



## 1-Line Bidirectional ESD Protection Diode

### 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

- Bidirectional ESD protection of one line
- Femtofarad capacitance:  $C_j = 0.35\text{pF}$  (Typ)
- Ultra low leakage current: nA Level
- Response time is typically  $< 1\text{ ns}$
- IEC 61000-4-2; level 4 (ESD)


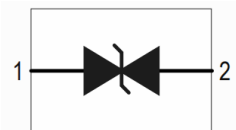
### Application information

- 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	Marking	Packaging
ESD8LL5.0C	DFN1006-2L	5F	10000/Tape & Reel

### Schematic & Pin configuration

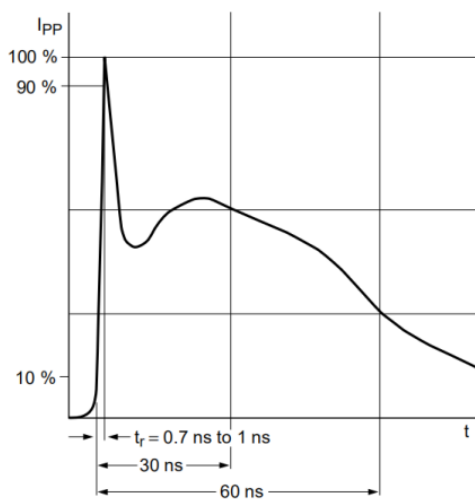
Simplified outline	Graphic symbol
	

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

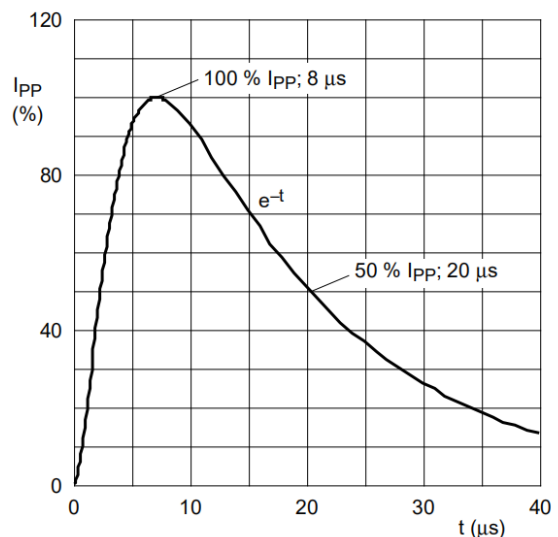
Parameter	Symbol	Value	Unit
Peak Pulse Power ( $T_p = 8/20\text{ }\mu\text{s}$ )	$P_{PPM}$	90	W
Rated Peak Pulse Current ( $T_p = 8/20\text{ }\mu\text{s}$ )	$I_{PPM}$	4	A
Maximum lead temperature for soldering during 10s	$T_L$	260	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Operating Temperature Range	$T_{OP}$	-40 to +125	$^{\circ}\text{C}$
Maximum junction temperature	$T_j$	150	$^{\circ}\text{C}$
ESD voltage IEC 61000-4-2 (air discharge)	$V_{ESD}$	20	kV
ESD voltage IEC 61000-4-2 (contact discharge)	$V_{ESD}$	15	kV

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

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	$V_{RWM}$	--	--	5.0	V	
Breakdown Voltage	$V_{BR}$	6.5	--	9.0	V	$I_T=1\text{mA}$
Leakage Current $I_{Leak}$	$I_R$	--	--	100	nA	$V_{RWM}=5\text{V}$
Clamping Voltage	$V_C$	--	--	22.0	V	$I_{PP}=4\text{A}, T_p=8/20\mu\text{s}$
Junction Capacitance	$C_j$	--	0.35	0.40	pF	$V_R=0\text{V}, f=1\text{MHz}$



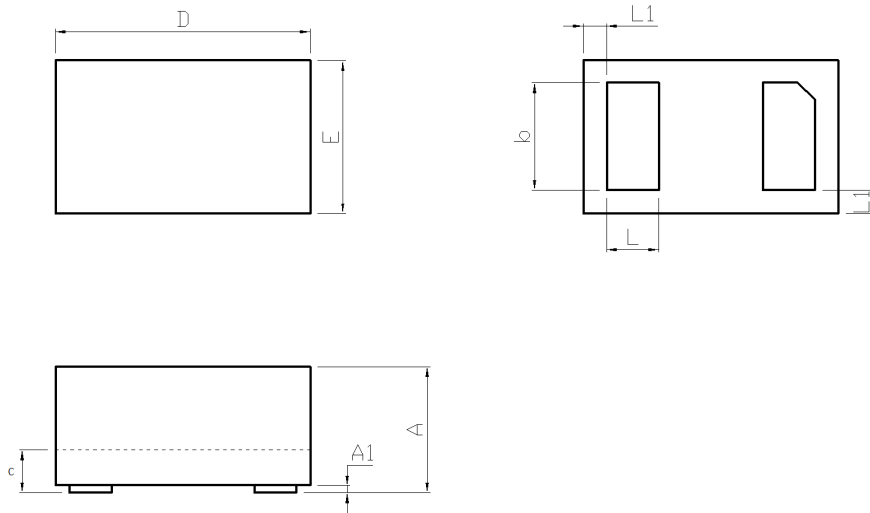
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform( 8/20 $\mu\text{s}$  pulse)

**Package Outline Dimensions**

**DFN1006-2L**



DFN1006-2L (mm)			
Dim	Min	Typ.	Max
A	0.46	0.48	0.50
A1	0	0.02	0.05
b	0.45	0.5	0.55
c	0.1	0.12	0.14
D	0.95	1.00	1.05
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.035	0.05	0.065
h	0.07	0.12	0.17