

SuperESD – ESD5Z12T1G

1. Description

The ESD5Z12T1G 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 methods.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- 200W Peak pulse Power (8/20us)
- RoHS compliance
- Unidirectional configuration
- Low clamping voltage
- Low leakage current
- Protects one power or I/O

3. Applications

- Portable electronics
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems
- Digital cameras

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel
ESD5Z12T1G	SOD523	N3	Halogen free	Tape & Reel	3000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

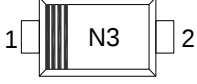
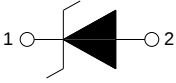
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO	Note1 	
2	GND	Connect to GND		

Table-2 Pin configuration

Note1: This diagram is only an electrical schematic, and the actual pin size is based on POD.

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}	-	200	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}	Typical Clamping voltage
I_{PP}	Maximum peak pulse current
I_R	Reverse leakage current @ V_{RWM}
C_O	Typical line capacitance ($V_{IO}=0V$, $V_{P-P} = 30mV$, $f = 1MHz$)

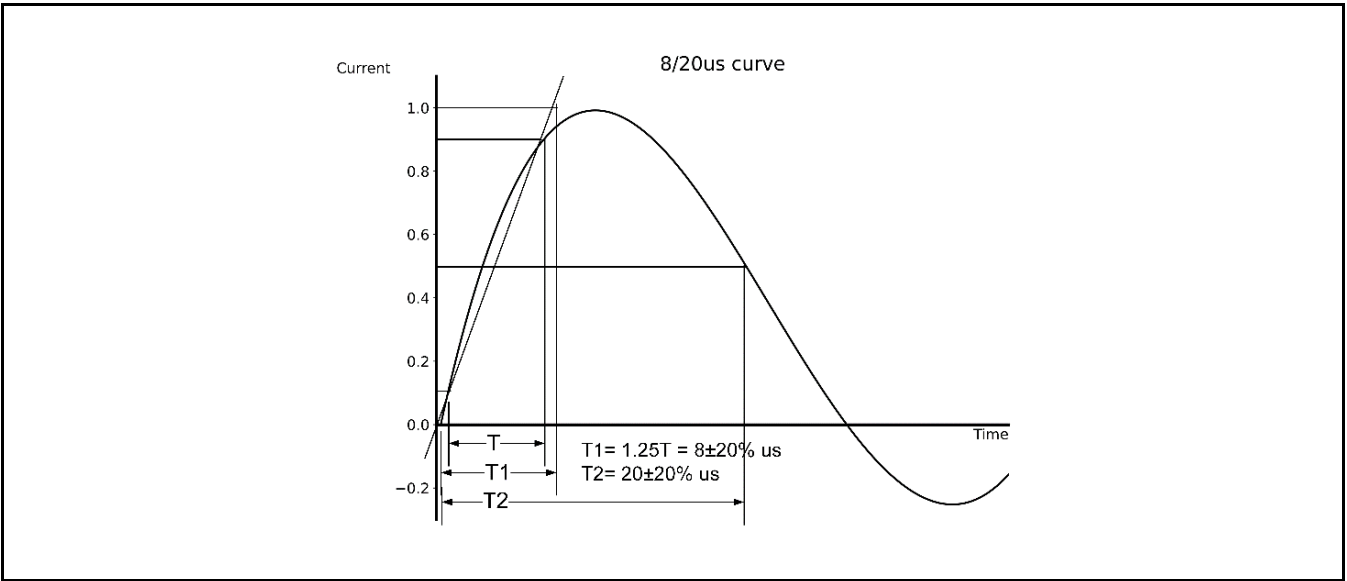
Table-4 Parameters Description

At $T_A = 25^{\circ}C$ unless otherwise noted

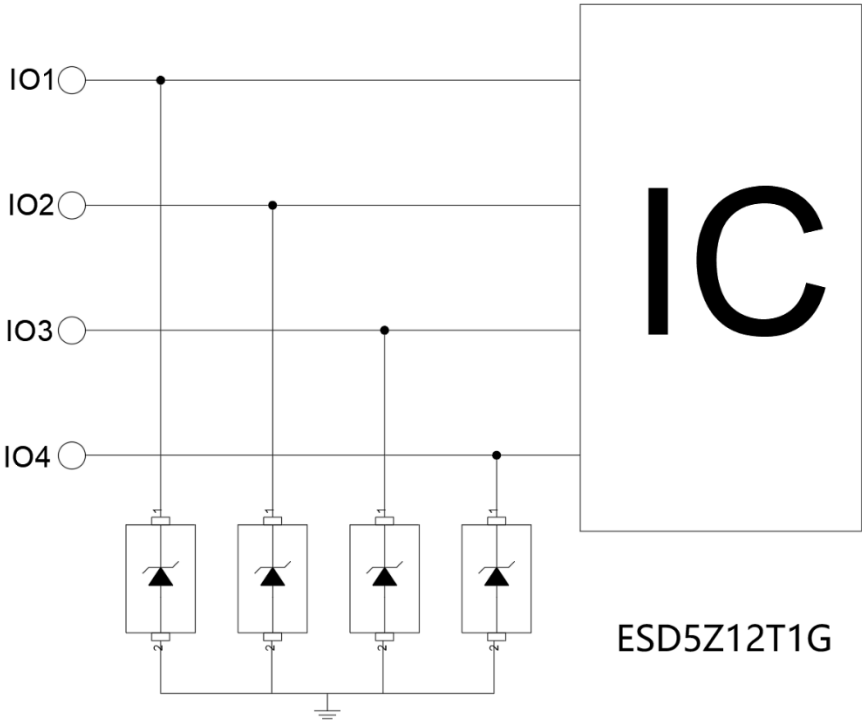
Part Number	V_{RWM} (Max.)	V_{BR} (Min.)	$V_{CL}@I=1A$ (Typ.)	I_{PP} (Max.)	$V_{CL}@I=I_{PP}$ (Typ.)	I_R (Max.)	C_O (Typ.)
	(V)	(V)	(V)	(A)	(V)	(uA)	(pF)
ESD5Z12T1G	12.0	13.3	20.0	8	23	1.0	70

Table-5 Electrical Characteristics for All Series

7. Typical Characteristic



8. Typical Application



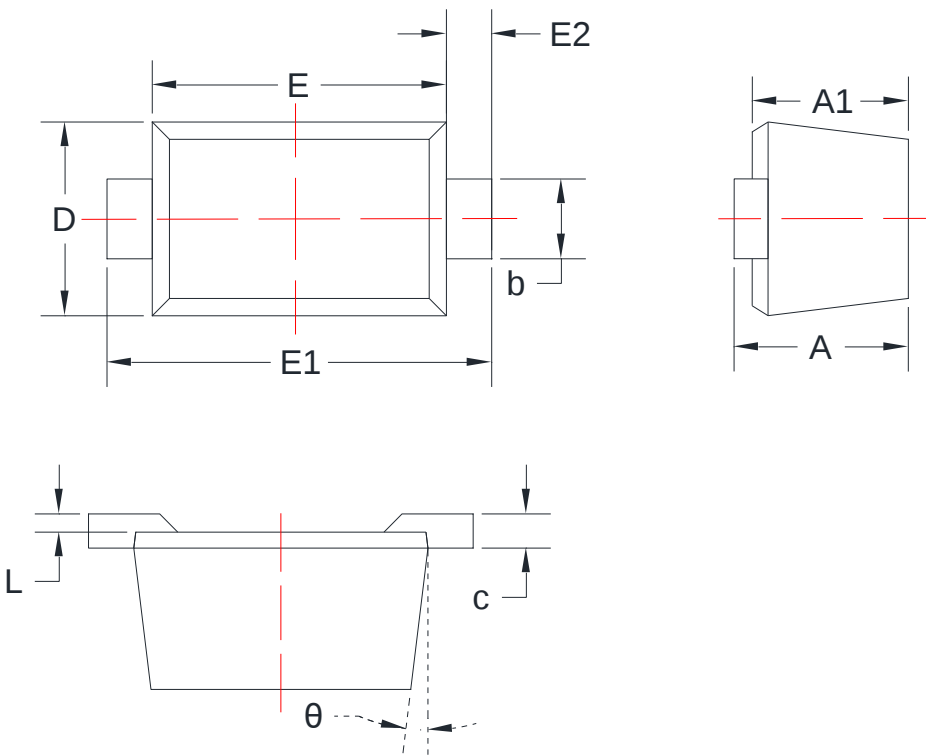
Pic-3 Typical Internet 1G Interface Application

ESD5Z12T1G

Rev-1.4

9. Dimension (SOD-523)

POD A(SX)

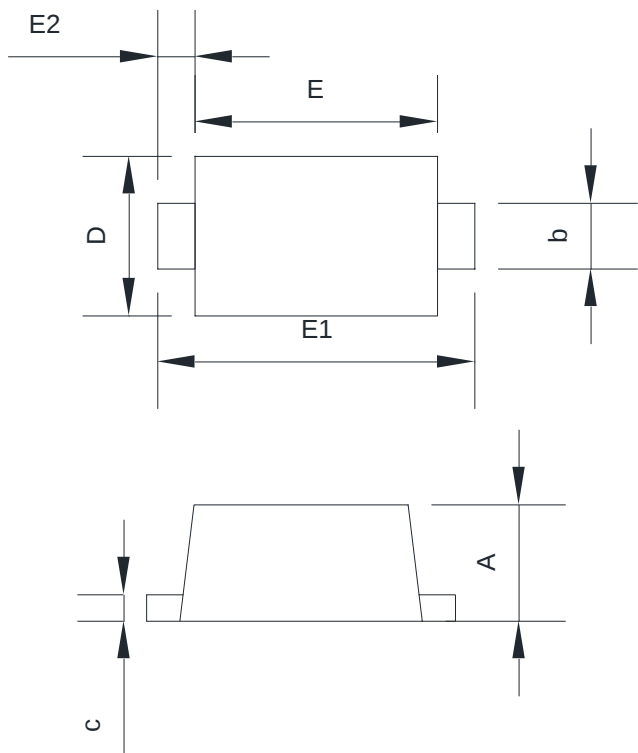


Symbol	Dimensions in Millimeters	
	Min.	Max.
A	0.50	0.73
A1	0.45	0.70
b	0.25	0.38
c	0.08	0.20
D	0.70	0.90
E	1.10	1.30
E1	1.50	1.70
E2	0.10	0.30
L	0.00	0.07
θ	7° REF	

ESD5Z12T1G

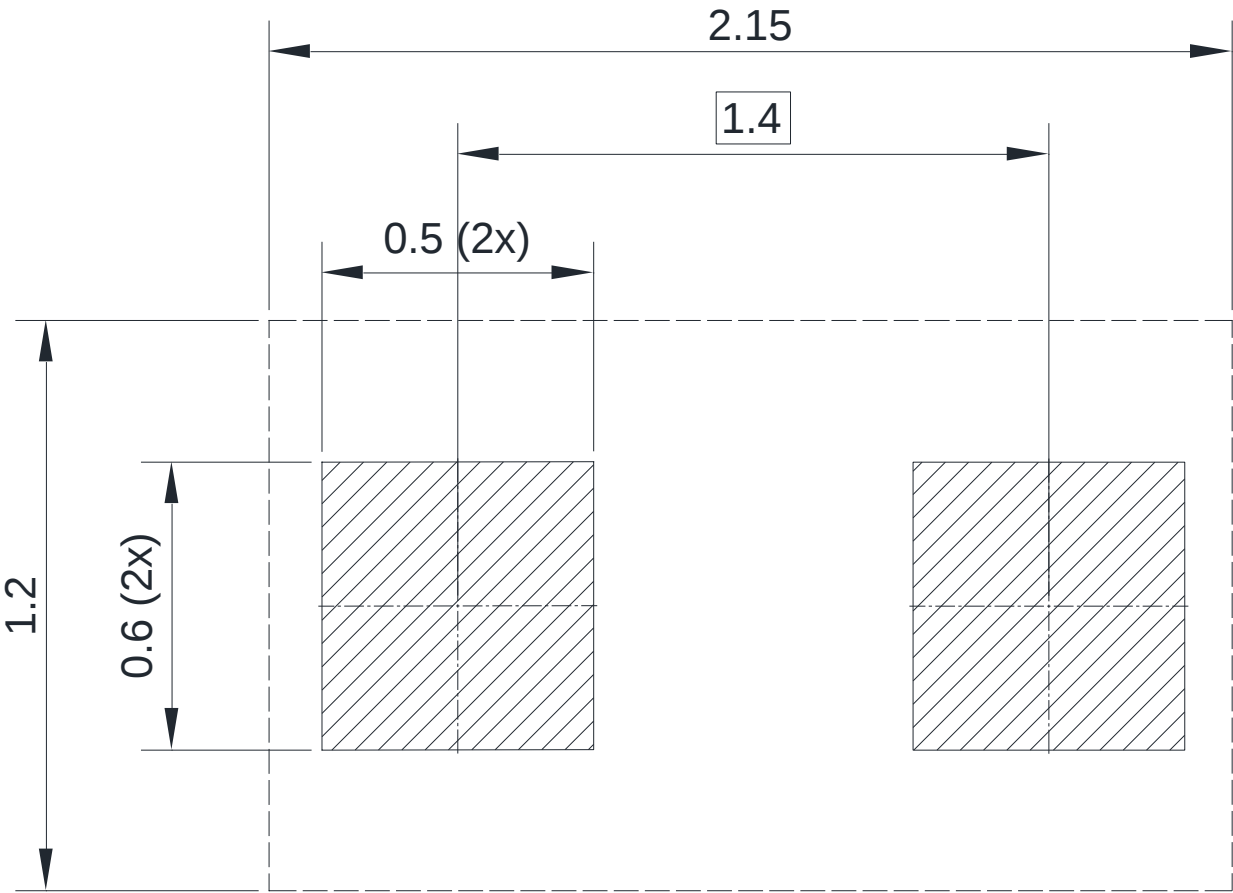
Rev-1.4

POD B(H)



Symbol	Dimensions in Millimeters	
	Min.	Max.
A	0.50	0.70
b	0.25	0.35
c	0.10	0.20
D	0.75	0.85
E	1.10	1.30
E1	1.50	1.70
E2	0.10	0.30

10. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

DISCLAIMER

ELECSUPER PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on www.elecsuper.com or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper products.