

Description

The LYA2.8-4 is designed to protect low voltage, CMOS semiconductors from transients caused by electrostatic discharge (ESD), cable discharge events (CDE), lightning and other induced voltage surges. It complies with IEC 61000-4-2 (ESD), $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SO-8 package. The combination of low leakage, signal integrity and flow through design makes it an ideal application such as 10/100/1000 Ethernet.

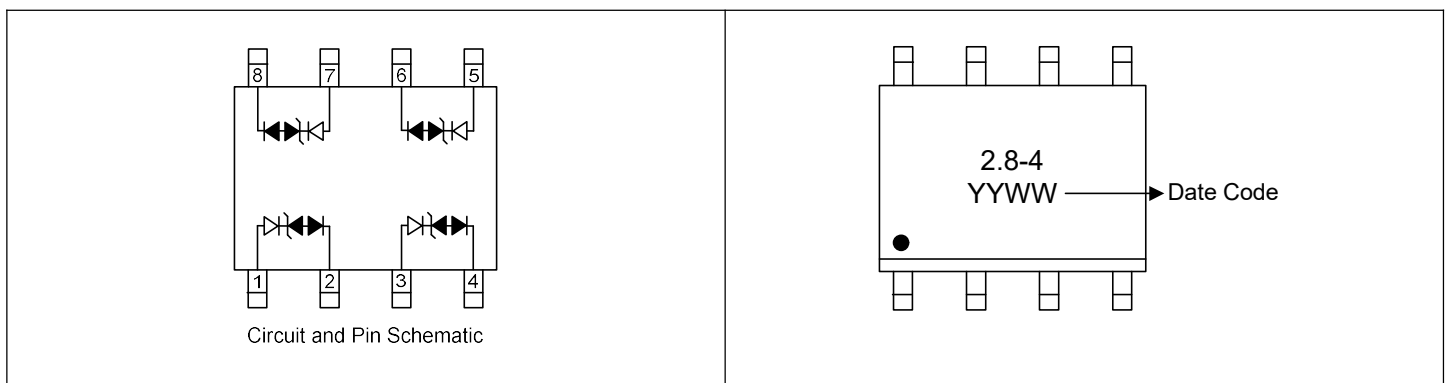
Features

- Low clamping voltage
- Ultra low leakage current
- Operating voltage: 2.8V
- Protects four I/O lines
- RoHS compliant
- IEC-61000-4-2 ESD $\pm 30\text{kV}$ Air, $\pm 30\text{kV}$ Contact
- Packaging: 13 inch reel, 2500pcs/reel

Applications

- 10/100/1000 Ethernet
- Base Station
- Analog Inputs
- Switch Systems
- WAN/LAN Equipment
- Desktops, Servers, and Notebooks

Pin Configuration and Marking



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

Parameter	Symbol	Value
Peak Pulse Power (8/20 μs)	P_{PP}	600W
Peak Pulse Current (8/20 μs)	I_{PP}	30A
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 ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.
Reverse Working Voltage	V_{RWM}		-	-	2.8V
Breakdown Voltage	V_{BR}	$I_T = 2\mu\text{A}$	3.0V	-	-
Reverse Leakage Current	I_R	$V_{RWM} = 2.8\text{V}$	-	-	1 μA
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ (8/20 μs)	-	-	8.5V
		$I_{PP} = 25\text{A}$ (8/20 μs)	-	-	18V
		$I_{PP} = 30\text{A}$ (8/20 μs)	-	-	20V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$	-	2pF	3pF

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

Figure 1. Peak Pulse Power Rating Curve

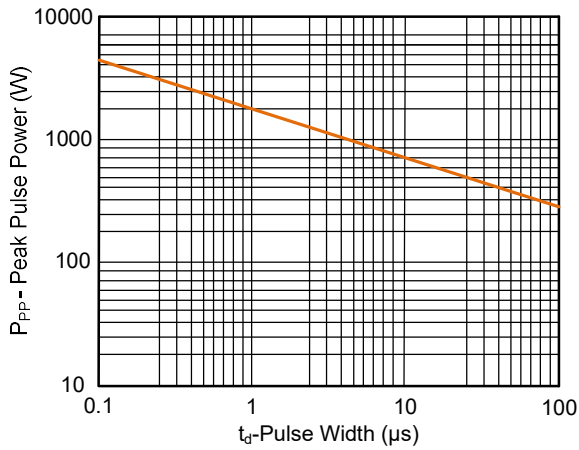


Figure 2. Pulse Derating Curve

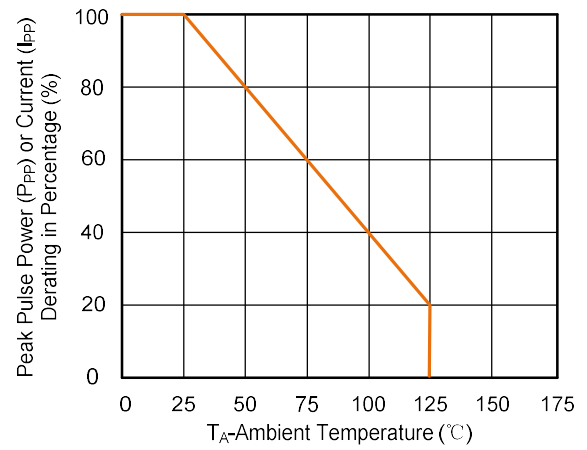


Figure 3. Clamping Voltage vs. Peak Pulse Current

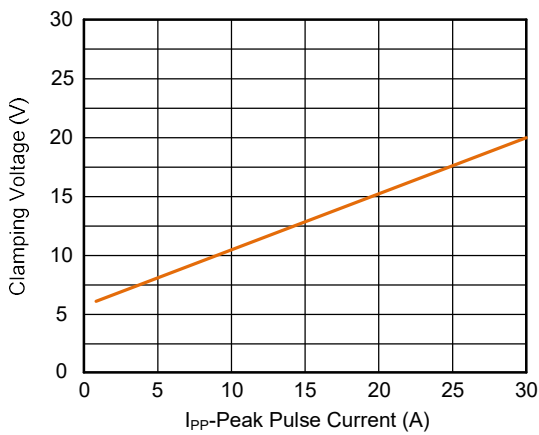


Figure 4. Junction Capacitance vs. Reverse Voltage

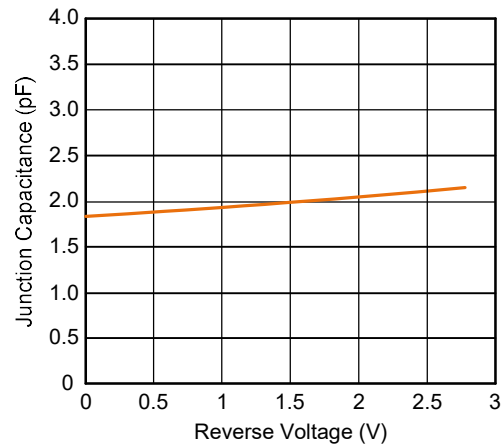


Figure 5. Pulse Waveform (8/20 μs)

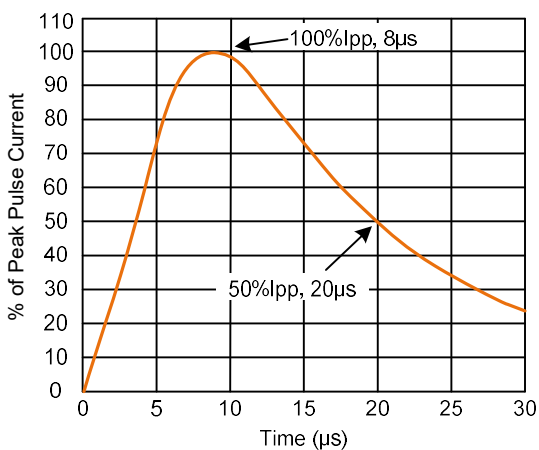
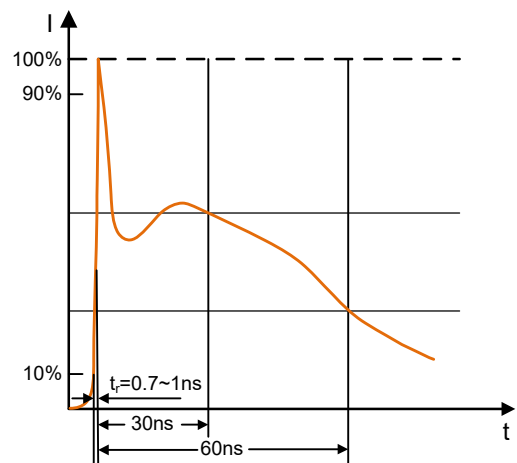
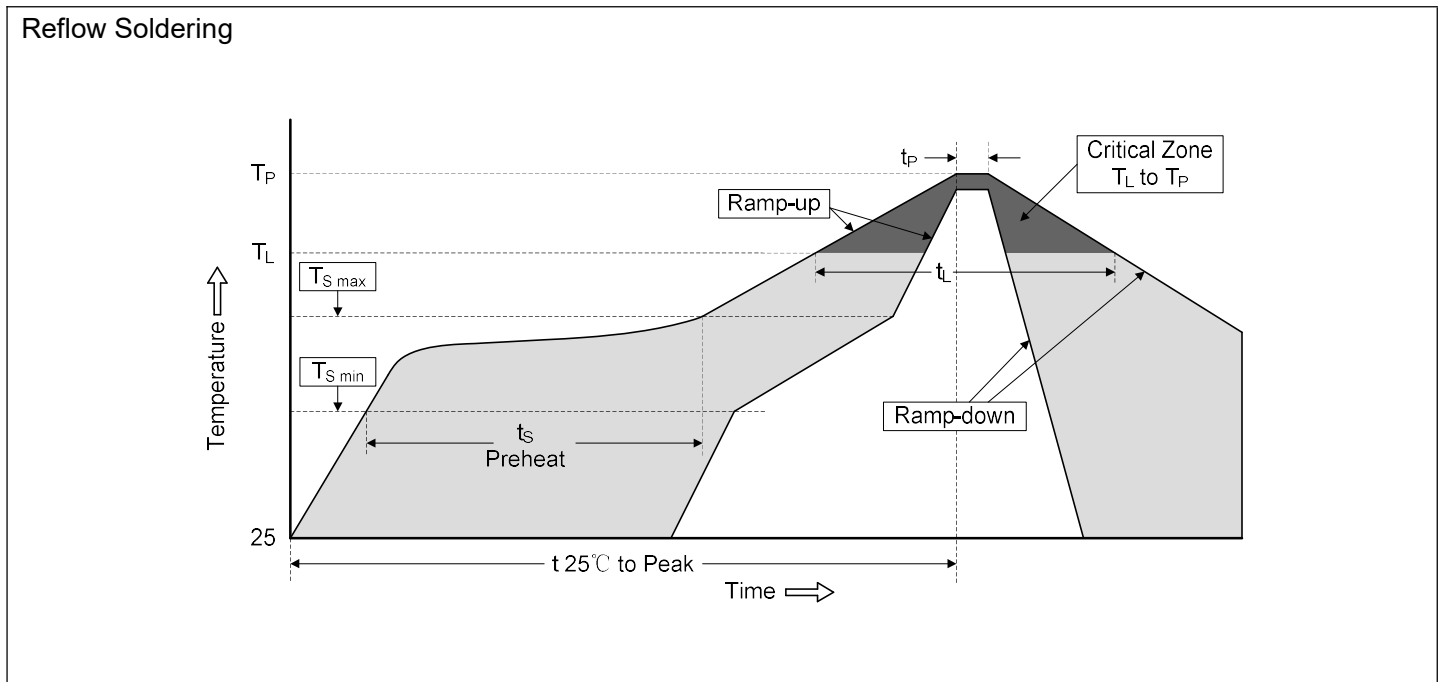


Figure 6. Pulse Waveform (IEC61000-4-2)

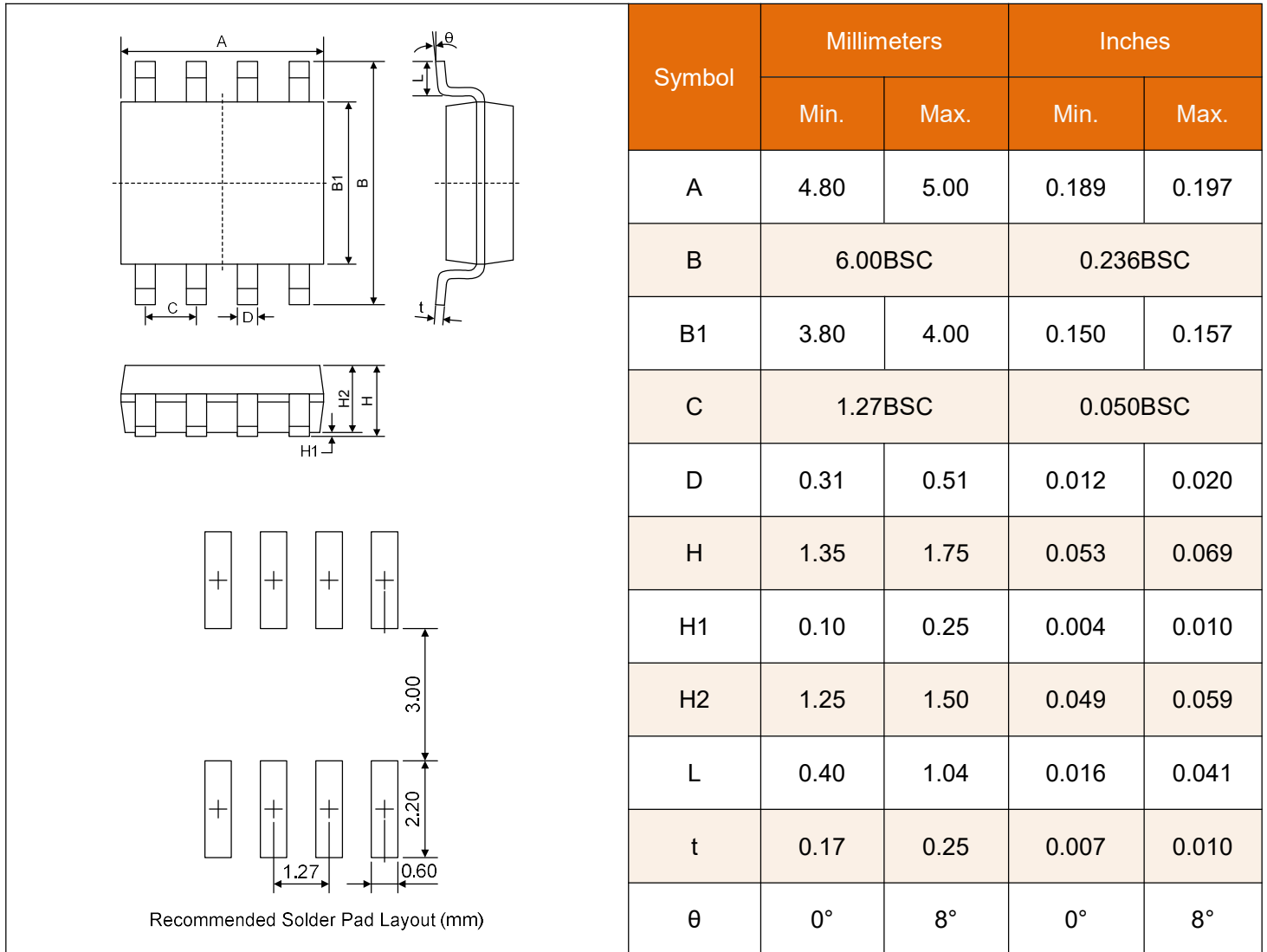


Soldering Parameters



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 (SO-8)



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