Description

The LY23EAXX is a uni-directional TVS diode 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), ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SOT-23 package. It is designed to protect components which are connected to data and transmission lines from voltage surges.

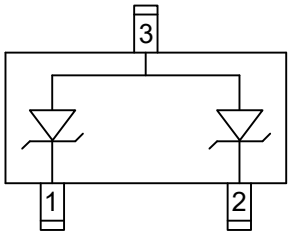
Features

- Low clamping voltage
- Ultra low leakage current
- Operating voltage: 3.3V~36V
- RoHS compliant
- IEC-61000-4-2 ESD ±30kV Air, ±30kV Contact
- Packaging: 7 inch reel, 3000pcs/reel

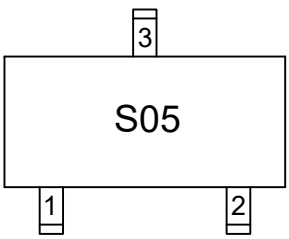
Applications

- Cellular Handsets and Accessories
- Portable Instrumentation
- Personal Digital Assistants (PDAs) and Pagers
- Notebook Computers
- Industrial Equipment
- Peripherals

Pin Configuration and Marking



Circuit and Pin Schematic



Absolute Maximum Ratings (T_A=25℃)

Parameter	Symbol	Value
Peak Pulse Power (8/20μs)	P_{PP}	300W
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℃)

Part Number	Marking	Reverse Working Voltage	Reverse Breakdown Voltage @I_T=1mA	Reverse Leakage Current @V_{RWM}	Clamping Voltage @8/20μs		Peak Pulse Current	Junction Capacitance @V_R=0V, f=1MHz	
		V_{RWM} (V)	V_{BR} (V)	I_R (μA)	V_C (V)		I_{PP} (A)	C_J (pF)	
		Max.	Min.	Max.	@1A	@$I_{PP\ Max.}$	Max.	Typ.	Max.
LY23EA03	S33	3.3	3.5	0.5	5	12	25	-	200
LY23EA05	S05	5.0	6.0	0.5	8	14	23	160	-
LY23EA12	S12	12.0	13.3	0.2	16	27	13	40	-
LY23EA15	S15	15.0	16.7	0.2	22	30	10	48	-
LY23EA24	S24	24.0	27.0	0.2	32	45	6	-	40
LY23EA36	S36	36.0	38.0	0.2	45	75	4	-	35

Typical Characteristic Curves (T_A=25℃)

Figure 1. Peak Pulse Power Rating Curve

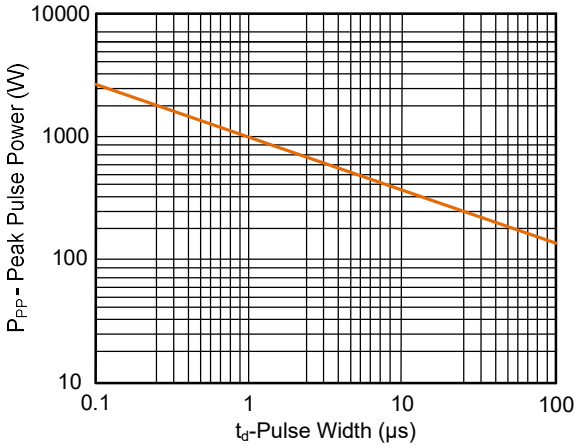


Figure 2. Pulse Derating Curve

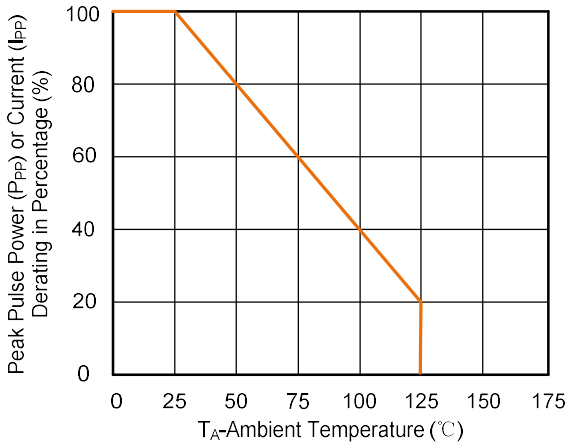


Figure 3. Pulse Waveform (8/20μs)

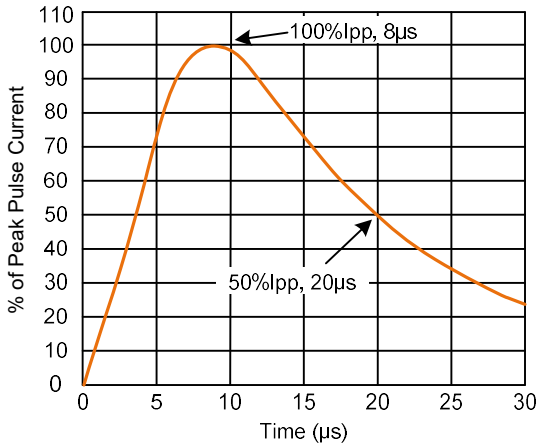
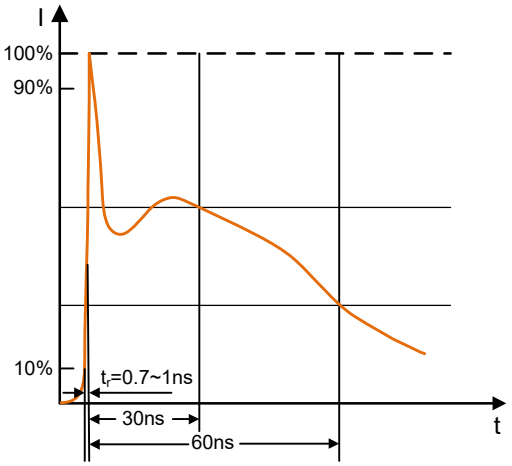
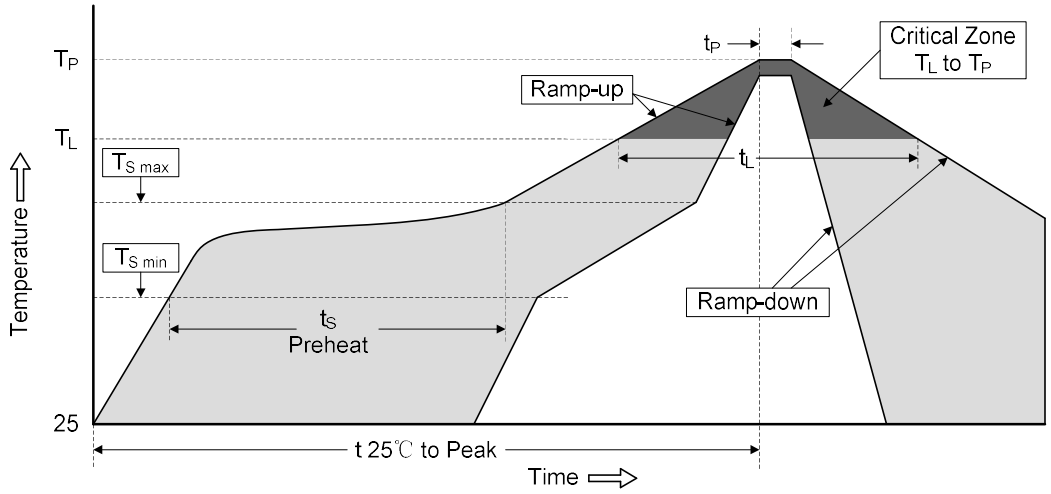


Figure 4. Pulse Waveform (IEC61000-4-2)



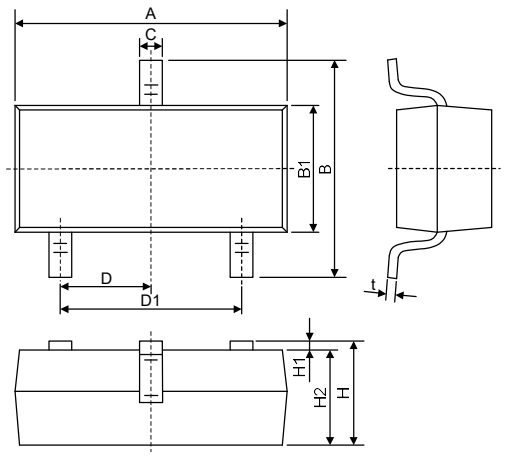
Soldering Parameters

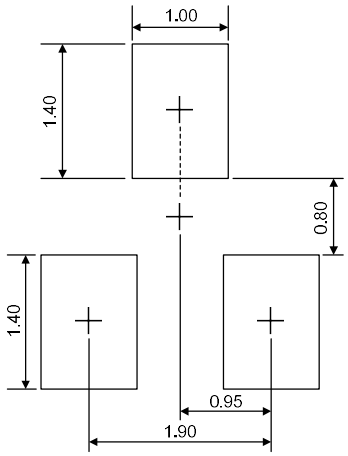
Reflow Soldering



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 (SOT-23)





Recommended Solder Pad Layout (mm)

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.00	0.110	0.118
B	2.25	2.55	0.089	0.100
B1	1.20	1.40	0.047	0.055
C	0.30	0.50	0.012	0.020
D	0.95 TYP		0.037 TYP	
D1	1.80	2.00	0.071	0.079
H	0.90	1.15	0.035	0.045
H1	0.00	0.10	0.000	0.041
H2	0.90	1.05	0.035	0.041
t	0.08	0.15	0.003	0.006