BORN SEMICONDUCTOR

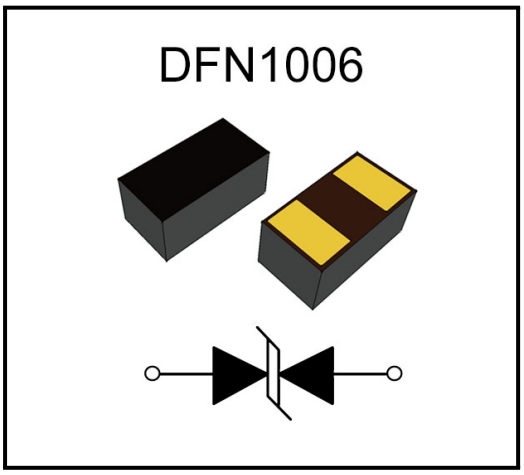
BPESD0402-xxST Series

ESD Protection Diode

Features

- The best ESD protection for high speed,low voltage ap-plications
- RoHS compliant and halogen free
- Ultra low capacitance, 0.05 pF (typ.)
- Low leakage current (<10nA)
- Fast response time (<1ns)
- Bi-directional, single line protection
- Surface mount

Package



Applications

- Smart Phone/Mobile Internet Device
- Laptop/Desktop Computer
- Antennas
- High Speed Ethernet
- USB 2.0 and USB 3.0
- Lightning and Thunder Bolt Interface

Mechanical Data

- Surface mount
- RoHS Compliant
- Halogen Free

Ordering information

Order code	Package	Base qty	Delivery mode
BPESD0402-xxST Series	DFN1006	10k	Tape and reel

Absolute Maximum Rating

Rating	Symber	Value	Units
ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	V_{ESD}	±8 ±15	KV
Lead Soldering Temperature	T_L	260(10seconds)	°C
Operating Temperature	T_O	-40 to + 125	°C
Storage Temperature	T_{stg}	-55 to + 125	°C

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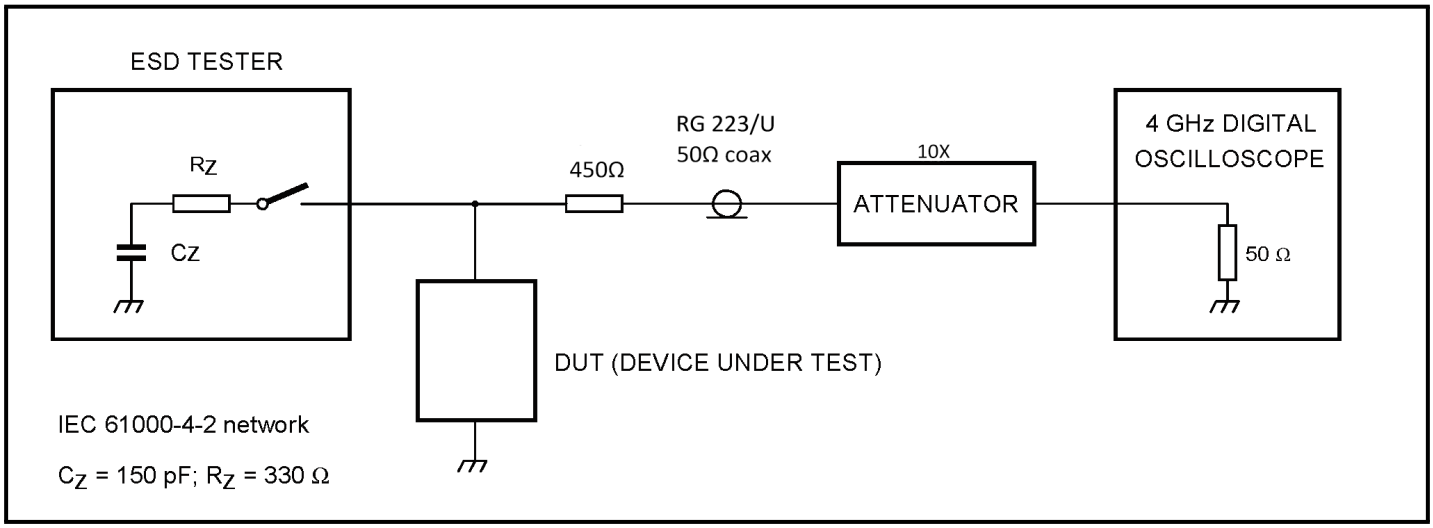
BPESD0402-xxST Series

ESD Protection Diode

Electrical Characteristics

Part NO.	Working Voltage	Typical ESD Trigger Voltage	Typical ESD Clamping Voltage at 60ns	Leakage Current (at Initial State)	Cap. Value @10MHz
Symbol	$V_{DC(max.)}$	$V_{trigger(typ.)}$	$V_{C(typ.)}$	I_{LDC}	**C(Typ.)**
Unit	**V**	**V**	**V**	**μA**	**pF**
BPESD0402-03ST	3.3	450	40	<0.01	0.05
BPESD0402-05ST	5	450	40	<0.01	0.05
BPESD0402-09ST	9	450	40	<0.01	0.05
BPESD0402-12ST	12	450	40	<0.01	0.05
BPESD0402-14ST	14	450	40	<0.01	0.05
BPESD0402-15ST	15	450	40	<0.01	0.05
BPESD0402-18ST	18	450	40	<0.01	0.05
BPESD0402-24ST	24	450	40	<0.01	0.05
BPESD0402-36ST	36	450	40	<0.01	0.05

ESD Clamping Test



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ESD Protection Diode

Figure 1: ESD Clamping Test Waveform

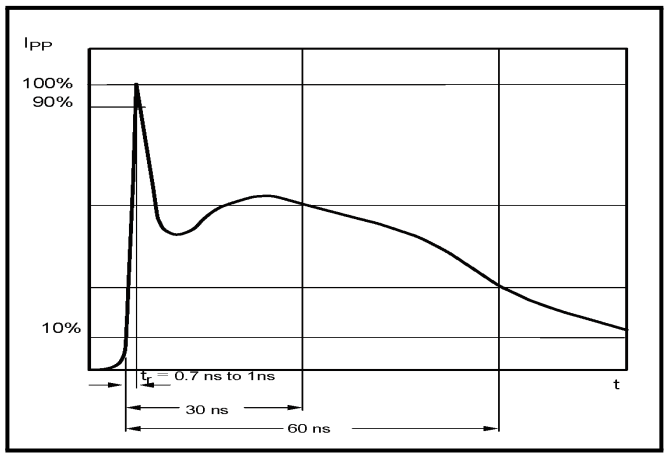


Figure 2:ESD Waveform after Clamping

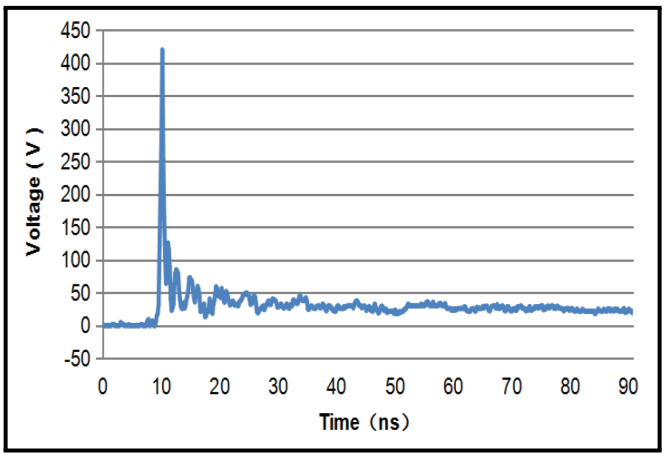
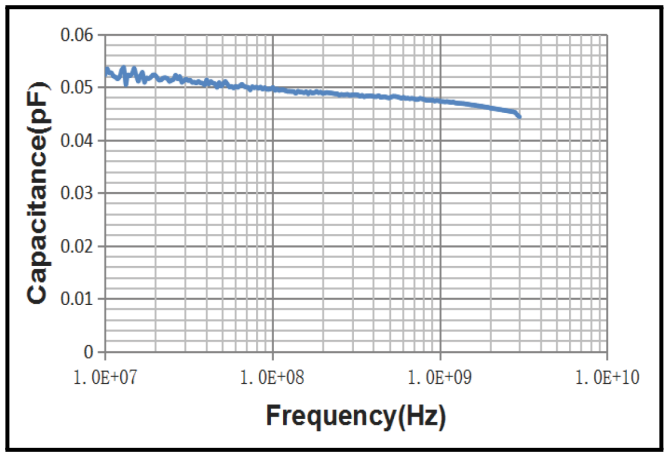
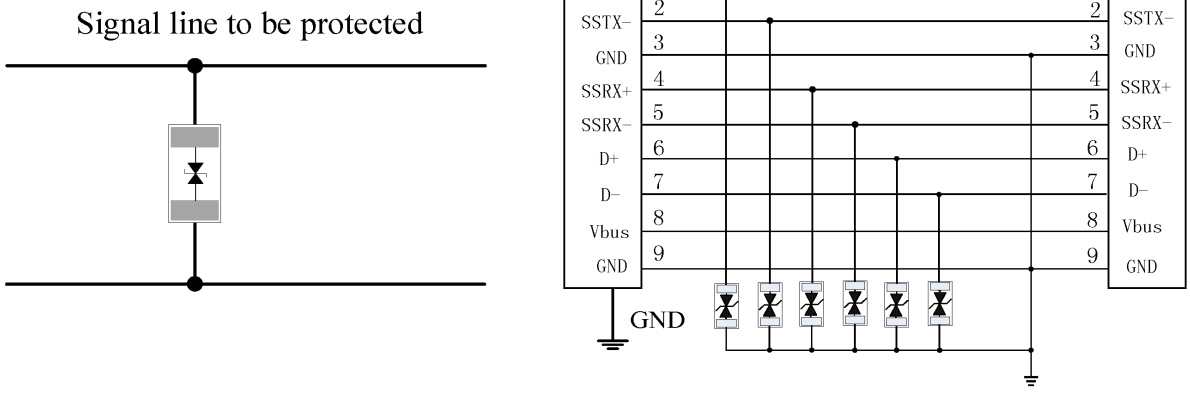


Figure 3:Capacitance VS Frequency



Use of circuit



BPESD0402 in Signal line protected

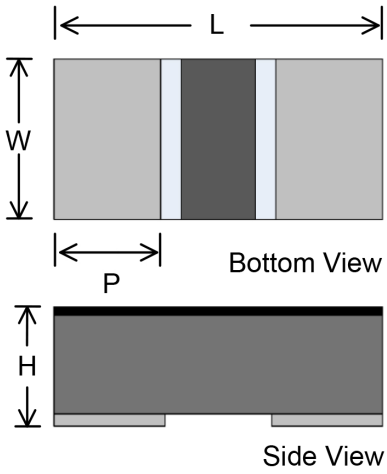
BPESD0402 in USB3.0 application

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BPESD0402-xxST Series

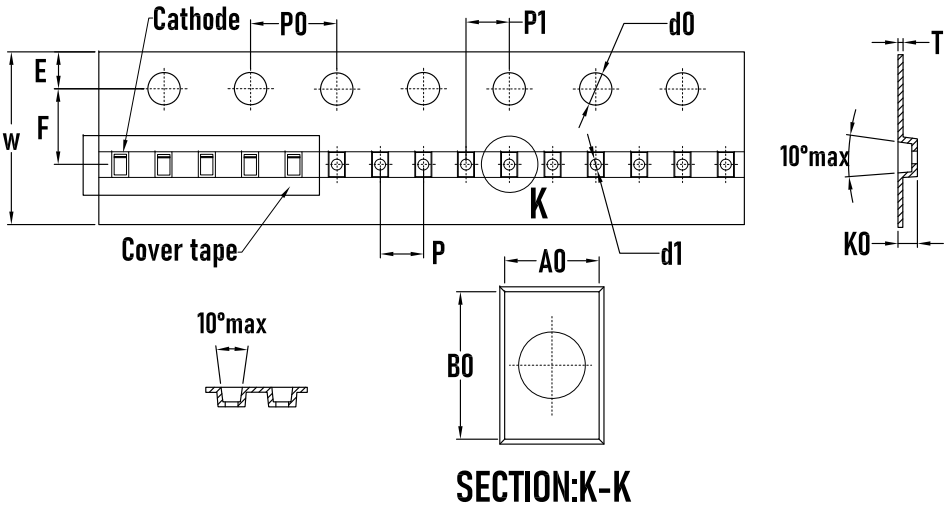
ESD Protection Diode

Outline Drawing - DFN1006



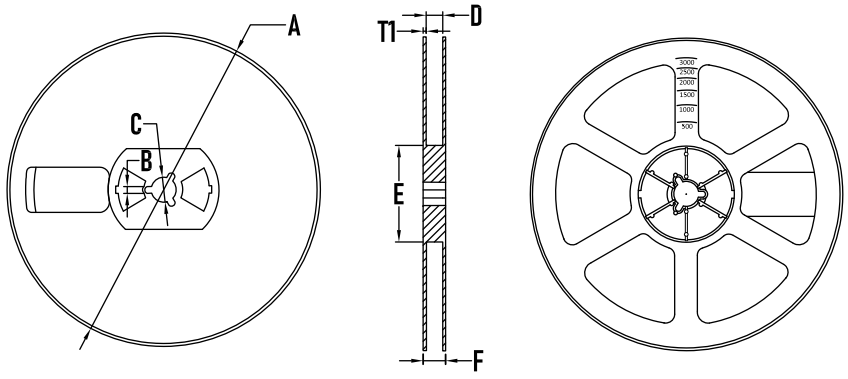
SYMBOL	MILLIMETERS		
	MIN.	Typ.	MAX.
L	0.90	1.00	1.10
W	0.42	0.52	0.62
P	0.15	0.25	0.35
H	0.25	0.38	0.45

Packaging Tape - DFN1006



SYMBOL	MILLIMETER
A0	0.71±0.05
B0	1.11±0.05
d0	$1.5^{+0.1}_{-0}$
d1	0.50±0.05
E	1.75±0.10
F	3.50±0.05
K0	0.56±0.05
P	2.00±0.05
P0	4.00±0.10
P1	2.00±0.05
W	$8.00^{+0.03}_{-0.01}$
T	0.2±0.015

Packaging Reel



SYMBOL	MILLIMETER
A	178±1
B	3.5±0.2
C	14.3±0.2
D	9.8^{+2}_{-1}
E	54.5±0.5
F	12.4±0.2
T1	1.0±0.2
Quantity	10000PCS

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