1. Description

The ESD73011N-2/TR(ES) is an ultra-low capacitance TVS (Transient Voltage Suppressor) 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). The ESD73011N-2/TR(ES) may be used to provide ESD protection up to ±30kV (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 14A (8/20μs) according to IEC61000-4-5.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 110W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 3.3V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional line
- Low Junction capacitance: 0.37pF Typ.

3. Applications

- High-speed interfaces
- USB 2.0 and USB 3.2
- Cellular handsets and accessories
- Portable Electronics and Notebooks
- TVs and monitors
- Digital cameras

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
ESD73011N-2/TR(ES)	DFN1006-2L	3BH	Halogen free	Tape & Reel	10,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

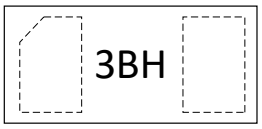
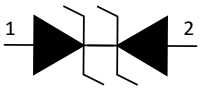
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		

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℃	P_{pk}	-	110	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		14	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}	-50	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

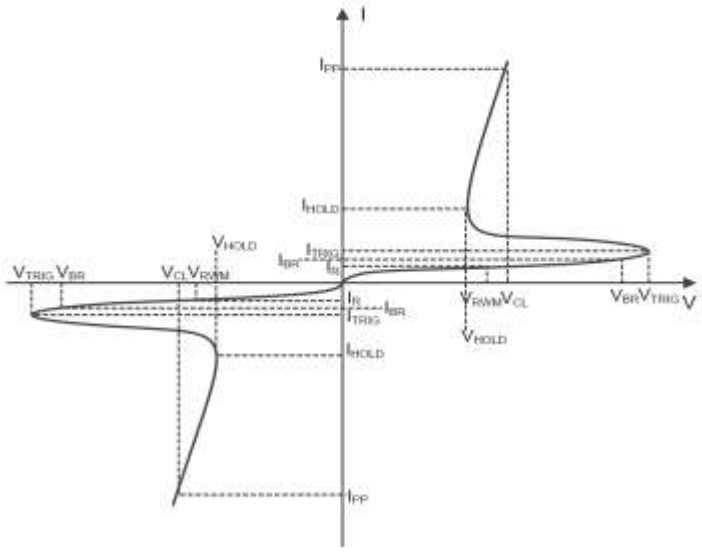
6.2. Electrical Characteristics

At TA = 25℃ unless otherwise noted

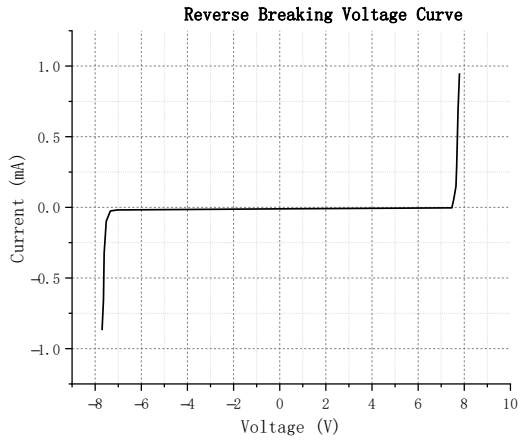
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}			3.3	5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0	7.8		V
Reverse Leakage Current	I_R	V_{RWM}=3.3V			100	nA
Clamping Voltage	V_C	I_{PP}=1A; tp=8/20us		2.5		V
Clamping Voltage	V_C	I_{PP}=14A; tp=8/20us		6.6		V
Dynamic Resistance	R_{dyn}	I_T=10A		0.25		Ω
Junction Capacitance	C_J	V_R=0V; f=1MHz		0.37	0.45	pF

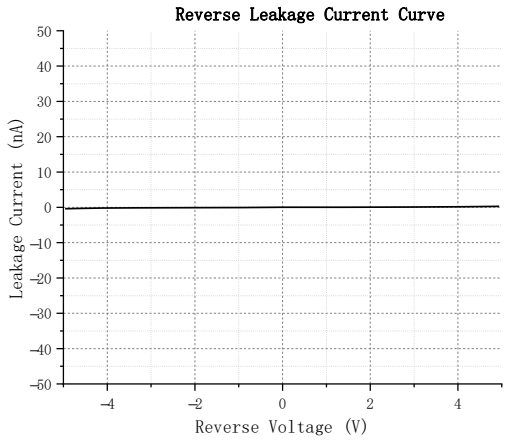
Table-4 Electrical Characteristics

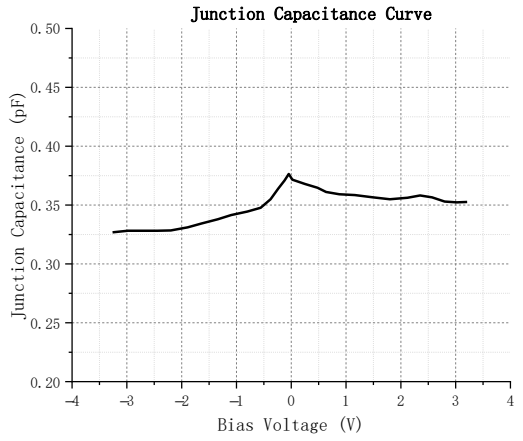
Symbol	Parameters
V_{RWM}	Reverse stand-off voltage
I_R	Reverse leakage current
V_{BR}	Reverse breakdown voltage
I_{BR}	Reverse breakdown current
V_{CL}	Clamping voltage
V_{TRIG}	Reverse trigger voltage
I_{TRIG}	Reverse trigger current
V_{HOLD}	Reverse holding voltage
I_{HOLD}	Reverse holding current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

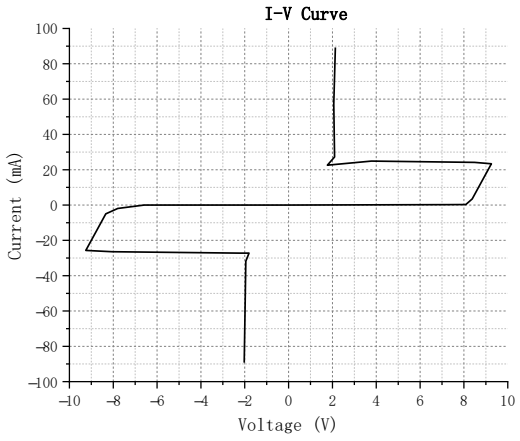


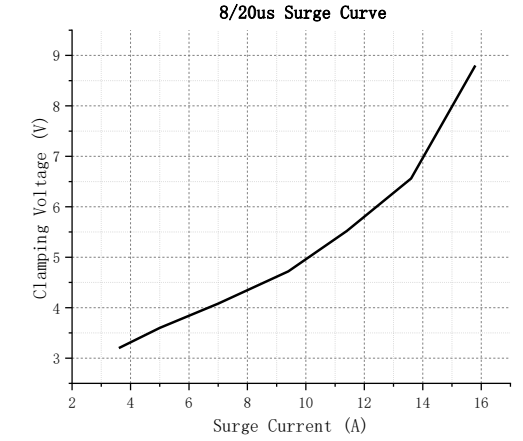
7. Typical Characteristic



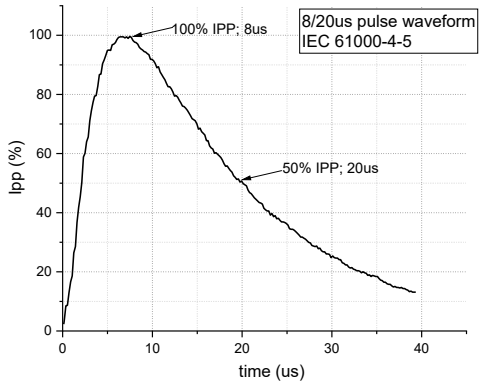


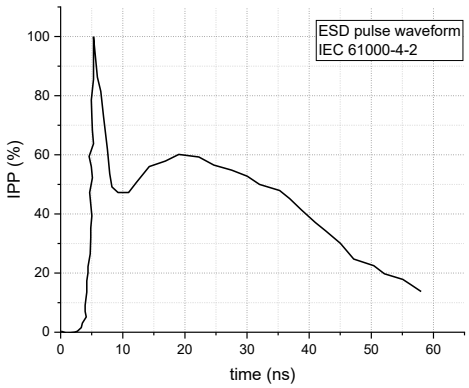






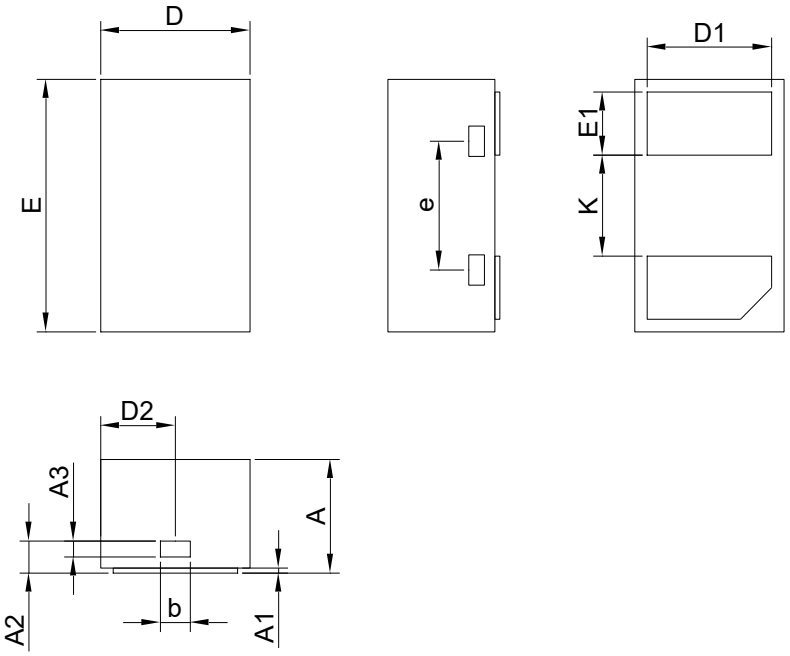
Measurement Wave According to IEC Standard





8. Dimension (DFN1006-2L)

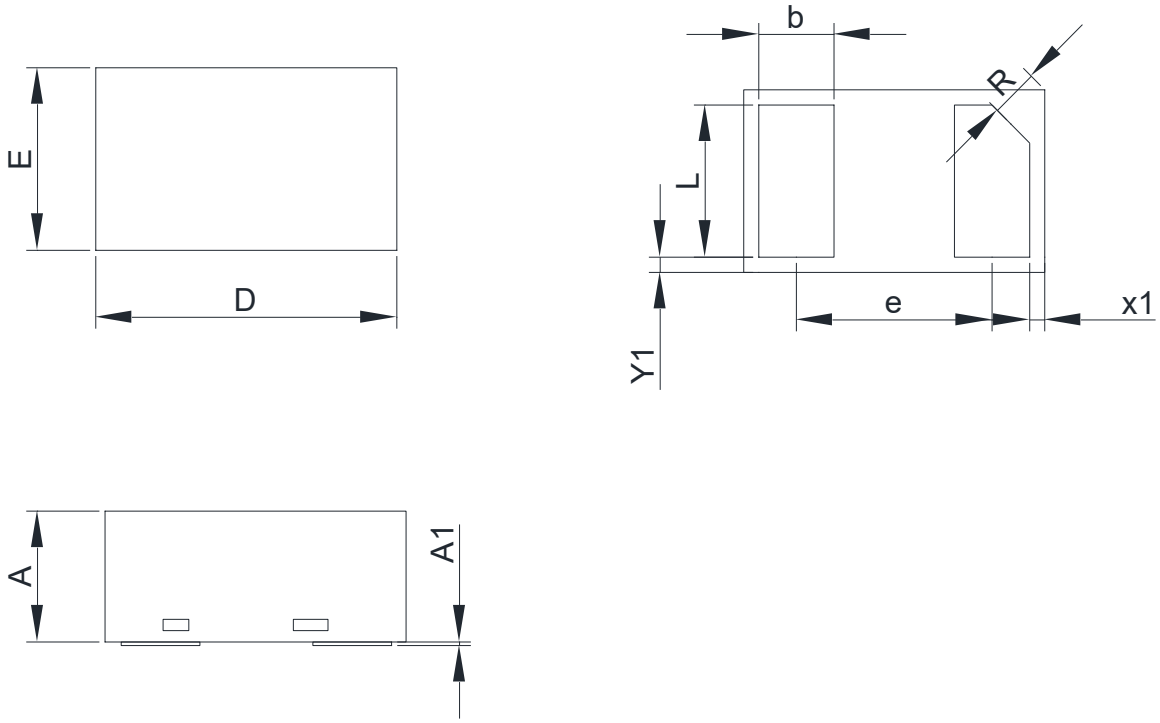
POD A(Q)



Units in millimeters

Symbol	Min.	Nom.	Max.	Symbol	Min.	Nom.	Max.
A	0.350	0.450	0.550	D1	0.400	0.500	0.600
A1	0.000	0.020	0.050	D2	0.200	0.300	0.400
A2	0.077	0.127	0.207	E	0.900	1.000	1.100
A3	0.013	0.063	0.113	E1	0.150	0.250	0..350
b	0.070	0.120	0.200	e	0.360	0.410	0.460
D	0.500	0.600	0.700	k	0.300	0.400	0.500

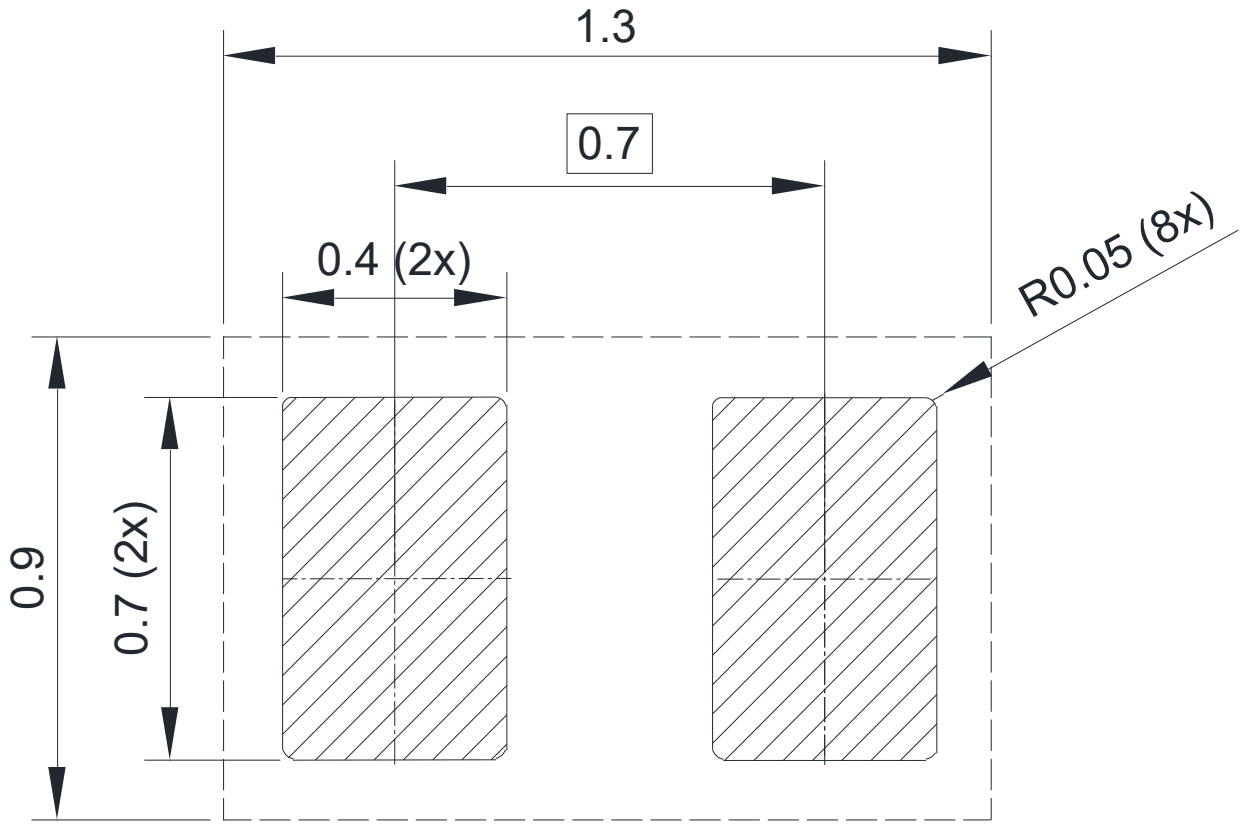
POD B(A)



Units in millimeters

Symbol	Min.	Nom.	Max.	Symbol	Min.	Nom.	Max.
A	0.45	0.50	0.55	R	0.07	0.10	0.13
D	0.95	1.00	1.05	X1	0.025		0.065
E	0.55	0.60	0.65	Y1	0.025		0.065
b	0.20	0.25	0.30	A1	0		0.015
L	0.45	0.50	0.55				
e	0.65						

9. Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

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