

LY23DC24H1-Q

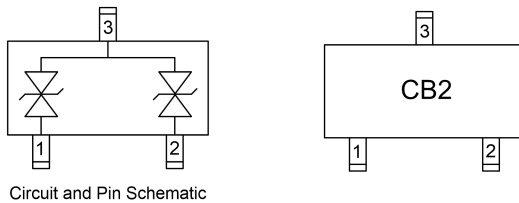
General Purpose ESD Protection



Description

The LY23DC24H1-Q is a bi-directional TVS diode array, utilizing leading 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), $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ 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.

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}	360	W
Peak Pulse Current (8/20 μs)	I_{PP}	9	A
ESD (Air Discharge) ESD (Contact Discharge)	V_{ESD}	± 30 ± 30	kV
Operating Temperature Range	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$

Features

- Low clamping voltage
- Ultra low leakage current
- Operating voltage: 24V
- RoHS compliant
- IEC-61000-4-2 ESD $\pm 30\text{kV}$ Air, $\pm 30\text{kV}$ Contact
- AEC-Q101 qualified

Applications

- Cellular handsets and accessories
- Portable Instrumentation
- Server and Desktop PC
- Notebooks and Handhelds
- Industrial Controls
- Set Top Box

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.
Reverse Working Voltage	V_{RWM}		-	-	24V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	26.7V	-	32V
Reverse Leakage Current	I_R	$V_{RWM}=24\text{V}$	-	-	0.5 μA
Clamping Voltage	V_C	$I_{PP}=9\text{A}$ (8/20 μs)	-	40V	-
Junction Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$	-	18pF	-

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

Figure 1:
Peak Pulse Power Rating Curve

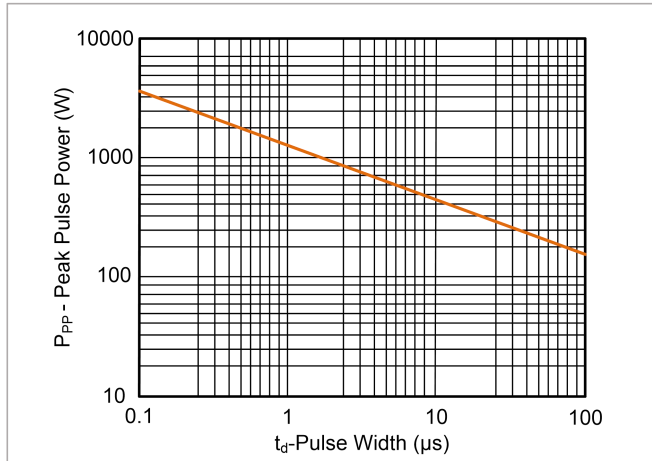


Figure 2:
Pulse Derating Curve

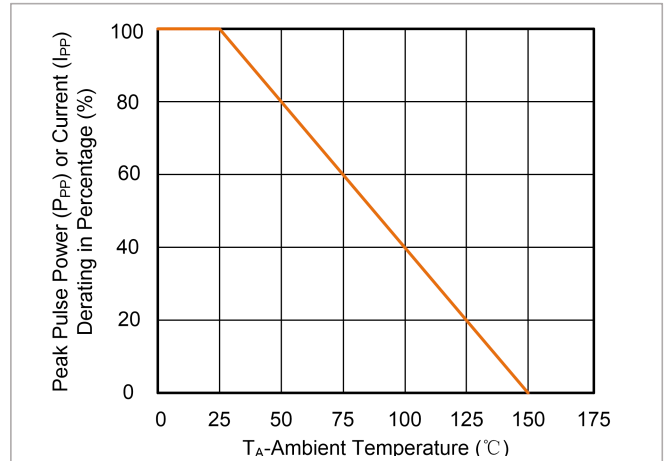


Figure 3:
Pulse Waveform (8/20 μs)

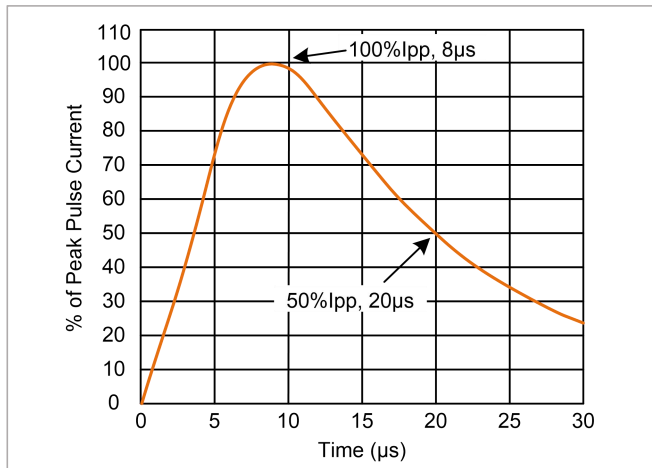
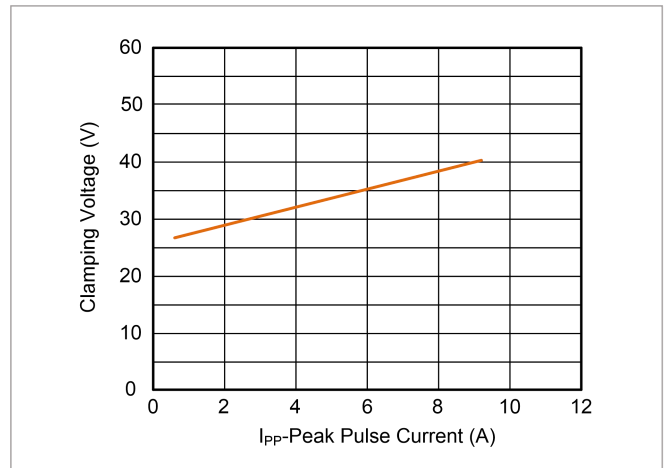


Figure 4:
Clamping Voltage vs. Peak Pulse Current

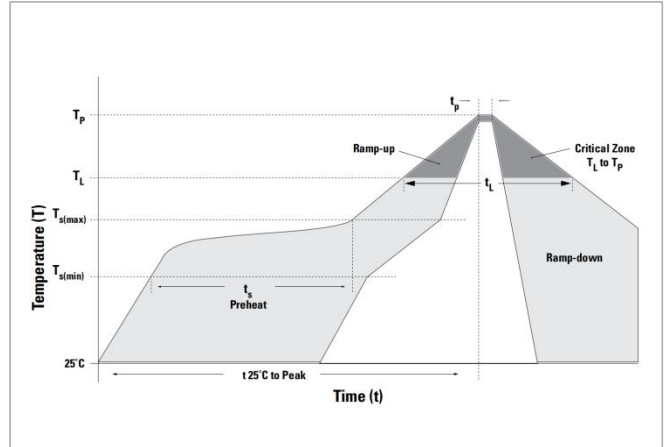


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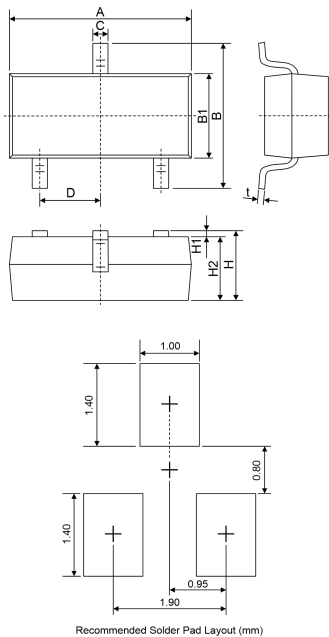
Soldering Parameters

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

SOT-23



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	0.60	0.012	0.024
D	0.95 BSC		0.037 BSC	
H	0.90	1.20	0.035	0.047
H1	0.00	0.10	0.000	0.004
H2	0.90	1.10	0.035	0.043
t	0.08	0.25	0.003	0.010

Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
LY23DC24H1-Q	SOT-23	3000	Tape & Reel – 8mm tape/7" reel	EIA STD RS-481

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