



ESD5411N ESD Protection Diodes

Features

- Bi-directional ESD protection of one lines
- 80Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 7V
- Junction Capacitance: 15pF(Typ)
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-5 (Lightning) 8.0A (8/20 μs)

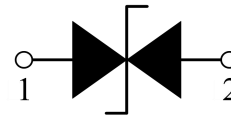
Mechanical Data

- Package: DFN1006-2L
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Applications

- Cell phone handsets and accessories
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals

Schematic Diagram



Order Information

Part Number	Package	Marking	Packing	Reel Size
ESD5411N	DFN1006-2L	T2	10000 Tape & Reel	7 inches

Limiting Values ($T_A=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	± 30	kV
		IEC 61000-4-2; Air Discharge	-	± 30	kV
P_{PP}	Peak Pulse Power	$t_p = 8/20 \mu s$	-	80	W
I_{PPM}	Rated Peak Pulse Current	$t_p = 8/20 \mu s$	-	8	A
T_A	Ambient Temperature Range	-	-55	150	$^\circ C$
T_{stg}	Storage Temperature Range	-	-55	150	$^\circ C$

Electrical Characteristics ($T_A=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	$T_A = 25^\circ C$	-	-	7.0	V
V_{BR}	Breakdown Voltage	$I_R = 1mA$; $T_A = 25^\circ C$	7.5	8.0	8.6	V
I_R	Reverse Leakage Current	$V_{RWM} = 7V$; $T_A = 25^\circ C$	-	-	0.1	nA
V_C	Clamping Voltage	$I_{PP}=1A$, $t_p=8/20\mu s$	-	-	8	V
		$I_{PP}=8A$, $t_p=8/20\mu s$	-	-	10	V
C_J	Junction Capacitance	$V_R = 0V$, $f = 1 MHz$	-	15	20	pF



Typical Characteristics

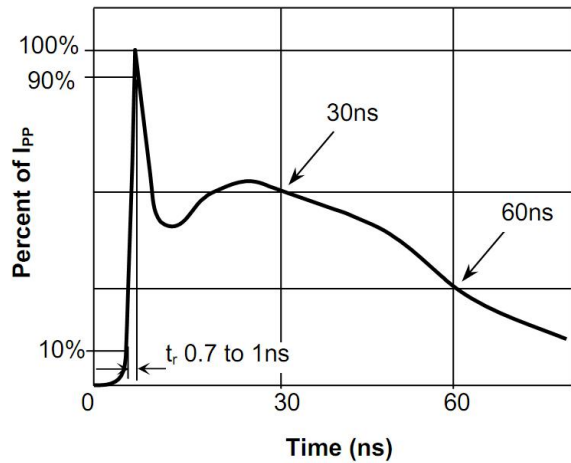


Fig.1 Pulse Waveform-ESD (IEC61000-4-2)

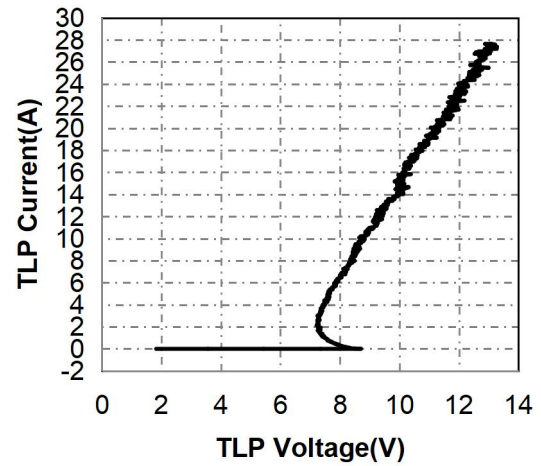


Fig.2 Transmission Line Pulse (TLP)

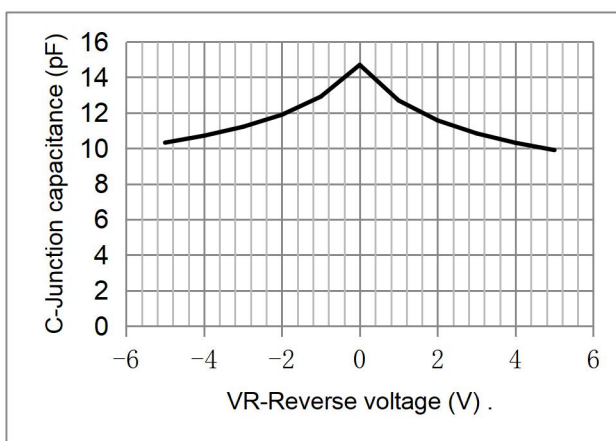


Fig.3 Capacitance vs. Reverse Voltage

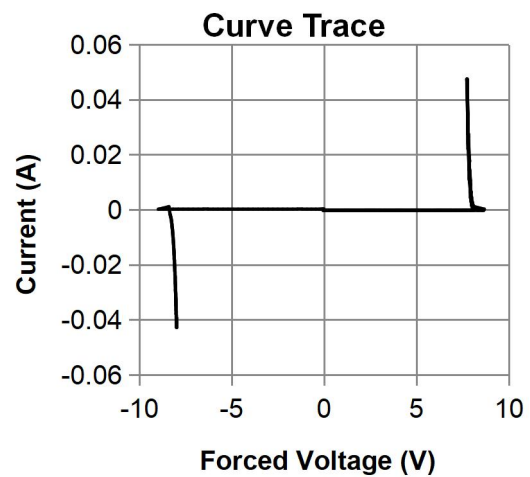
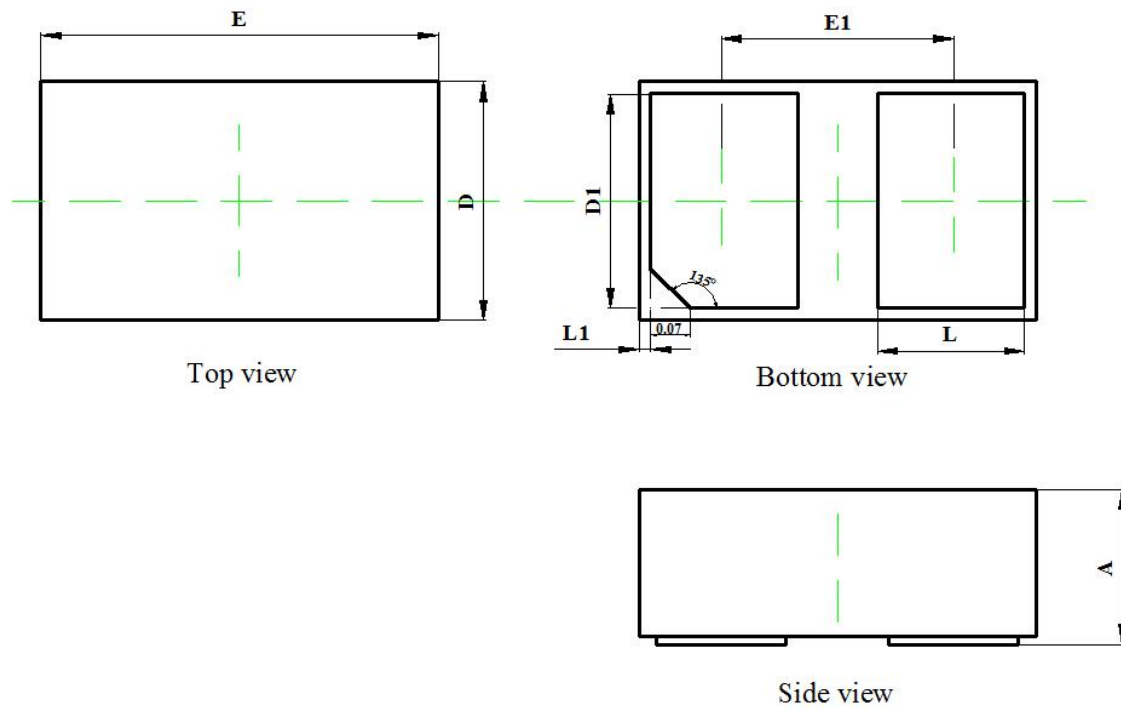


Fig.4 IV Curve (Forward Voltage)



Package Outline Dimensions

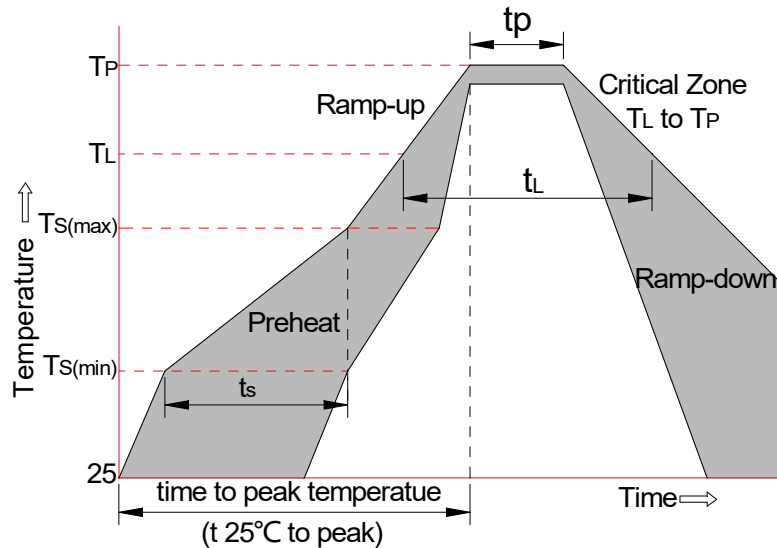
DFN1006 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.320	0.420	0.013	0.017
D	0.550	0.650	0.022	0.026
E	0.950	1.050	0.037	0.041
D1	0.450	0.550	0.018	0.022
E1	0.550	0.650	0.022	0.026
L	0.280	0.380	0.011	0.015
L1	0.000	0.100	0.000	0.004



Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{s(min)}$)	+150°C
	Temperature Max($T_{s(max)}$)	+200°C
	Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C