



General description

Femtofarad bidirectional ElectroStatic Discharge (ESD) protection diode in a leadless ultra small DFN1006 Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients. The combination of extremely low capacitance, high ESD maximum rating and ultra small package makes the device ideal for high-speed data line protection and antenna protection applications.

Features and benefits

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8kV, max 15kV
- ESD air discharge typical 15kV, max 25kV
- Extremely low capacitance: $C_j = 0.05\text{pF}$ (Typ)
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications

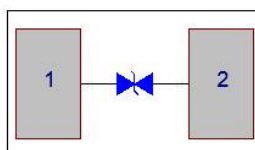
Application information

- USB3.0
- SATA and eSATA
- High- speed data lines
- HDMI
- Cellular handsets and accessories
- 10/100/1000 Mbit/s Ethernet
- Communication systems
- Computers and peripherals
- Portable electronics
- Antenna protection

Ordering information

Device	Package	Net Weight	Carrier	Quantity	HSF Status
SLPESD0402N	DFN1006-2L	0.44mg	Tape & Reel	10000pcs/reel	RoHS compliant

Schematic Diagram



Maximum Ratings ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Maximum ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	25	kV
Maximum ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	15	kV
Maximum lead temperature for soldering during 10s	T_L	260	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-25 to +35	$^{\circ}\text{C}$
Operating Temperature Range	T_{OP}	-55 to +125	$^{\circ}\text{C}$

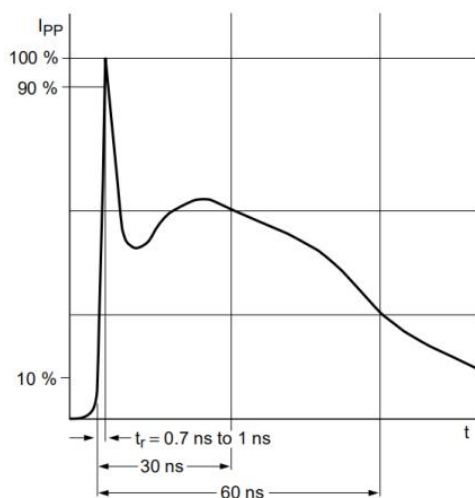
Electrical Characteristics ($T_{OP} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Rated Voltage	V_{RWM}	--	--	36	V	
Trigger Voltage	V_T	--	300	--	V	IEC61000-4-2 8kV contact discharge
Clamping Voltage	V_C	--	35	--	V	IEC61000-4-2 8kV contact discharge
Leakage Current I_{Leak}	I_R	--	--	100	nA	$V_R=36\text{V}$
Junction Capacitance	C_P	--	0.05	--	pF	$V_R=0\text{V}$, $f=1\text{MHz}$

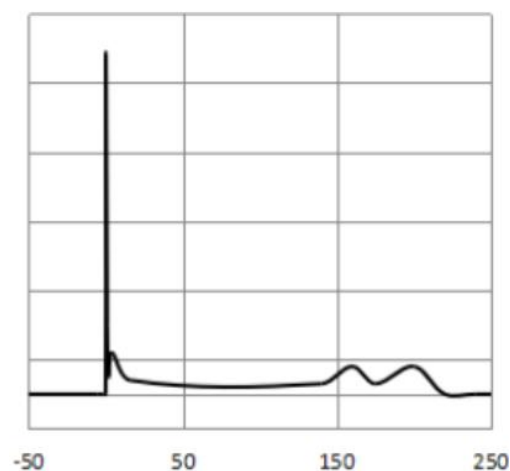
Note: 1 Trigger and clamping voltage are measured per IEC 61000-4-2, 8kV contact discharge method.

2 After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.

ESD Clamping Test Waveforms



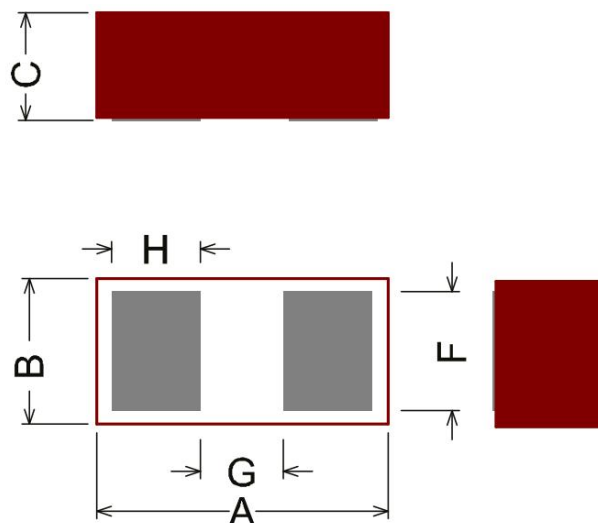
IEC61000-4-2 Waveform



ESD Wave after Clamping

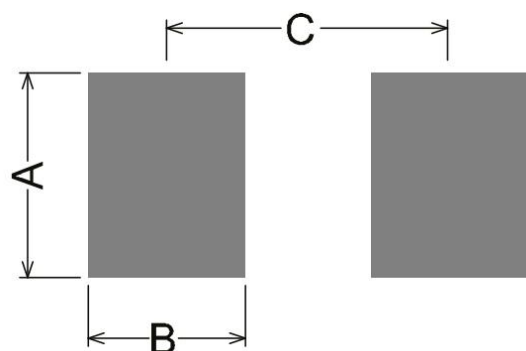
Package Outline Dimensions

DFN1006-2L



Symbol	Dimension(mm)		
	Min	Typ	Max
A	0.95	1.00	1.05
B	0.45	0.50	0.55
C	0.32	0.36	0.40
H	0.28	0.30	0.32
F	0.41	0.43	0.45
G	0.32	0.34	0.36

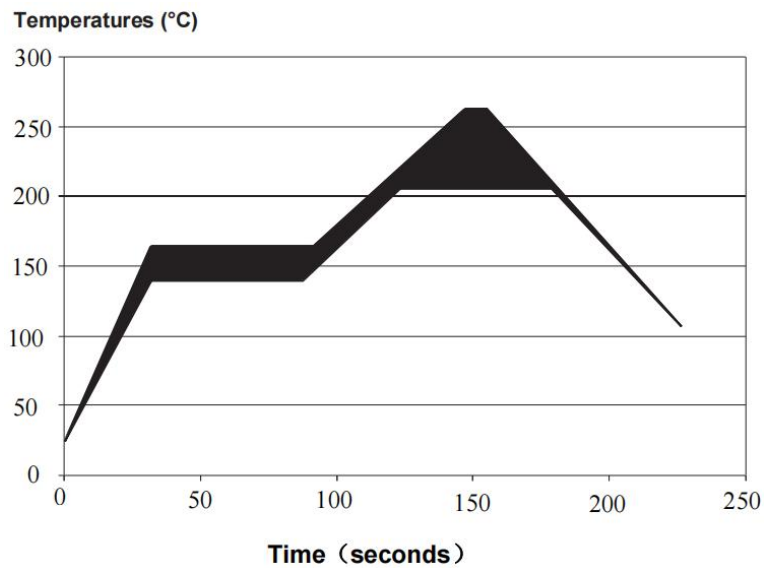
PAD Dimension



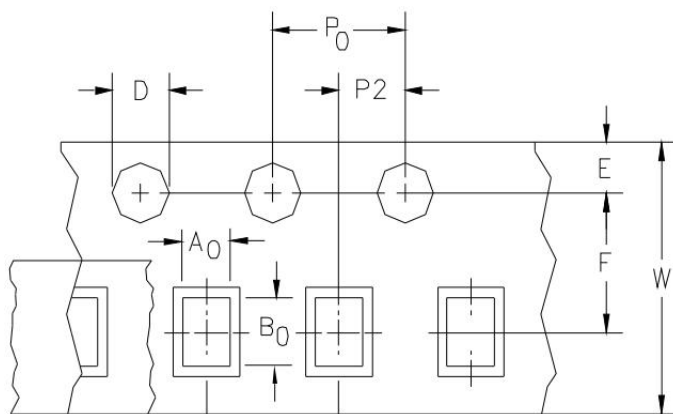
Symbol	Dimension(mm)
A	0.65
B	0.50
C	0.90

Solder thickness 0.08 to 0.12mm

Solder Reflow Recommendations



Package Information (mm)



Dimension	Typical
A0	0.68
B0	1.17
D	1.55
P0	4.00
P2	2.00
E	1.75
F	3.50
W	8.50

