20BC		0.008	
E	1.90BSC		0.075	
H	0.80	1.22	0.031	0.048
H1	0.00	0.15	0.000	0.006
H2	0.80	1.07	0.031	0.042
L	0.30	0.60	0.012	0.024
t	0.08	0.20	0.003	0.008

Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
LY143AA05UL	SOT-143	3000	Tape & Reel – 8mm tape/7" reel	EIA STD RS-481

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