

## SuperESD - TUSD03FBX

### 1. Description

The TUSD03FBX Series are ultra low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and SMART phones. This series is available bidirectional configurations and is rated at 350 Watts for an 8/20  $\mu$  s waveshape. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers a ultra low capacitance and low leakage current in a miniature SOD-323 package.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - $\pm$ 25kV Contact Discharge
  - $\pm$ 25kV Air Discharge
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- 200W Peak pulse Power (8/20us)
- RoHS compliance
- Bidirectional configuration
- IO Capacitance: 0.8pF (Typical)
- Low clamping voltage

### 3. Applications

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

### 4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
TUSD03FBX	SOD323	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches
<b>Marking for the TUSD03FBX series</b>						
$V_{RWM}$	3V			5V		
Marking	CC			AC		

Table-1 Ordering information

## 5. Pin Configuration and Functions

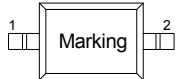
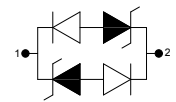
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		

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°C	P <sub>pk</sub>	-	200	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±25	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±25	kV
Junction temperature	T <sub>J</sub>	-	150	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Table-3 Absolute Maximum rating

## 6.2. Electrical Characteristics

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

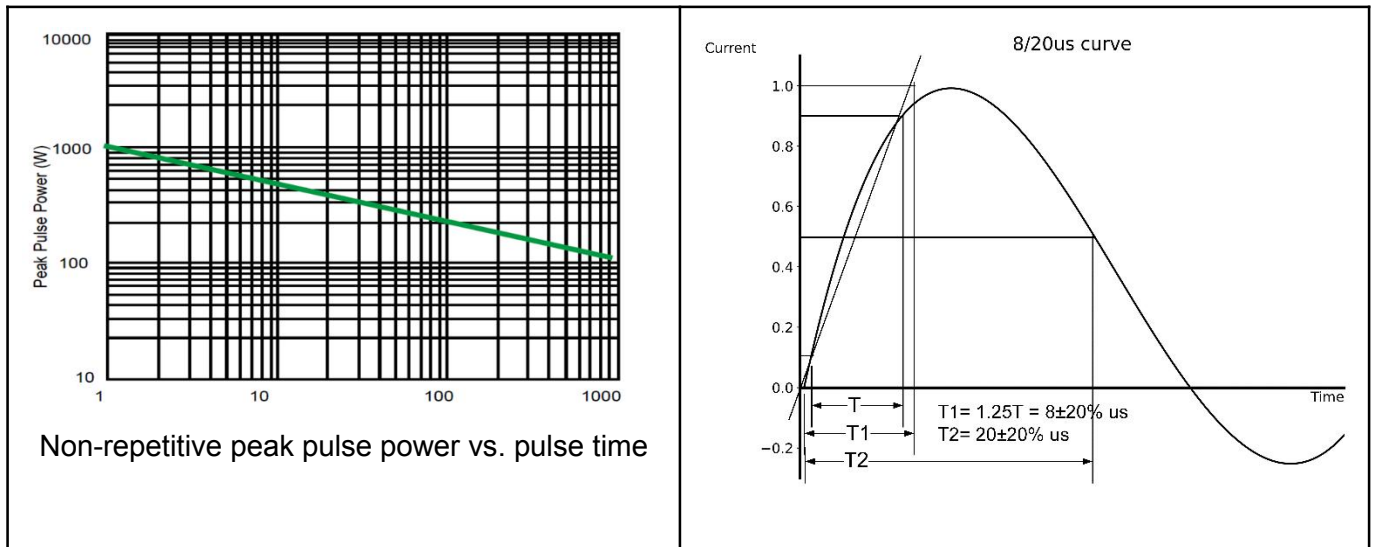
Table-4 Parameters Description

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

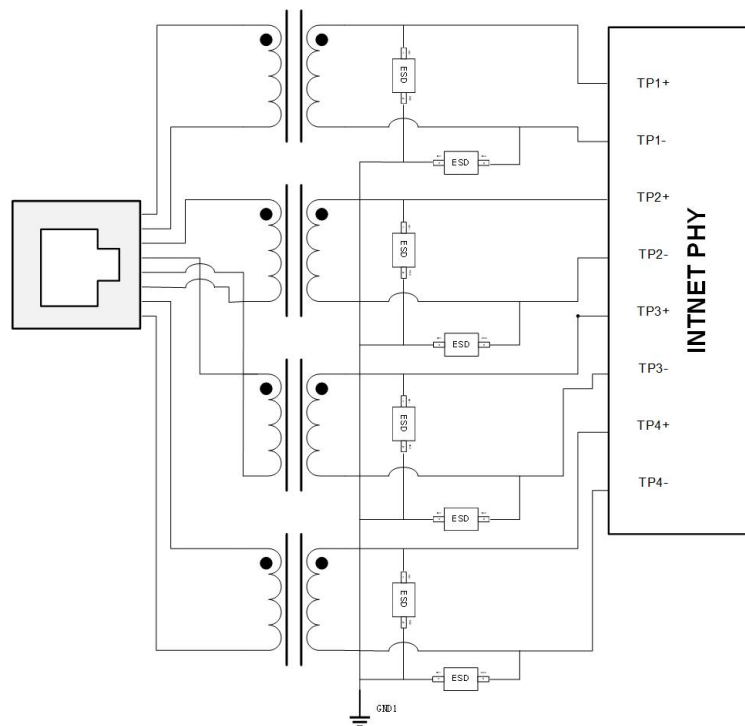
Part Number	$V_{RWM}$ (Max.)	$V_{BR}$ (Min.)	$V_{CL}@I=1A$ (Typ.)	$I_{PP}$ (Max.)	$V_{CL}@I=I_{PP}$ (Typ.)	$I_R$ (Max.)	$C_O$ (Typ.)
	(V)	(V)	(V)	(A)	(V)	( $\mu\text{A}$ )	(pF)
TUSD03FBX	3.0	3.8	7.0	10.0	16.0	1.0	0.8
TUSD05FBX	5.0	6.5	8.0	10.0	16.0	1.0	0.8

Table-5 Electrical Characteristics for All Series

### 7. Typical Characteristic

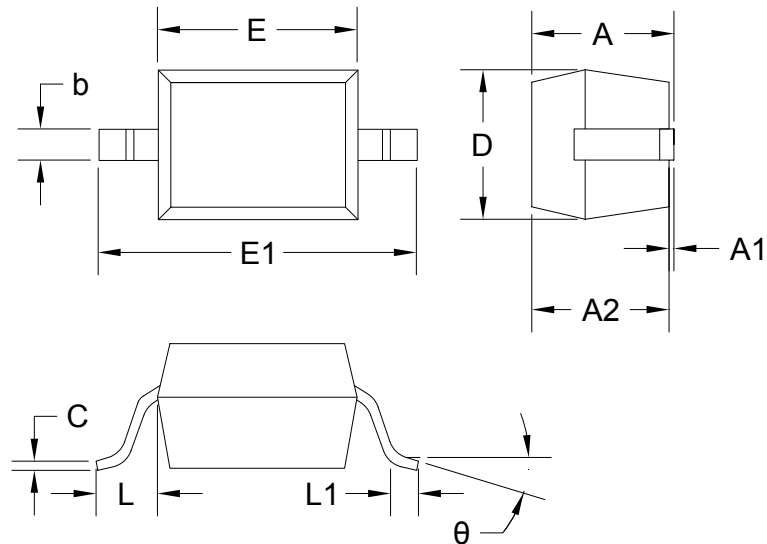


### 8. Typical Application



Pic-3 Typical Internet 1G Interface Application

9. Dimension (SOD-323)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
C	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

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