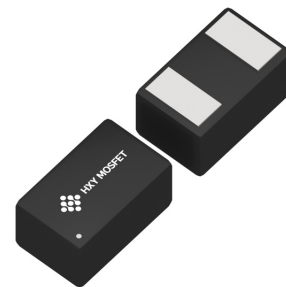




## Discription

The ESD5451N protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.



DFN1006-2L

## Features

- ★ Low Leakage
- ★ Response Time is Typically < 1 ns
- ★ ESD Rating of Class 3 per Human Body Model
- ★ IEC61000-4-2 Level 4 ESD Protection
- ★ These are Pb-Free Devices
- ★ We declare that the material of product compliance with RoHS requirements and Halogen Free.



Circuit Diagram

## Ordering information

| Product ID | Pack       | Qty(PCS) |
|------------|------------|----------|
| ESD5451N   | DFN1006-2L | 10000    |

## MAXIMUM RATINGS

| Rating                                                                   | Symbol  | Value      | Unit |
|--------------------------------------------------------------------------|---------|------------|------|
| IEC 61000-4-2 (ESD) Air discharge                                        |         | ±25        | kV   |
| Contact discharge                                                        |         | ±20        | kV   |
| Total Power Dissipation on FR-5 Board (Note 1)<br>@ T <sub>A</sub> =25°C | PD      | 200        | mW   |
| Junction and Storage Temperature Range                                   | TJ,TSTG | -55 to 150 | °C   |
| Lead Solder Temperature – Maximum (10<br>Second Duration)                | TL      | 260        | °C   |

Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0\*0.75\*0.62 in.



Electrical Characteristics

| Device   | $V_{RWM}$<br>(V) | $I_{R1}(\mu A)$<br>@ $V_{RWM}$ | $I_{R2}(\mu A)$<br>@ $V_R=3.5V$ | $V_{BR}$ (V) @ $I_T$<br>(Note 2) |     | $I_T$ | $V_C$ (V)<br>@ $I_{PP} = 1\text{ A}$<br>(Note 3) | $V_C$ (V)<br>@ MAX $I_{PP}$<br>(Note 3) | $I_{PP}(A)$<br>(Note 3) | $P_{PK}(W)$<br>(Note 3) | C (pF) |
|----------|------------------|--------------------------------|---------------------------------|----------------------------------|-----|-------|--------------------------------------------------|-----------------------------------------|-------------------------|-------------------------|--------|
|          | Max              | Max                            | Max                             | Min                              | Max | mA    | Max                                              | Max                                     | Max                     | Max                     | Typ    |
| ESD5451N | 5.0              | 0.5                            | 0.3                             | 5.6                              | 8.0 | 1.0   | 9.8                                              | 10                                      | 9                       | 90                      | 15     |

- Other voltage available upon request.
2.  $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of 25°C
3. Surge current waveform per Figure 3.

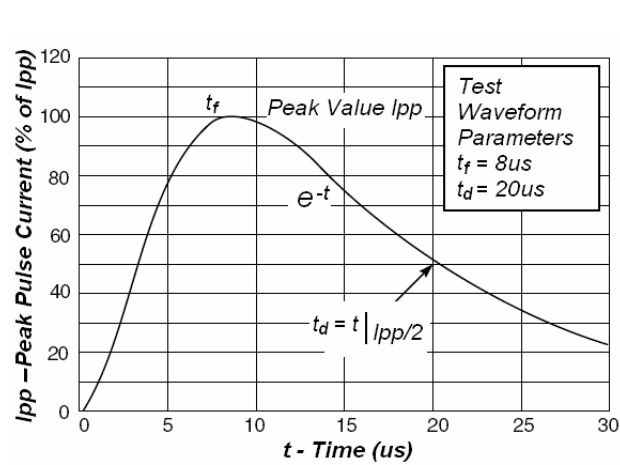


Fig1. Pulse Waveform

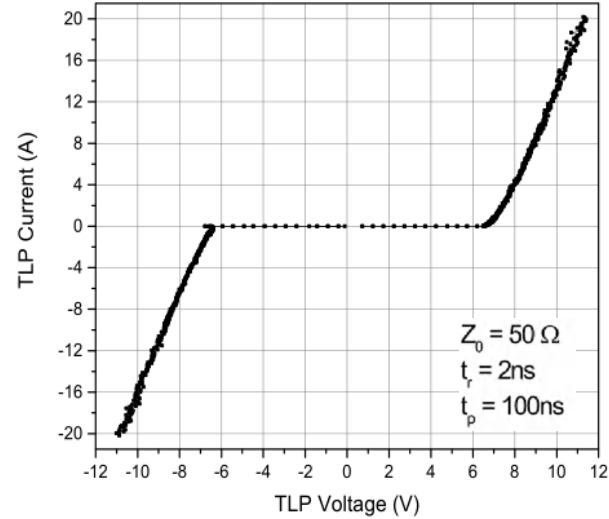
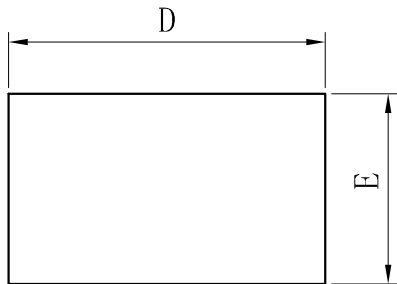


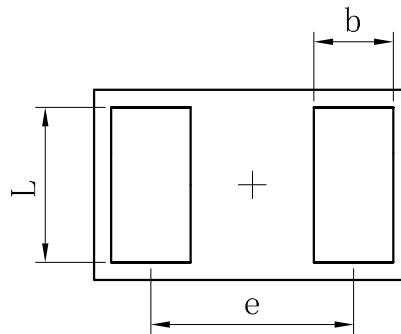
Fig2.TLP Measurement



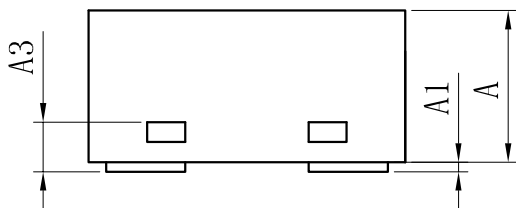
## Outline And Dimensions



TOP VIEW



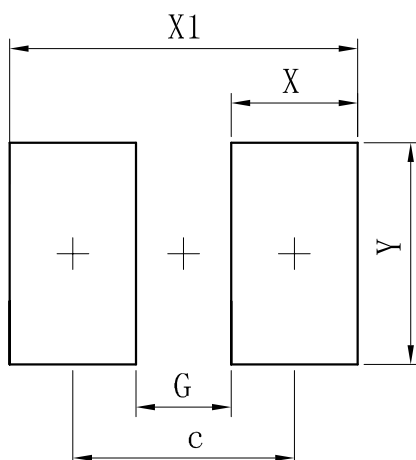
BOTTOM VIEW



SIDE VIEW

| DFN1006-2L           |           |      |      |
|----------------------|-----------|------|------|
| Dim                  | Min       | Typ  | Max  |
| D                    | 0.95      | 1.00 | 1.05 |
| E                    | 0.55      | 0.60 | 0.65 |
| e                    | –         | 0.64 | –    |
| L                    | 0.44      | 0.49 | 0.54 |
| b                    | 0.20      | 0.25 | 0.30 |
| A                    | 0.43      | 0.48 | 0.53 |
| A1                   | 0         | –    | 0.05 |
| A3                   | 0.127REF. |      |      |
| All Dimensions in mm |           |      |      |

## Soledering Footprint



| Dimensions | (mm) |
|------------|------|
| c          | 0.70 |
| G          | 0.30 |
| X          | 0.40 |
| X1         | 1.10 |
| Y          | 0.70 |



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