SuperESD - ESD3Z12T1G

1. Description

The ESD3Z12T1G is a Transient Voltage Suppressor that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast Transients (EFT), and lightning. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 450W Peak pulse Power (8/20us)
- RoHS compliance
- Unidirectional configuration
- Low clamping voltage
- Working voltage: 3.3V/5V/7V/12V/15V/18V/24V/36V

3. Applications

- Interfaces
  - USB 2.0/1.1
  - GPIO
  - Ethernet 10/100/1000 Mbps
  - Audio
  - Pushbuttons
- End Equipment
  - Industrial and Serve Robots
  - Laptops and Desktops
  - TV and Monitors
  - Wearables
  - Handheld-wireless Systems

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
ESD3Z12T1G	SOD323	|12W	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

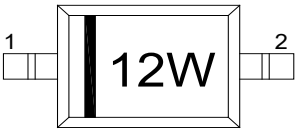
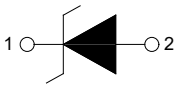
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	450	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±30	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

6.2. Electrical Characteristics

Symbol	Description
V_{RWM}	Rated reverse stand-off voltage
V_{BR}	Minimum breakdown voltage @I_T = 1mA
V_{CL}	Clamping voltage
I_{PP}	Maximum peak pulse current
I_R	Reverse leakage current @V_{RWM}
C_O	Typical line capacitance (V_{IO}=0V, V_{P-P} = 30mV, f = 1MHz)

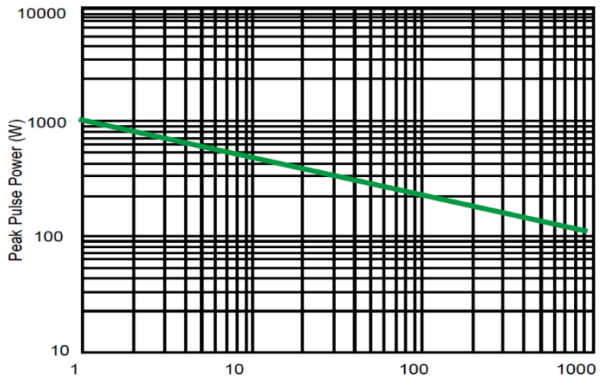
Table-4 Parameters Description

At TA = 25℃ unless otherwise noted

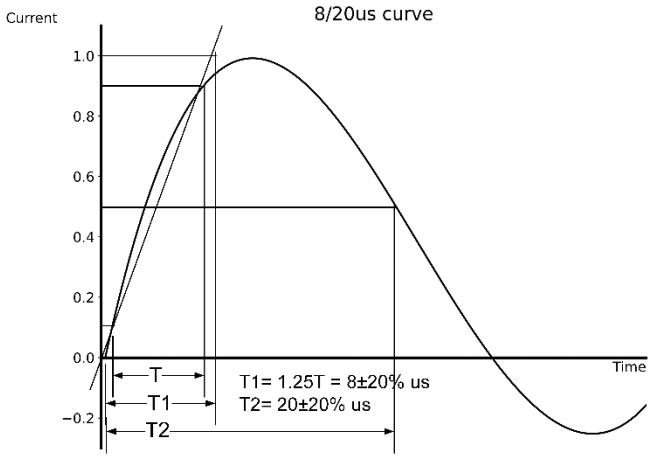
Part Number	V_{RWM} (Max.)	V_{BR}(Min.)	V_{CL}@I=1A (Typ.)	I_{PP} (Max.)	V_{CL}@I=I_{PP} (Typ.)	I_R (Max.)	C_O(Typ.)
	(V)	(V)	(V)	(A)	(V)	(uA)	(pF)
ESD3Z12T1G	12.0	13.3	16.0	15	20.0	1.0	100

Table-5 Electrical Characteristics for All Series

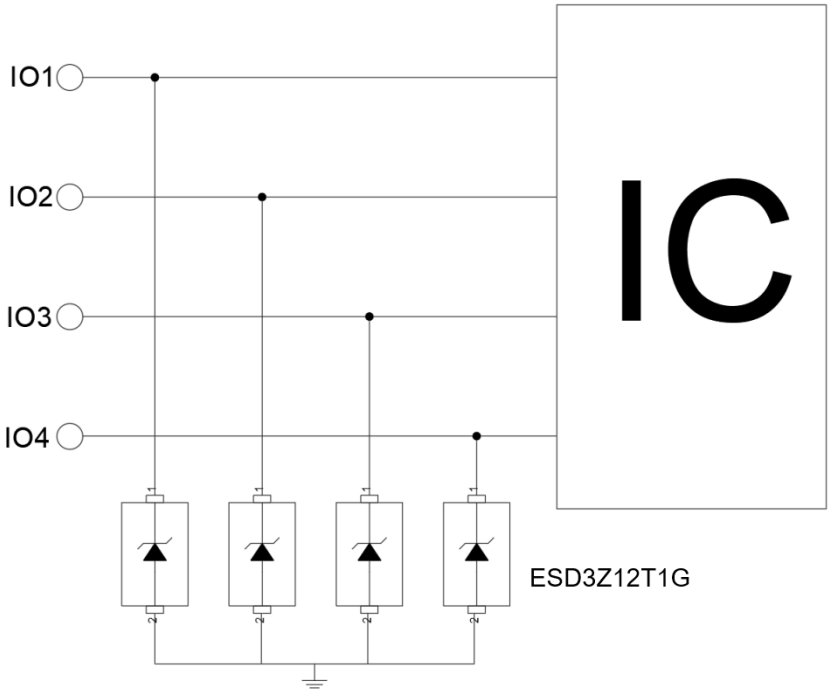
7. Typical Characteristic



Non-repetitive peak pulse power vs. pulse time



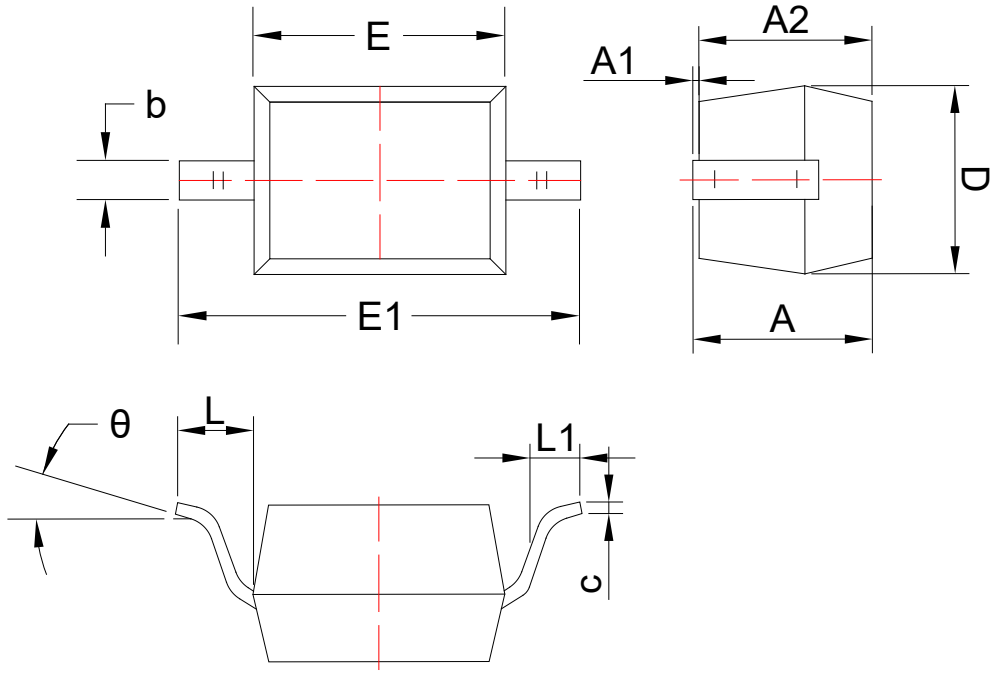
8. Typical Application



Pic-3 Typical Internet 1G Interface Application

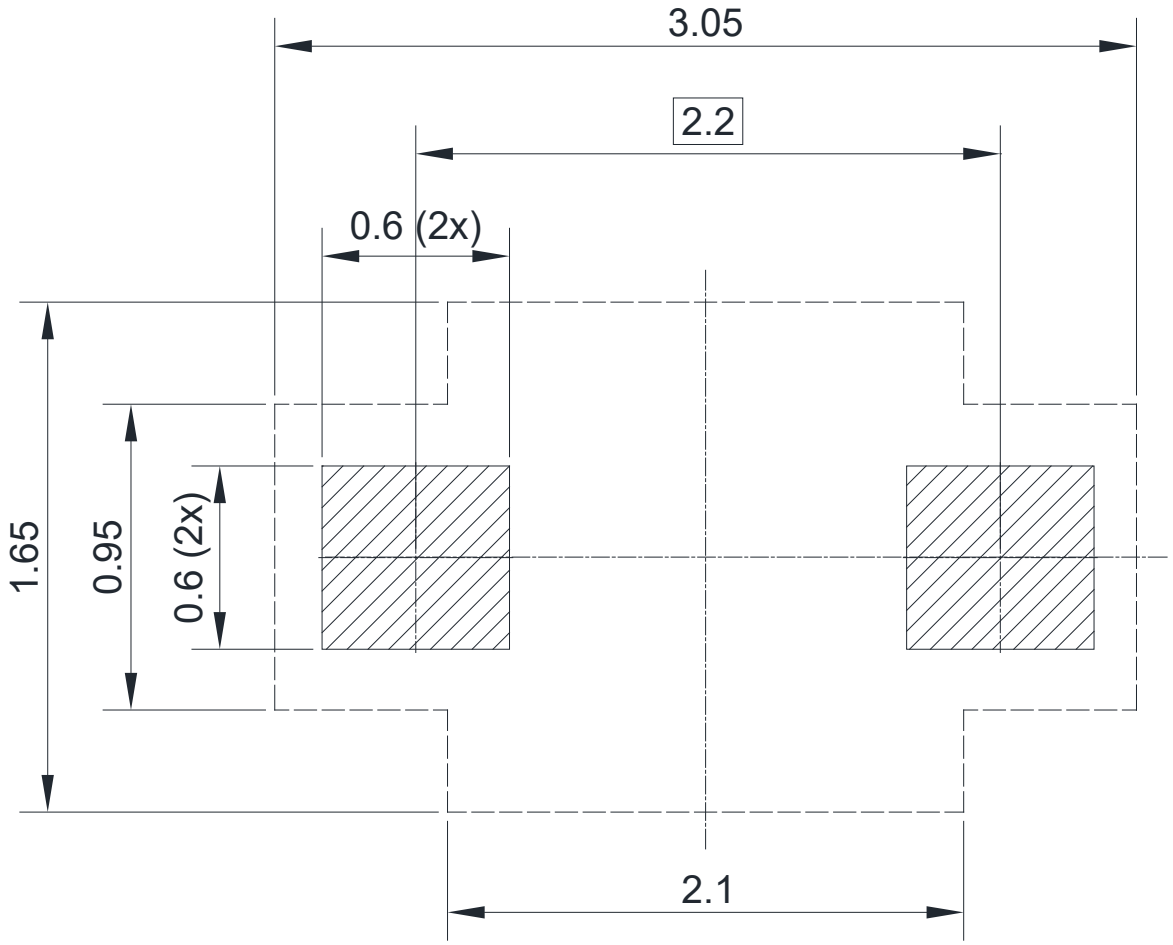
9. Dimension (SOD-323)

POD(Z)



Symbol	Dimensions in Millimeters	
	Min.	Max.
A	0.80	1.00
A1	0.00	0.14
A2	0.66	0.97
b	0.25	0.35
c	0.08	0.18
D	1.20	1.40
E	1.55	1.80
E1	2.50	2.80
L	0.475REF	
L1	0.25	0.40
θ	0°	8°

10. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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