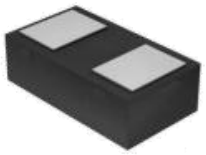
Bi-directional ESD Protection Diode in DFN1006 Package

DFN1006

1. Features

- Capacitance: 15pF(Max.)
- Reverse Working Voltage: 5V
- IEC 61000-4-2 (ESD Air): ±30KV
  IEC 61000-4-2 (ESD Contact): ±30KV
  IEC 61000-4-5 (Lightning 8/20μs): 8.0A

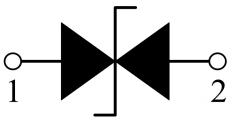
2. Pin Description



3. Applications

- Smart Phone and Tablet PC
- TV and Set Top Box
- Wearable Devices
- PDA

4. Schematic Diagram



5. Order Information

Type	Package	Size (mm)	Delivery Form	Delivery Quantity
SLZST312N10	DFN1006	1.00x0.60x0.40	7" T&R	10,000

6. Limiting Values(T_A = 25 °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 μs	-	80	W
I_{PPM}	Rated Peak Pulse Current	t_P = 8/20 μs	-	8.0	A
T_A	Ambient Temperature Range	-	-55	125	℃
T_{stg}	Storage Temperature Range	-	-55	150	℃

7. Electrical Characteristics(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	T_A = 25 °C	-	-	5.0	V
V_{BR}	Breakdown Voltage	I_R = 1mA; T_A = 25 °C	5.6	-	8.4	V
I_R	Reverse Leakage Current	V_{RWM} = 5V; T_A = 25 °C	-	-	0.1	μA
V_C	Clamping Voltage	I_{PP}=8A, t_P =8/20μs	-	-	10	V
C_J	Junction Capacitance	V_R = 0V, f = 1 MHz	-	-	15	pF

8. Typical Characteristics

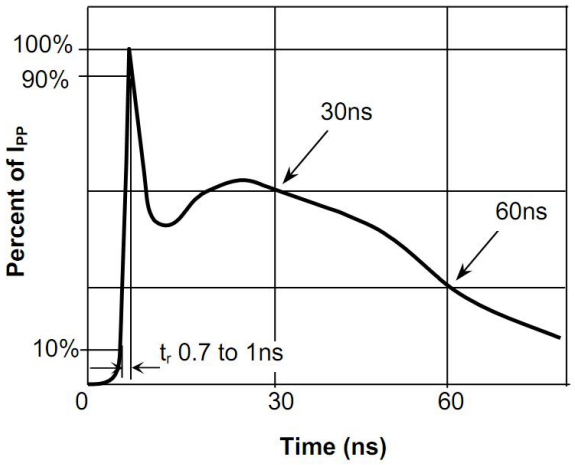


Fig.1 Pulse Waveform-ESD (IEC61000-4-2)

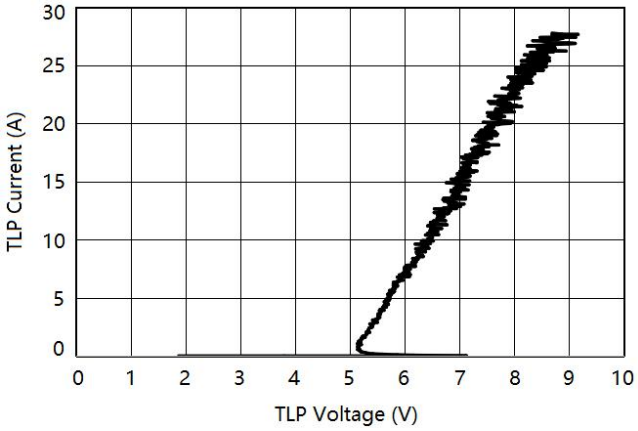


Fig.2 Transmission Line Pulse (TLP)

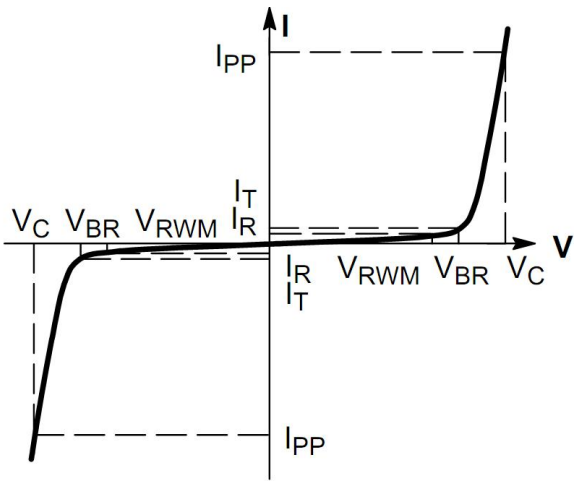


Fig.3 V-I Characteristics for Bidirectional Diode

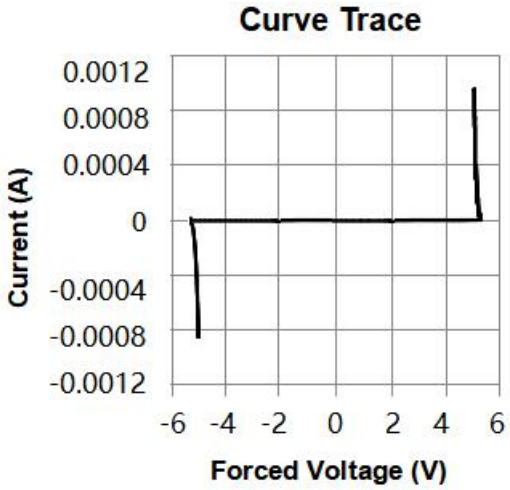


Fig.4 IV Curve

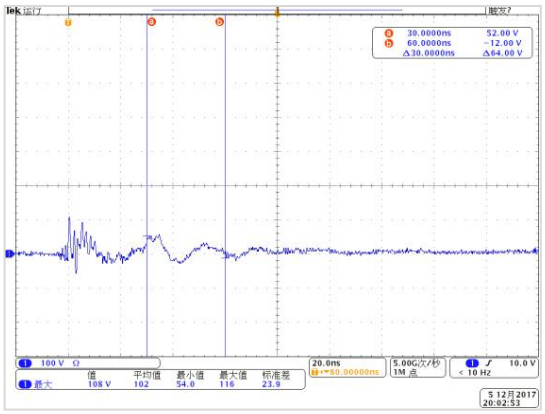


Fig.5 Clamping Voltage at IEC61000-4-2
+8kV Pulse Waveform

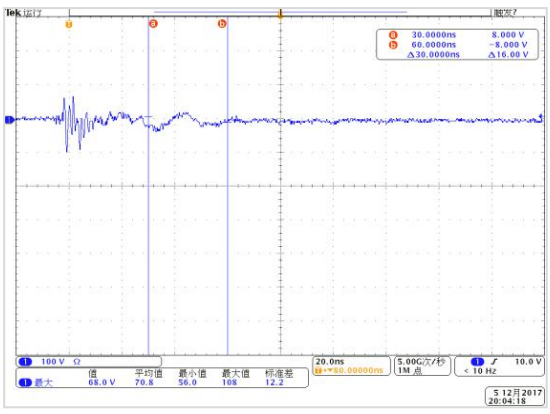
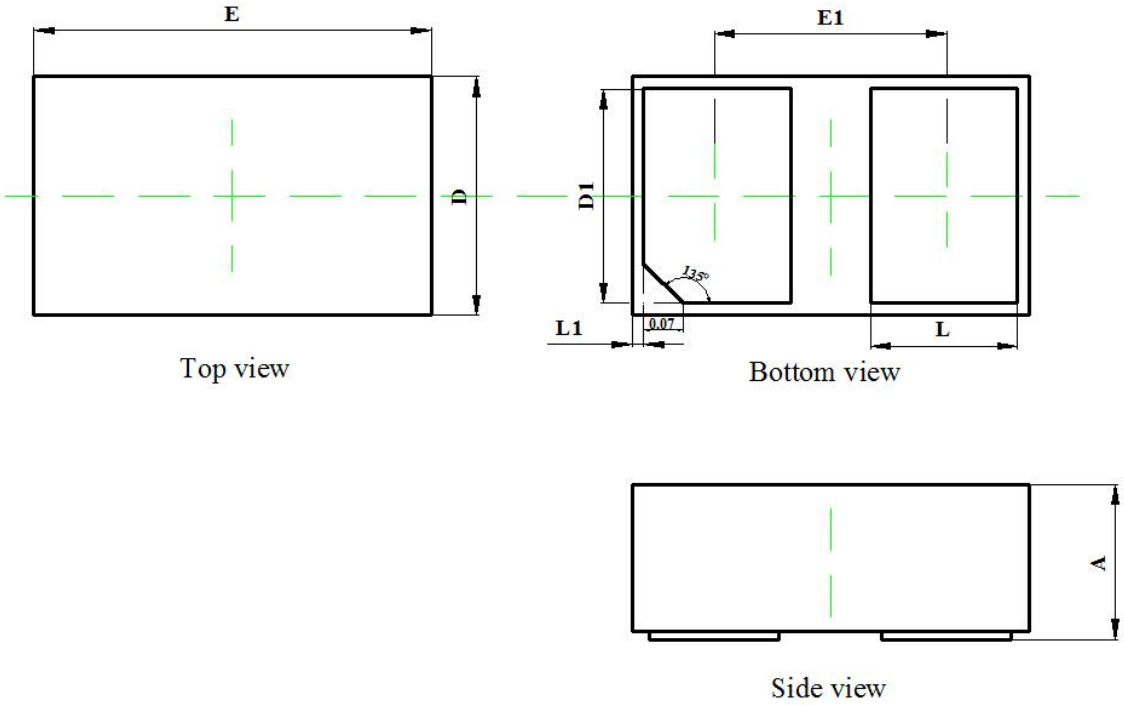


Fig.6 Clamping Voltage at IEC61000-4-2
-8kV Pulse Waveform

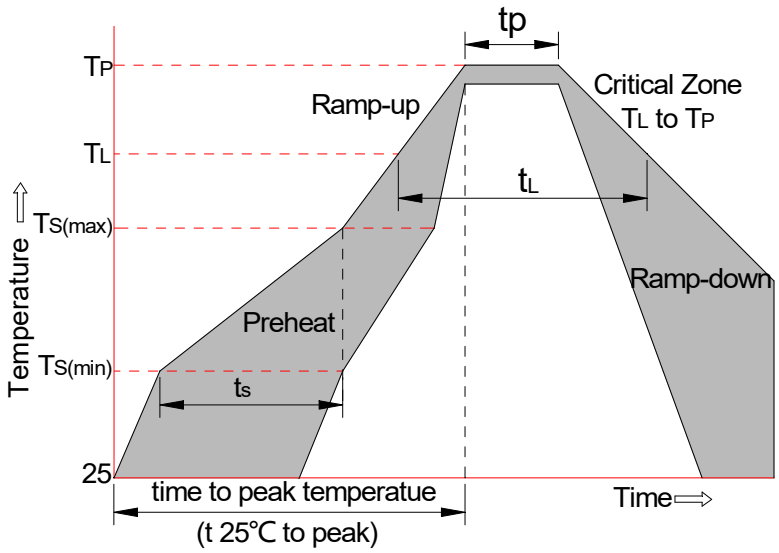
9. Package Outline Dimensions

DFN1006 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
E	0.950	1.050	0.037	0.041
D1	0.420	0.520	0.017	0.020
E1	0.550	0.650	0.022	0.026
L	0.270	0.370	0.011	0.015
L1	0.000	0.100	0.000	0.004

10. 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) (ts)	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