Description

The LYS08LA03L is a 3.3V low capacitance TVS array, combining a TVS diode with a rectifier bridge to provide both common and differential transient protection in one package. It complies with IEC 61000-4-2 (ESD), ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SO-8 package. It provides overvoltage protection for 10/100/1000 Base Ethernet and T3/E3 interfaces.

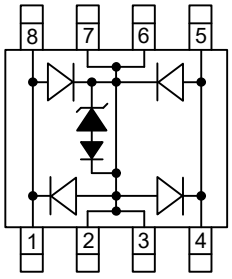
Features

- Low clamping voltage
- Ultra low leakage current
- Operating voltage: 3.3V
- Protects two lines in common and differential mode
- RoHS compliant
- IEC-61000-4-2 ESD ±30kV Air, ±30kV Contact
- Packaging: 13 inch reel, 2500pcs/reel

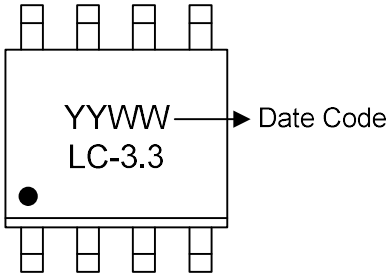
Applications

- 10/100/1000 Ethernet
- Set Top Box
- ISDN Interfaces
- T1/E1 Line Cards
- T3/E3 and DS3 Interfaces
- Low Voltage Interfaces

Pin Configuration and Marking



Circuit and Pin Schematic



Absolute Maximum Ratings (T_A=25℃)

Parameter	Symbol	Value
Peak Pulse Power (8/20μs)	P_{PP}	1800W
Peak Pulse Current (8/20μs)	I_{PP}	100A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30kV ±30kV
Ambient Temperature Range	T_A	−55℃ to +125℃
Storage Temperature Range	T_{STG}	−55℃ to +150℃

Electrical Characteristics (T_A=25℃)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.
Reverse Working Voltage	V_{RWM}		-	-	3.3V
Breakdown Voltage	V_{BR}	I_T = 2μA	3.5V	-	-
Reverse Leakage Current	I_R	V_{RWM} = 3.3V	-	-	0.5μA
Clamping Voltage	V_C	I_{PP} = 50A (8/20μs) any I/O pin to ground	-	-	11V
		I_{PP} = 50A (8/20μs) between I/O pins	-	-	13V
		I_{PP} = 100A (8/20μs) any I/O pin to ground	-	-	15V
		I_{PP} = 100A (8/20μs) between I/O pins	-	-	18V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz, between I/O pin and ground	-	16pF	25pF
		V_R = 0V, f = 1MHz, between I/O pins	-	8pF	12pF

Typical Characteristic Curves (T_A=25℃)

Figure 1. Peak Pulse Power Rating Curve

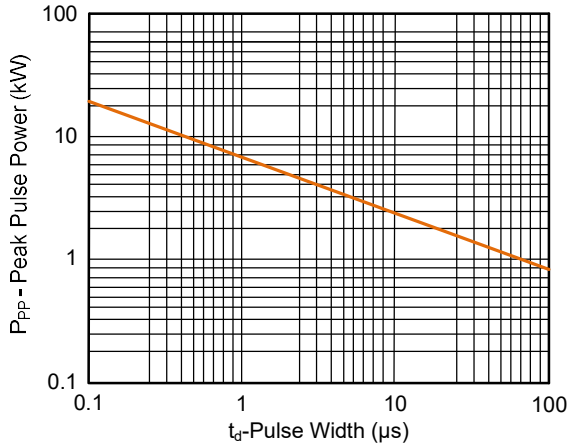


Figure 2. Pulse Derating Curve

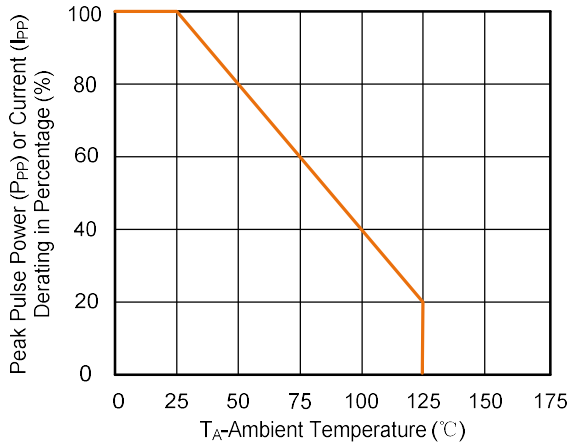


Figure 3. Clamping Voltage vs. Peak Pulse Current

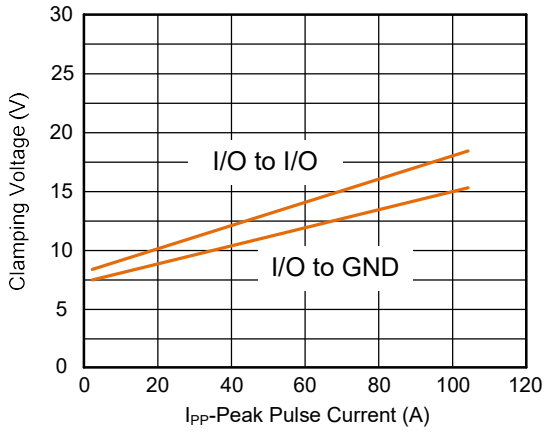


Figure 4. Junction Capacitance vs. Reverse Voltage

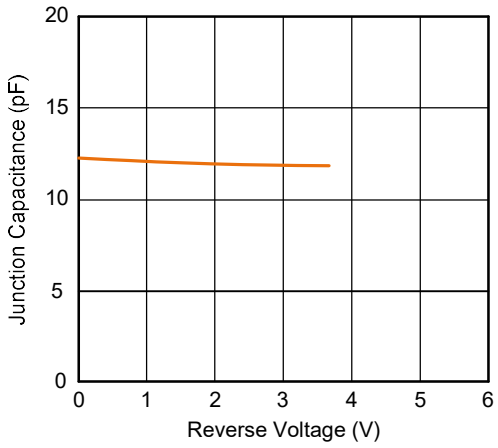


Figure 5. Pulse Waveform (8/20μs)

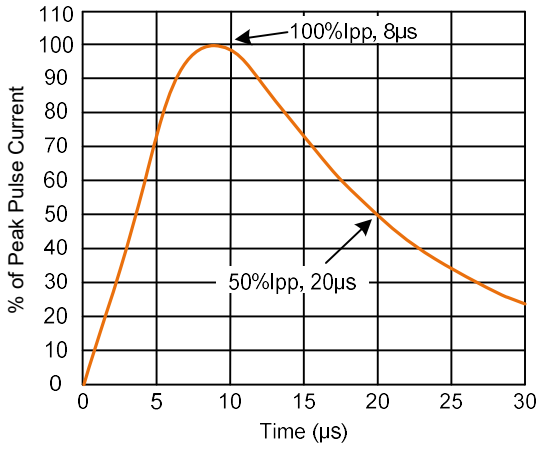
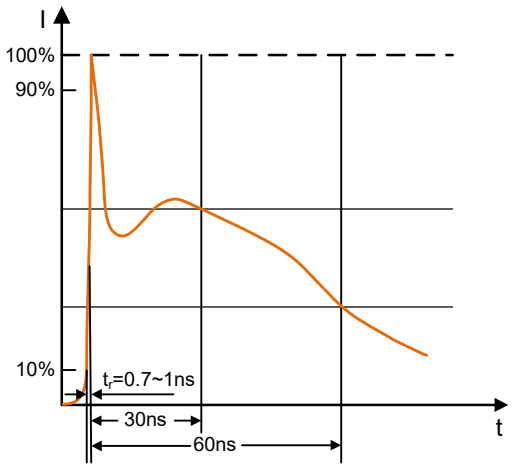
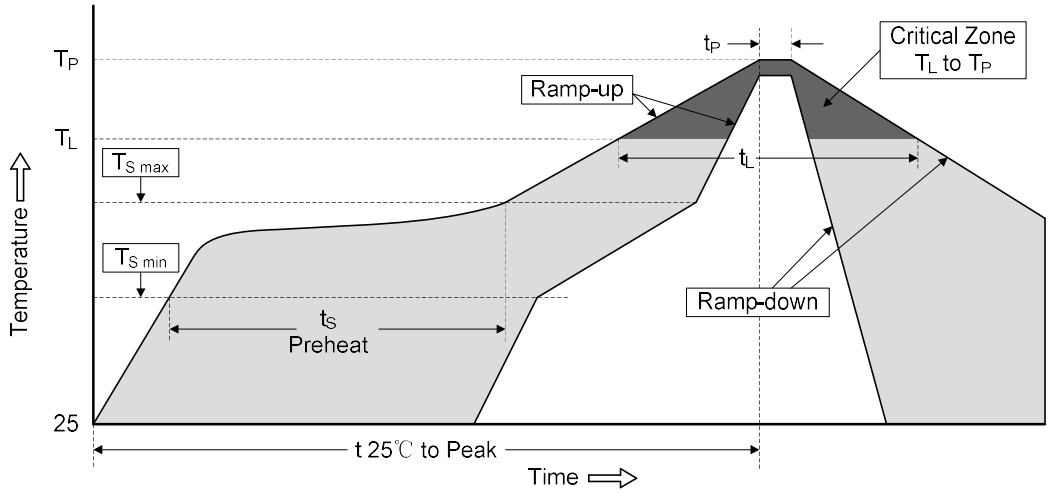


Figure 6. Pulse Waveform (IEC61000-4-2)



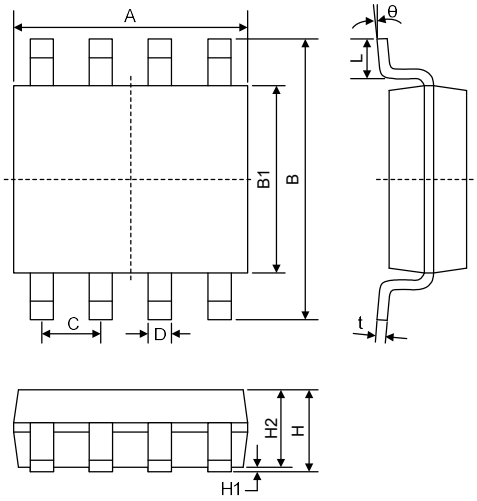
Soldering Parameters

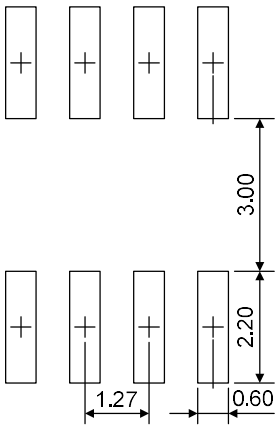
Reflow Soldering



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 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.

Dimensions (SO-8)





Recommended Solder Pad Layout (mm)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.80	5.00	0.189	0.197
B	6.00BSC		0.236BSC	
B1	3.80	4.00	0.150	0.157
C	1.27BSC		0.050BSC	
D	0.31	0.51	0.012	0.020
H	1.35	1.75	0.053	0.069
H1	0.10	0.25	0.004	0.010
H2	1.25	1.50	0.049	0.059
L	0.40	1.04	0.016	0.041
t	0.17	0.25	0.007	0.010
θ	0°	8°	0°	8°