Description

The ESD323DCXXUL is a bi-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 voltage sensitive high-speed data lines. It complies with IEC 61000-4-2 (ESD), ±30kV air and ±30kV contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make it a ideal choice to protect cell phone, wireless systems, and communication equipment.

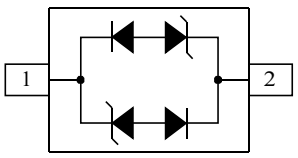
Features

- Low clamping voltage
- Ultra low leakage current
- Operating voltage: 3.3V~24V
- RoHS compliant
- IEC-61000-4-2 ESD ±30kV Air, ±30kV Contact
- Packaging: 7 inch reel, 3000pcs/reel

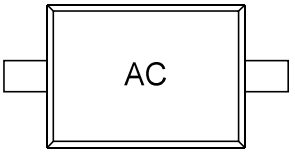
Applications

- USB Ports
- Smart Phones
- Wireless Systems
- Ethernet 10/100/1000 Bast T

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.
ESD323DC03UL	CC	3.3	4.4	0.2	7	16	21	1
ESD323DC05UL	AC	5.0	6.0	0.2	10	20	18	1
ESD323DC08UL	BC	8.0	8.5	0.2	9	19.5	18	1
ESD323DC12UL	DC	12.0	13.3	0.2	18	25	14	1
ESD323DC15UL	EC	15.0	16.7	0.2	21	30	10	1
ESD323DC24UL	HC	24.0	27.0	0.2	36	55	6	1

Typical Characteristic Curves (T_A=25℃)

Figure 1. Peak Pulse Power Rating Curve

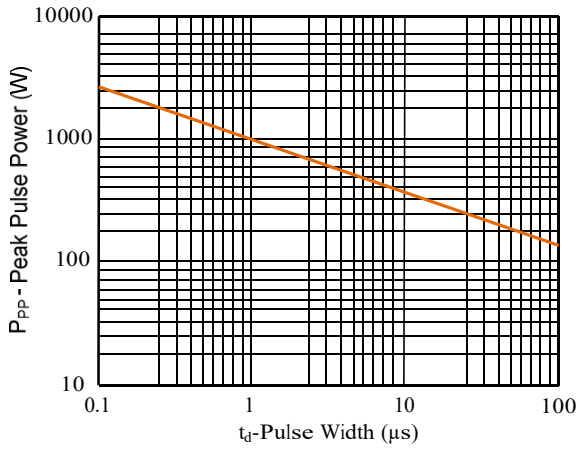


Figure 2. Pulse Derating Curve

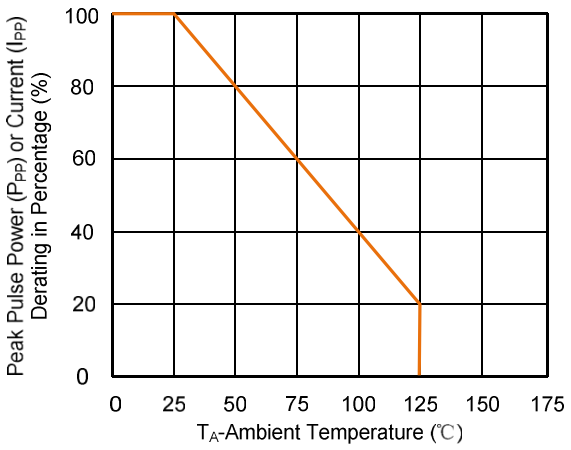


Figure 3. Pulse Waveform (8/20μs)

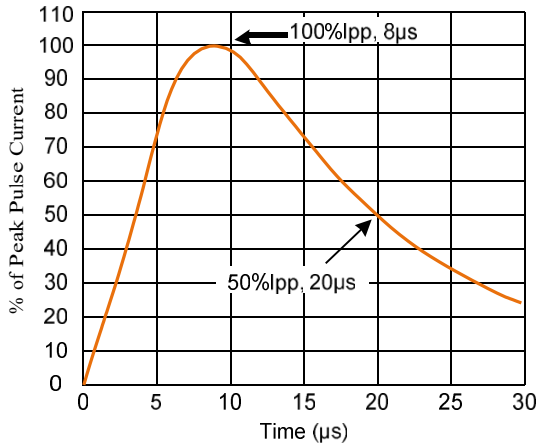
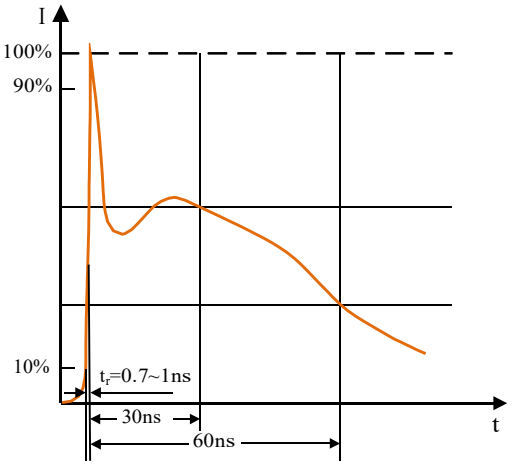
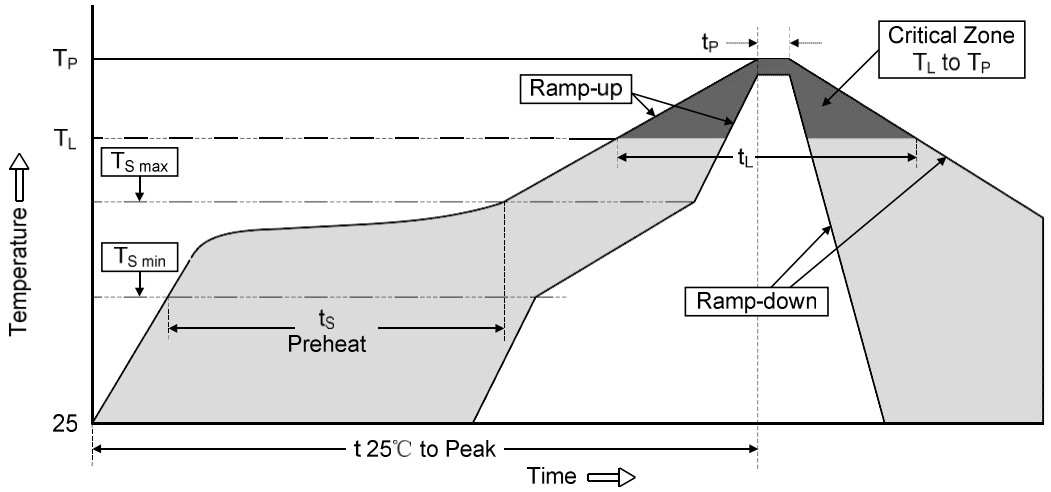


Figure 4. Pulse Waveform (IEC61000-4-2)



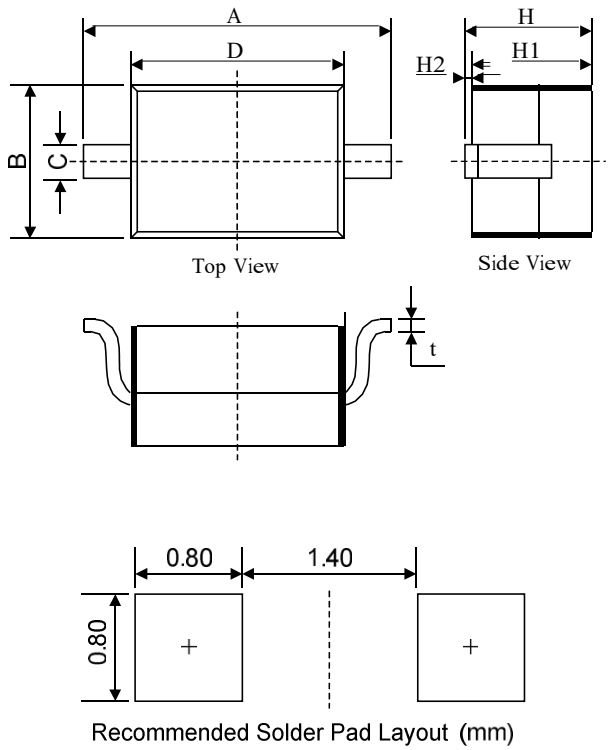
Soldering Parameters

Reflow Soldering



Profile Feature	Pb-Free AssembESD
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 (SOD-323)



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.30	2.80	0.091	0.110
B	1.15	1.40	0.045	0.055
C	0.25	0.40	0.001	0.016
D	1.60	1.80	0.063	0.071
H	0.80	1.10	0.031	0.043
H1	0.80	0.90	0..031	0.035
H2	0.00	0.10	0.000	0.004
t	0.08	0.18	0.003	0.007