

## Bi-directional ESD Protection Diode in DFN1006 Package

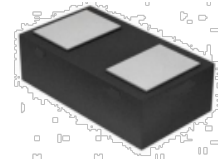
### 1. Features

- Capacitance: 15pF(typ.)
- Reverse Working Voltage: 5V
- IEC 61000-4-2 (ESD Air):  $\pm 25$ KV  
IEC 61000-4-2 (ESD Contact):  $\pm 25$ KV  
IEC 61000-4-5 (Lightning 8/20 $\mu$ s): 5A

### 3. Applications

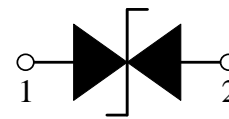
- Smart Phone and Tablet PC
- TV and Set Top Box
- Wearable Devices
- PDA

### 2. Pin Description



DFN1006

### 4. Schematic Diagram



### 5. Order Information

Type	Package	Size (mm)	Delivery Form	Delivery Quantity
SLESD5451X	DFN1006		7" T&R	10,000

### 6. Limiting Values( $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{ESD}$	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	$\pm 25$	kV
		IEC 61000-4-2; Air Discharge	-	$\pm 25$	kV
$P_{PP}$	Peak Pulse Power	$t_P = 8/20\ \mu\text{s}$	-	60	W
$I_{PPM}$	Rated Peak Pulse Current	$t_P = 8/20\ \mu\text{s}$	-	5	A
$T_A$	Ambient Temperature Range	-	-55	125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-	-55	150	$^\circ\text{C}$

### 7. Electrical Characteristics( $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
$V_{RWM}$	Reverse Working Voltage	$T_A = 25\text{ }^\circ\text{C}$	-	-	5.0	V
$V_{BR}$	Breakdown Voltage	$I_R = 1\text{ mA}$ ; $T_A = 25\text{ }^\circ\text{C}$	5.6	6.5	8.4	V
$I_R$	Reverse Leakage Current	$V_{RWM} = 5\text{ V}$ ; $T_A = 25\text{ }^\circ\text{C}$	-	-	0.1	$\mu\text{A}$
$V_C$	Clamping Voltage	$I_{PP} = 1\text{ A}$ , $t_P = 8/20\ \mu\text{s}$	-	-	10	V
		$I_{PP} = 5\text{ A}$ , $t_P = 8/20\ \mu\text{s}$	-	-	12	V
$C_J$	Junction Capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	-	5	18	pF

## 8. Typical Characteristics

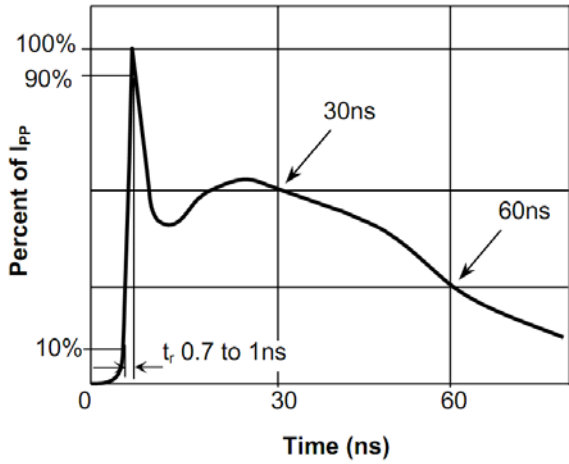


Fig.1 Pulse Waveform-ESD(IEC61000-4-2)

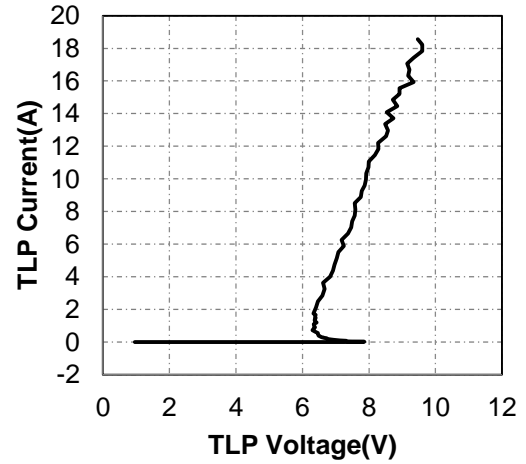


Fig.2 Transmission Line Pulse (TLP)

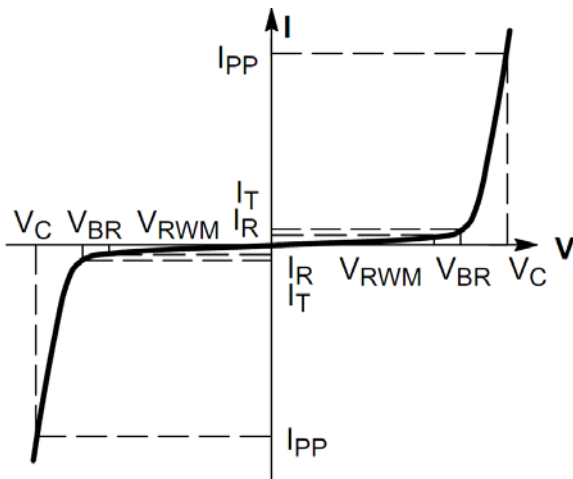


Fig.3 V-I Characteristics for Bidirectional Diode

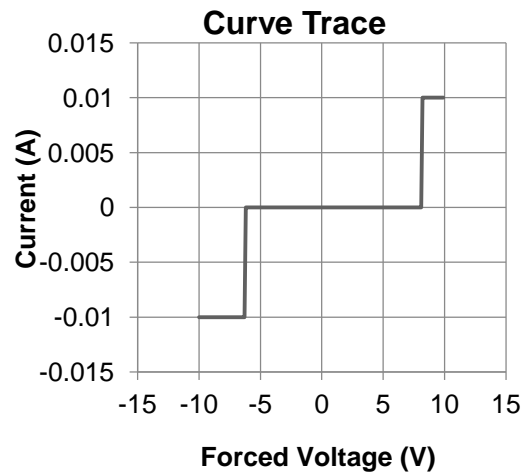


Fig.4 IV Curve

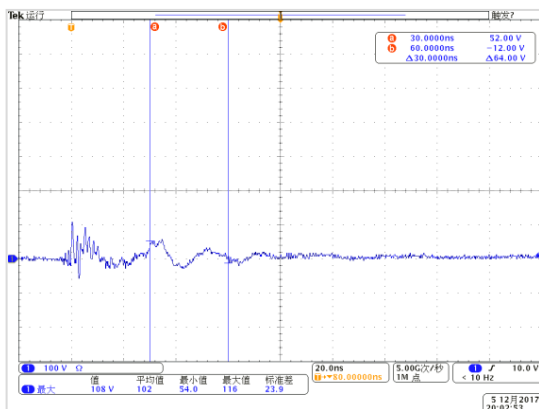


Fig.5 Clamping Voltage at IEC61000-4-2 +8kV Pulse Waveform

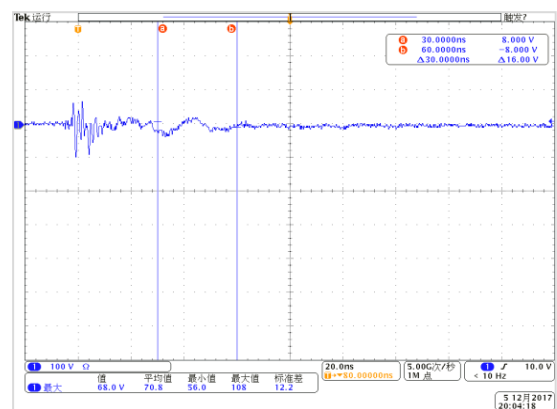
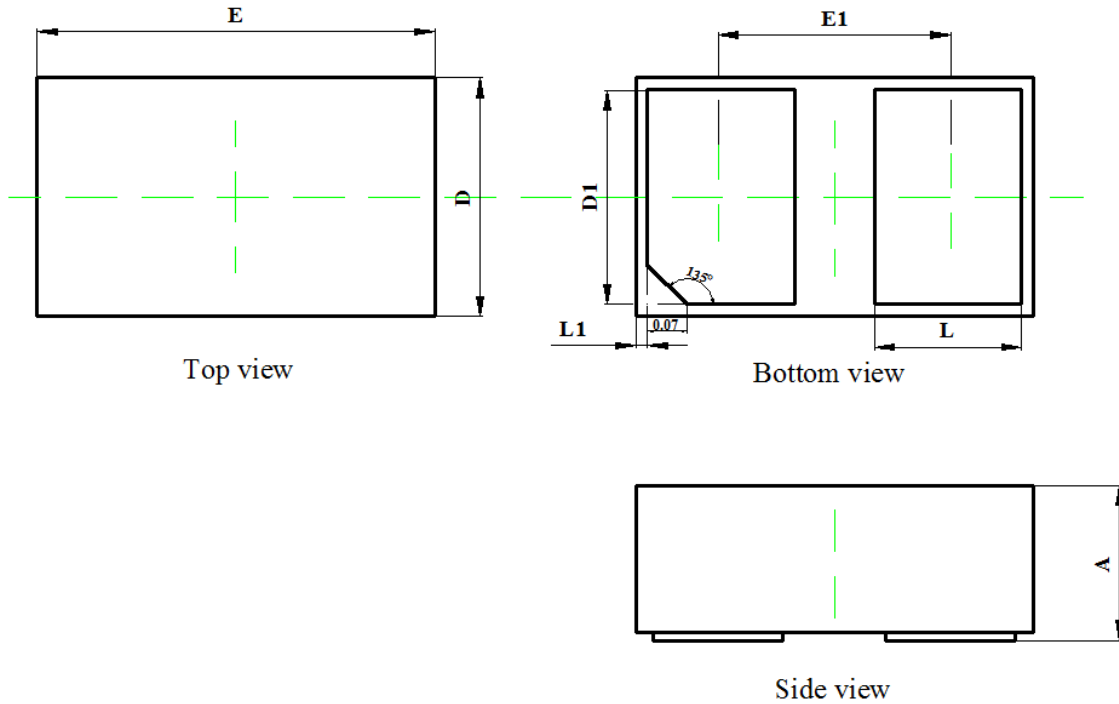


Fig.6 Clamping Voltage at IEC61000-4-2 -8kV Pulse Waveform

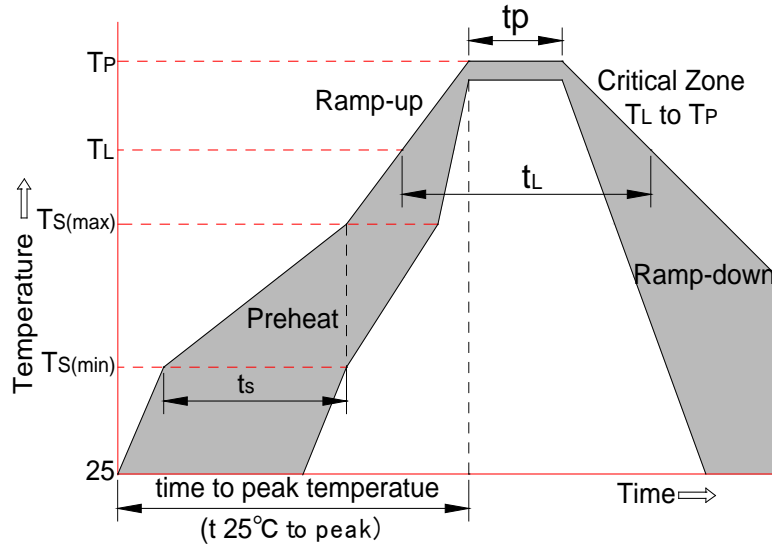
## 9. Package Outline Dimensions

DFN1006 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
<b>A</b>	0.350	0.450	0.014	0.018
<b>D</b>	0.550	0.650	0.022	0.026
<b>E</b>	0.950	1.050	0.037	0.041
<b>D1</b>	0.420	0.520	0.017	0.020
<b>E1</b>	0.550	0.650	0.022	0.026
<b>L</b>	0.270	0.370	0.011	0.015
<b>L1</b>	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) ( $t_s$ )	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