

## 1. Description

The PUSB3AB6Z(ES) is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge). It incorporates 6 pairs of ultra-low capacitance steering diodes plus a TVS diode.

## 2. Features

- IEC 61000-4-2 Level 6 ESD Protection
  - ±15kV Contact Discharge
  - ±15kV Air Discharge
- 50W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 3.3V
- Low leakage current
- RoHS compliant
- Protecting six bi-directional lines
- Ultra Low Junction capacitance: 0.15pF Typ. (IO-GND)

## 3. Applications

- USB 3.0 and 3.1
- HDMI 1.3, HDMI 1.4 and HDMI 2.0
- Portable Electronics and Notebooks
- PCI Express
- Serial ATA
- Display Ports

## 4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
PUSB3AB6Z(ES)	DFN2111-7L	.3V6B	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7inches

Table-1 Ordering information

## 5. Pin Configuration and Functions

Pin	Name	Description	Outline	Circuit Diagram
2	GND	Connect to GND		
Others	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	$P_{pk}$	-	50	W
Peak pulse current (tp=8/20us)@25°C	$I_{PP}$	-	6	A
ESD (IEC61000-4-2 air discharge) @25°C	$V_{ESD}$	-	$\pm 15$	kV
ESD (IEC61000-4-2 contact discharge) @25°C	$V_{ESD}$	-	$\pm 15$	kV
Junction temperature	$T_J$	-	150	°C
Operating temperature	$T_{OP}$	-40	125	°C
Storage temperature	$T_{STG}$	-55	150	°C
Lead temperature	$T_L$	-	260	°C

Table-3 Absolute Maximum rating

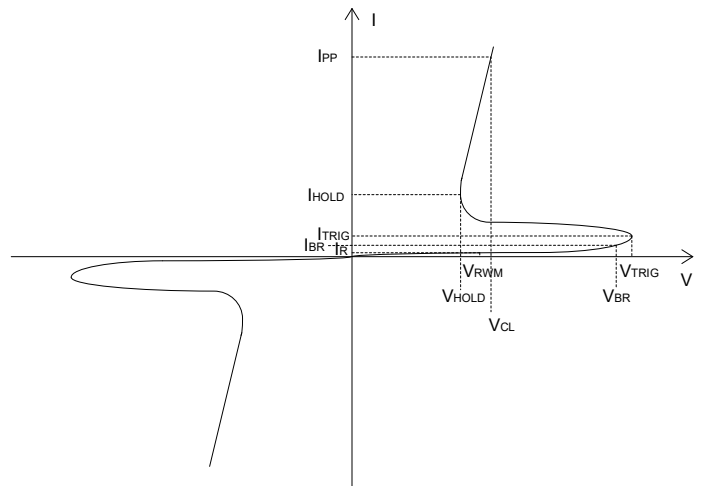
## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$			3.3	5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	5.5	8.0		V
Reverse Leakage Current	$I_R$	$V_{RWM}=3.3V$		1	100	nA
Clamping Voltage	$V_{CL}$	$I_{PP}=1A$ ; $t_p=8/20us$		2.5	4.0	V
Clamping Voltage	$V_{CL}$	$I_{PP}=6A$ ; $t_p=8/20us$		5.5	7.0	V
Dynamic Resistance	$R_{dyn}$	$I_R = 10A$ ; $T_{amb} = 25^\circ C$		0.3	0.35	$\Omega$
Junction Capacitance	$C_J$	$V_R=0V$ ; $f=1MHz$ ; IO-GND		0.15	0.20	pF

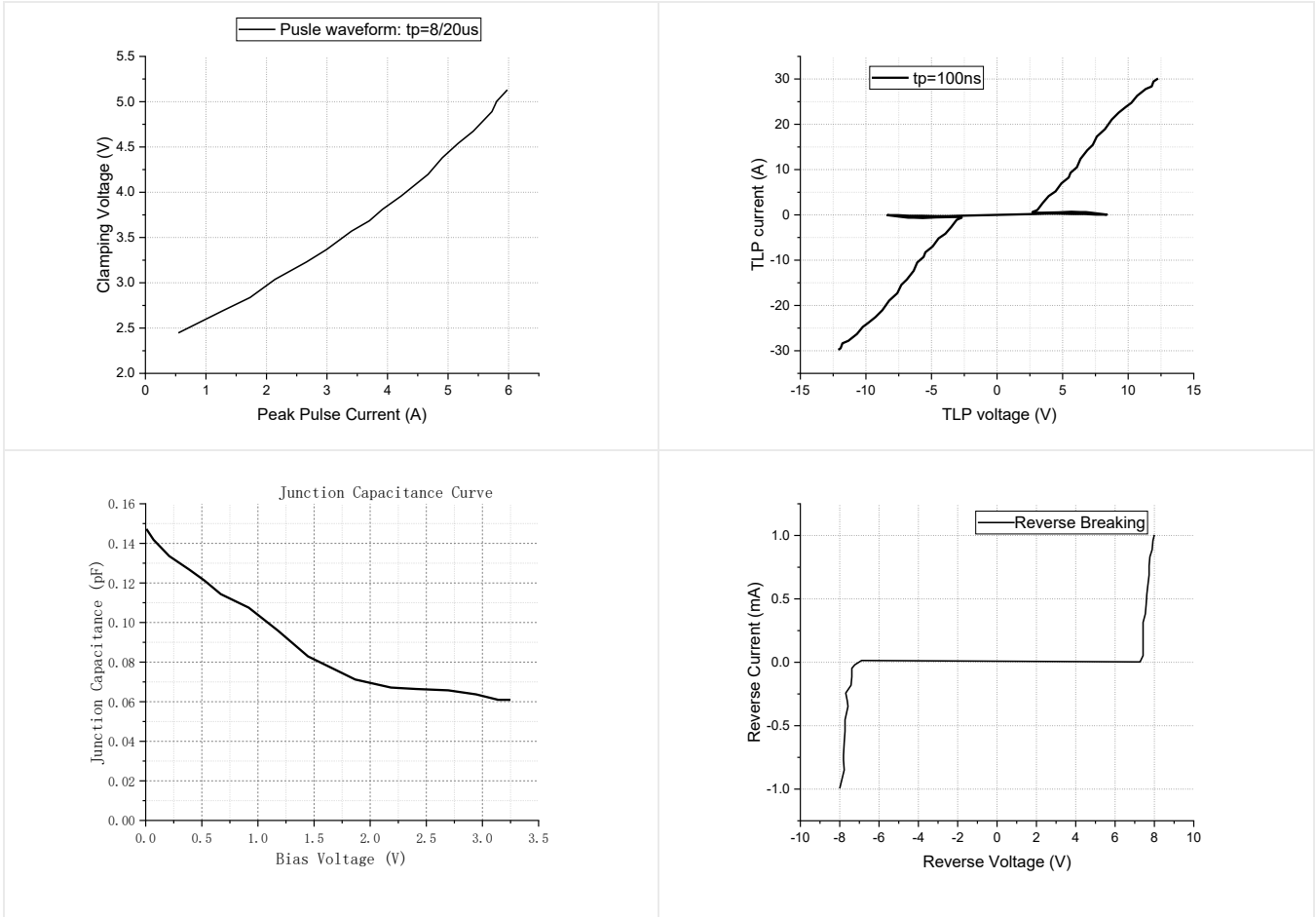
Table-4 Electrical Characteristics

Symbol	Parameters
$V_{RWM}$	Reverse stand-off voltage
$I_R$	Reverse leakage current
$V_{BR}$	Reverse breakdown voltage
$I_{BR}$	Reverse breakdown current
$V_{CL}$	Clamping voltage
$V_{TRIG}$	Reverse trigger voltage
$I_{TRIG}$	Reverse trigger current
$V_{HOLD}$	Reverse holding voltage
$I_{HOLD}$	Reverse holding current
$I_{PP}$	Peak pulse current

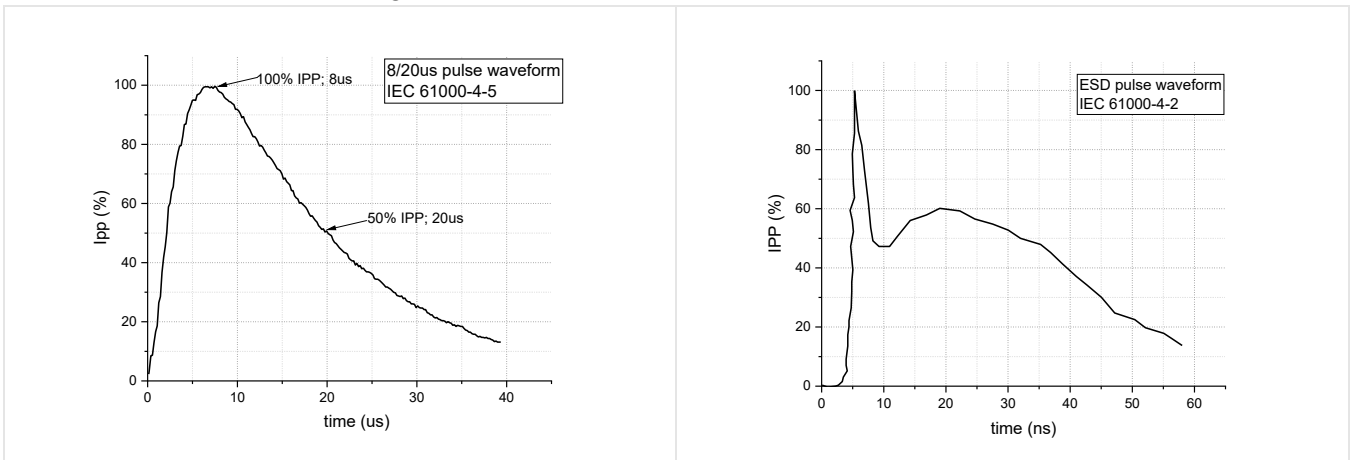


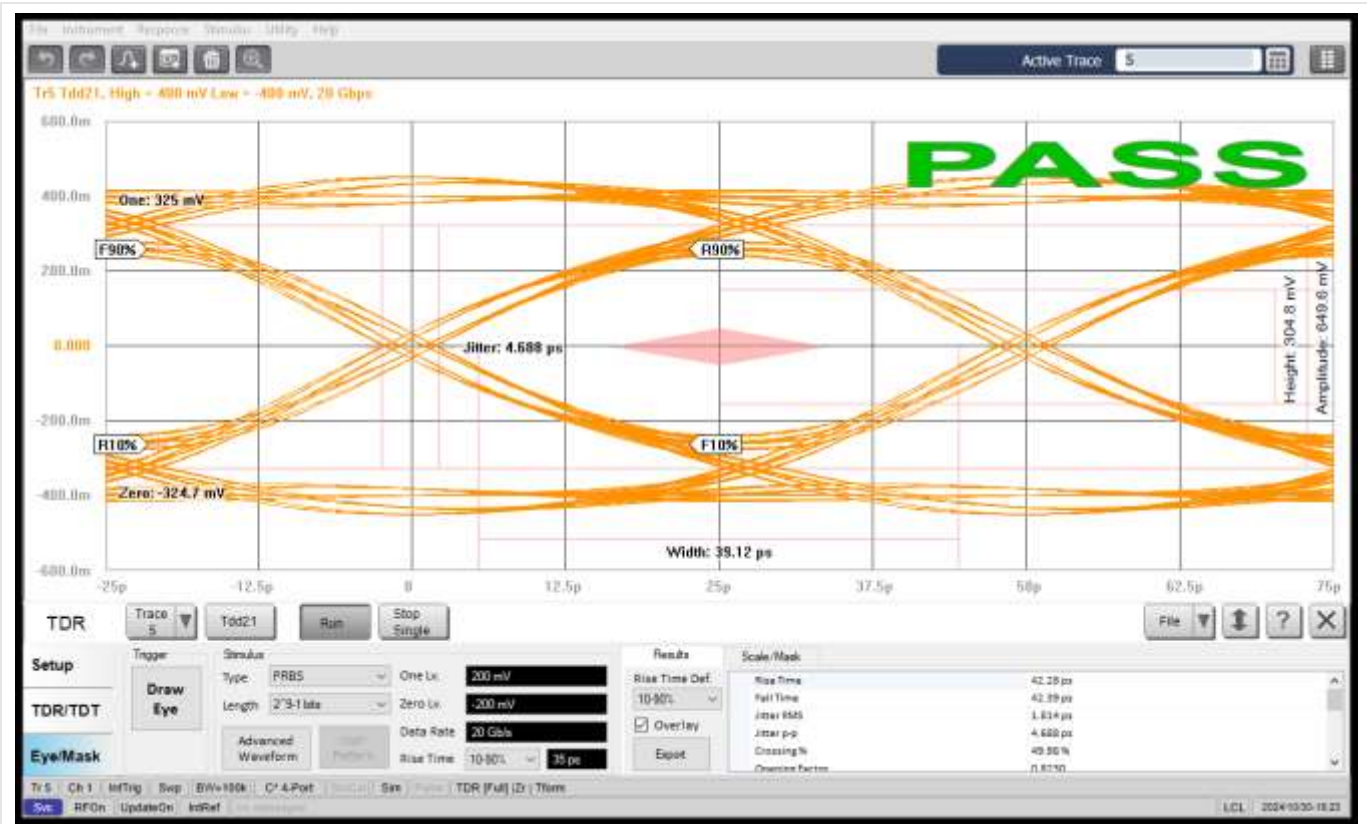


## 7. Typical Characteristic



## Measurement Wave According to IEC Standard

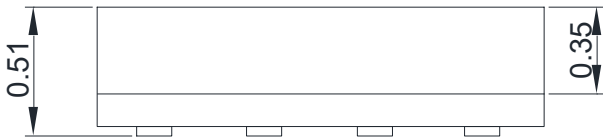
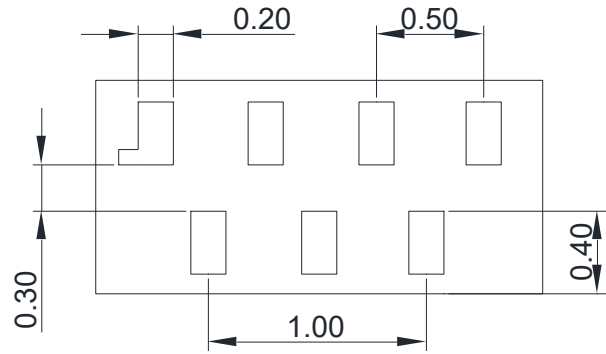
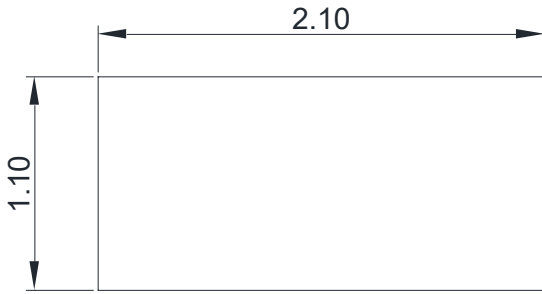




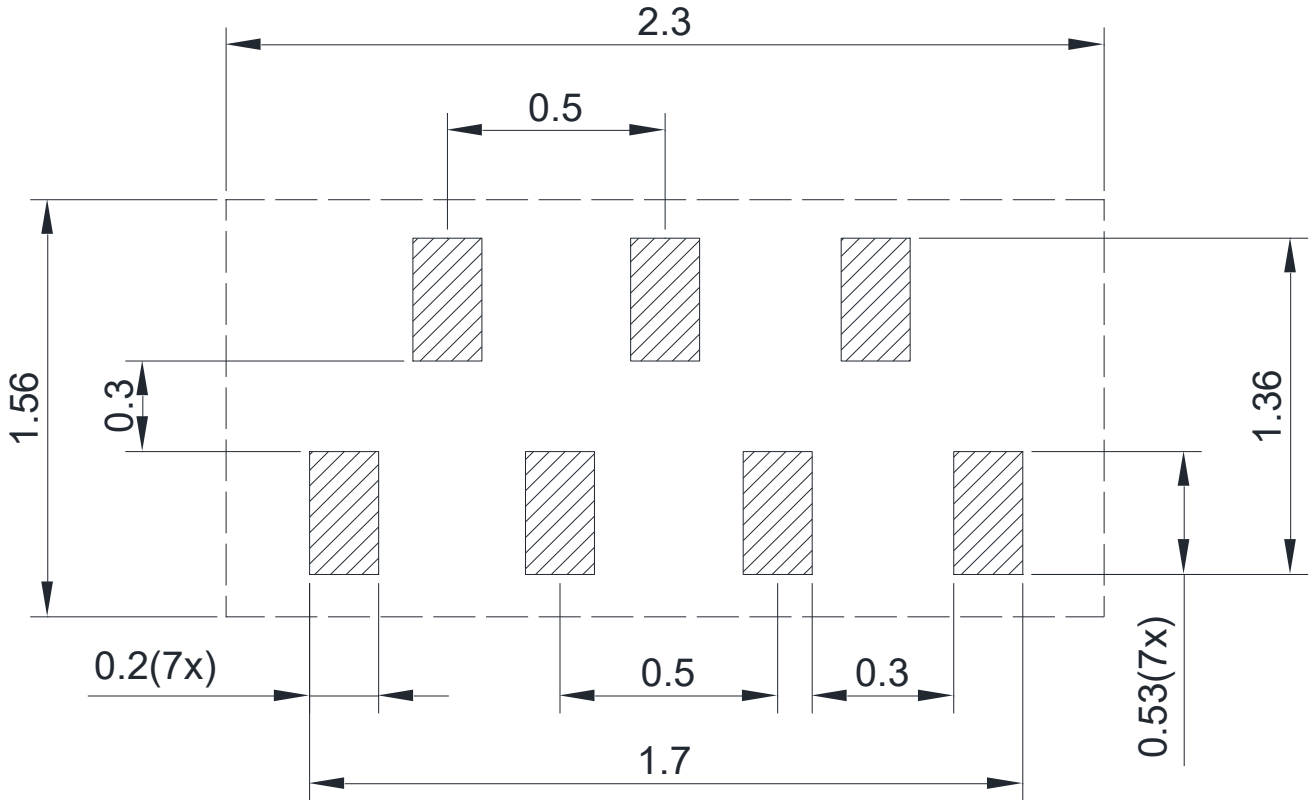
20 Gbps HDMI 2.1 Eye Diagram



8. Dimension (DFN2111-7L)



Units: mm

**9. Recommended Soldering Footprint**

DIMENSIONS: MILLIMETERS

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