

## General description

Low capacitance bidirectional ElectroStatic Discharge (ESD) protection diode in a DFN1006(SOD882) leadless ultra small Surface-Mounted Device (SMD) plastic package designed to protect one signal line from the damage caused by ESD and other transients.

## Features and benefits

- Bidirectional ESD protection of one line
- Low operating voltage: 7.0V
- Low clamping voltage  $V_C = 13\text{ V}@8\text{A}$
- Response time is typically  $< 1\text{ ns}$
- Ultra Low Leakage: nA Level
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); IPPM = 8 A



DFN1006-2L

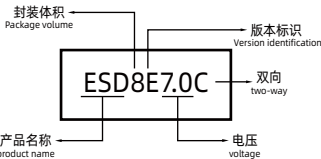
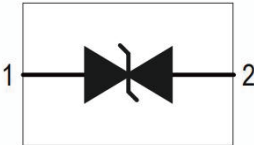
## Application information

- Portable electronics
- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- Power supplies

## Ordering information

| Device    | Package    | Reel Size | Qty(PCS) |
|-----------|------------|-----------|----------|
| ESD8E7.0C | DFN1006-2L | 7 Inch    | 10000    |

## Ordering information

| Marking    | Naming rule                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Graphic symbol                                                                                                                                                                                                                                                                                                                                          |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R2C</b> |  <p>The diagram shows the naming rule for the device ESD8E7.0C. It is a rectangular box with the text 'ESD8E7.0C' inside. Arrows point from labels to parts of the box: '封装体积' (Package volume) points to the top left, '版本标识' (Version identification) points to the top right, '产品名称' (product name) points to the bottom left, and '电压' (voltage) points to the bottom right. The text '双向 two-way' is written to the right of the box.</p> |  <p>The graphic symbol is a rectangular box containing a bidirectional diode symbol. The symbol consists of two triangles pointing towards each other, with a vertical line through the center. The terminals are labeled '1' on the left and '2' on the right.</p> |

## Maximum Ratings (T<sub>A</sub> = 25 °C, unless otherwise specified)

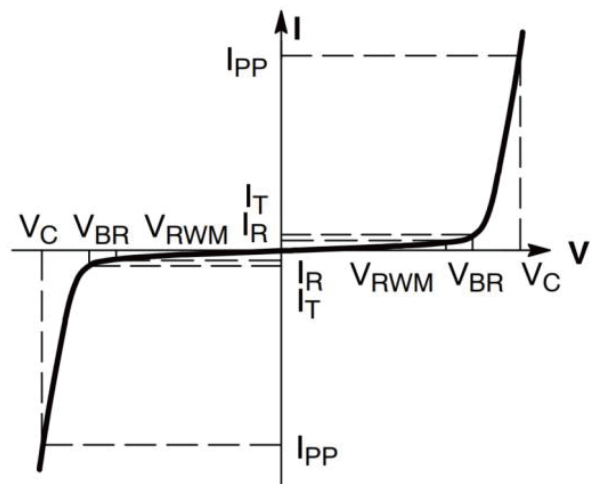
| Parameter                                         | Symbol           | Value       | Unit |
|---------------------------------------------------|------------------|-------------|------|
| Peak Pulse Power (tp = 8/20μs)                    | P <sub>PPM</sub> | 104         | W    |
| Peak Pulse Current(tp = 8/20μs)                   | I <sub>PPM</sub> | 8           | A    |
| Maximum lead temperature for soldering during 10s | T <sub>L</sub>   | 260         | °C   |
| Storage Temperature Range                         | T <sub>stg</sub> | -55 to +150 | °C   |
| Operating Temperature Range                       | T <sub>OP</sub>  | -40 to +125 | °C   |
| Maximum junction temperature                      | T <sub>j</sub>   | 150         | °C   |
| ESD voltage IEC 61000-4-2 (air discharge)         | V <sub>ESD</sub> | 30          | kV   |
| ESD voltage IEC 61000-4-2 (contact discharge)     | V <sub>ESD</sub> | 30          | kV   |

## Electrical Characteristics (T<sub>A</sub> = 25 °C, unless otherwise specified)

| Parameter                         | Symbol           | Min | Typ  | Max  | Unit | Condition                                   |
|-----------------------------------|------------------|-----|------|------|------|---------------------------------------------|
| Reverse Working Voltage           | V <sub>RWM</sub> | --  | --   | 7.0  | V    |                                             |
| Breakdown Voltage                 | V <sub>BR</sub>  | 7.6 | 8.2  | 9.0  | V    | I <sub>T</sub> =1mA                         |
| Leakage Current I <sub>Leak</sub> | I <sub>R</sub>   | --  | --   | 0.1  | μA   | V <sub>RWM</sub> =7.0V                      |
| Clamping Voltage                  | V <sub>C</sub>   | --  | 10.0 | 12.0 | V    | I <sub>PP</sub> =5A, T <sub>p</sub> =8/20μs |
| Clamping Voltage                  | V <sub>C</sub>   | --  | 11.5 | 13.0 | V    | I <sub>PP</sub> =8A, T <sub>p</sub> =8/20μs |
| Junction Capacitance              | C <sub>J</sub>   | --  | 17.0 | 25.0 | pF   | V <sub>R</sub> =0V, f=1MHz                  |

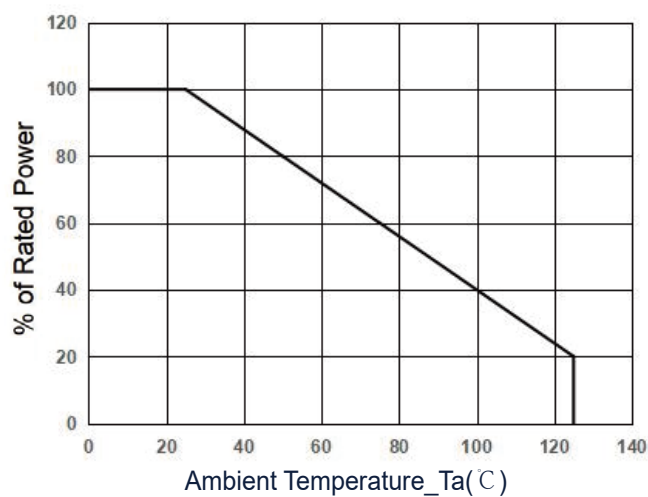
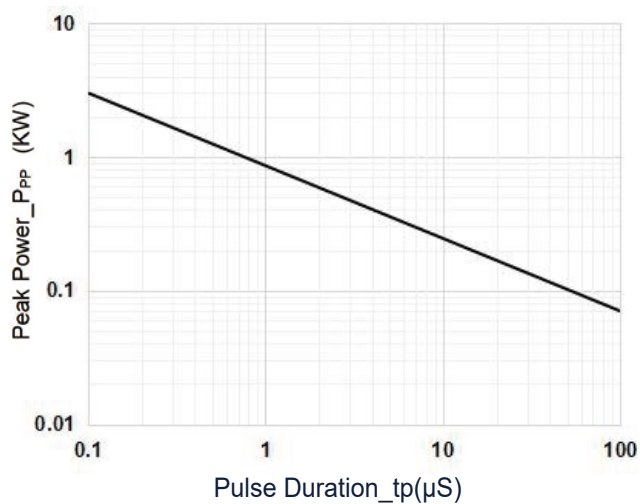
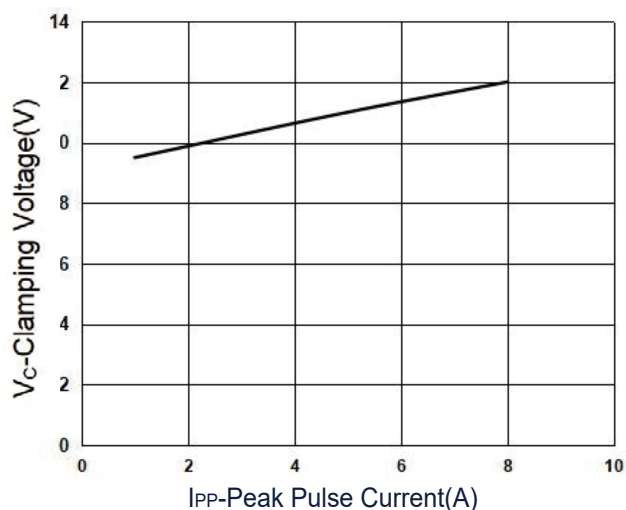
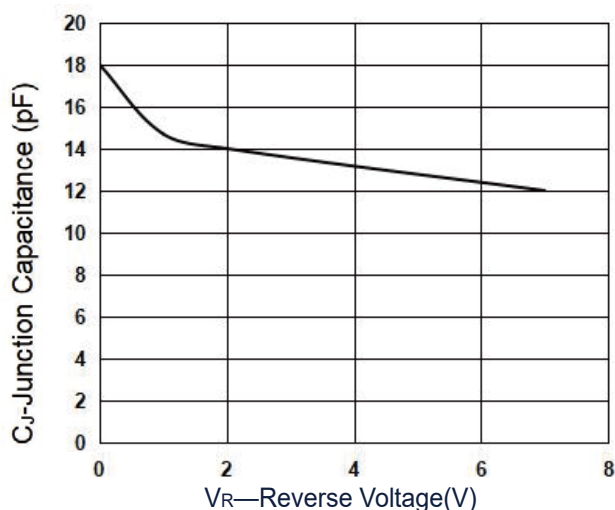
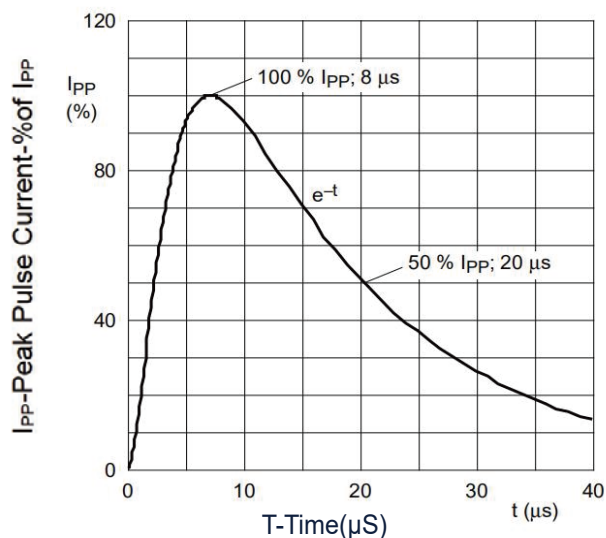
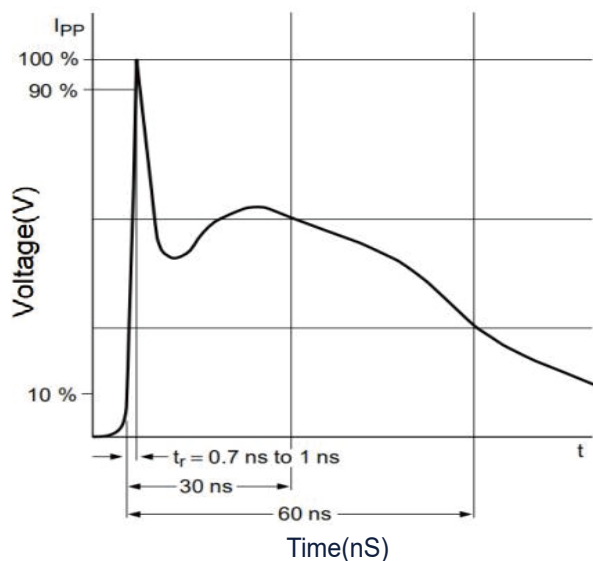
## Portion Electronics Parameter

| Symbol           | Parameter                                  |
|------------------|--------------------------------------------|
| I <sub>PPM</sub> | Maximum Reverse Peak Pulse Current         |
| V <sub>C</sub>   | Clamping Voltage @ I <sub>PP</sub>         |
| V <sub>RWM</sub> | Working Peak Reverse Voltage               |
| I <sub>R</sub>   | Reverse Leakage Current @ V <sub>RWM</sub> |
| I <sub>T</sub>   | Test Current                               |
| V <sub>BR</sub>  | Breakdown Voltage @ I <sub>T</sub>         |



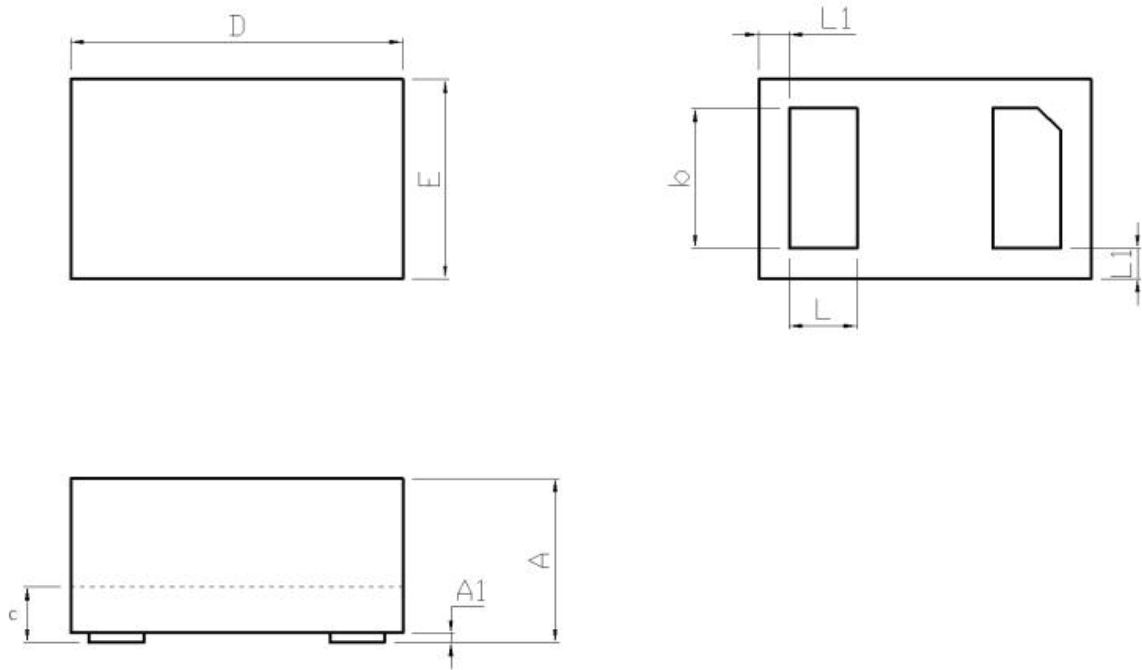


## Typical Characteristics





## DFN1006-2L Package Outline Dimensions



| DFN1006-2L (mm) |       |      |       |
|-----------------|-------|------|-------|
| DIM             | MIN   | TYP. | MAX   |
| A               | 0.40  | 0.50 | 0.55  |
| A1              | 0     | 0.02 | 0.05  |
| b               | 0.45  | 0.5  | 0.55  |
| c               | 0.1   | 0.15 | 0.18  |
| 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 |