

描述 / Descriptions

DFN1006-2L 塑封封装单线程双向 ESD 保护二极管。
DFN1006-2L Plastic Package 1-Line, Bi-directional, ESD Protection Diode.

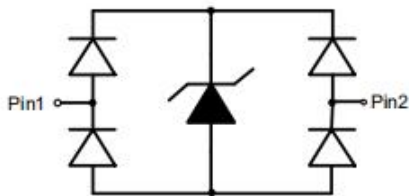
特征 / Features

- ◆ Stand-off voltage: 5V Max.
- ◆ Transient protection for each line according to IEC61000-4-2(ESD): $\pm 15\text{kV}$ (contact)
IEC61000-4-5(surge): 4A (8/20 μs)
- ◆ Ultra-low capacitance: $C_J = 0.35\text{pF}$ typ.
- ◆ Ultra-low leakage current: $I_R < 1\text{nA}$ typ.
- ◆ Low clamping voltage: $V_{CL} = 9.0\text{V}$ typ. @ $I_{PP} = 16\text{A}$ (TLP)
- ◆ Solid-state silicon technology
- ◆ HF Product

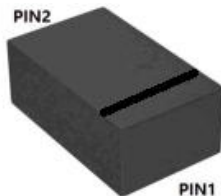
用途 / Applications

- ◆ USB 2.0 and USB 3.0
- ◆ HDMI 1.3, HDMI 1.4 and HDMI 2.0
- ◆ SATA and eSATA interface
- ◆ DVI
- ◆ IEEE 1394
- ◆ Portable Electronics and Notebooks

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



印章代码 / Marking

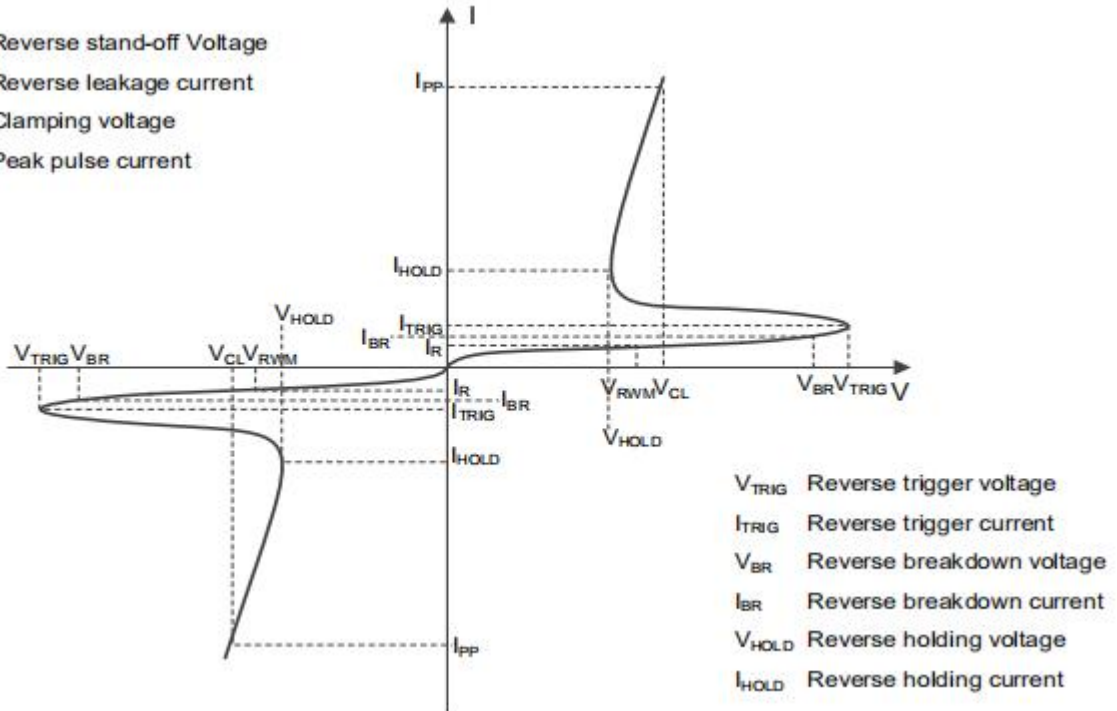
见印章说明。 See Marking Instructions.


极限参数 / Absolute Maximum Ratings

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|---|--------------|--------------|-------------|
| Peak Pulse Power($t_p = 8/20\mu s$) | P_{PK} | 34 | W |
| Peak Pulse Current($t_p = 8/20\mu s$) | I_{PP} | 4 | A |
| ESD according to IEC61000-4-2 air discharge | V_{ESD} | ± 30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | ± 30 | |
| Junction temperature | T_J | 125 | $^{\circ}C$ |
| Operating temperature | T_{OP} | -40~85 | $^{\circ}C$ |
| Lead temperature | T_L | 260 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55~+150 | $^{\circ}C$ |

电性能参数 / Electrical Characteristics(Ta=25°C)

V_{RWM} Reverse stand-off Voltage
 I_R Reverse leakage current
 V_{CL} Clamping voltage
 I_{PP} Peak pulse current



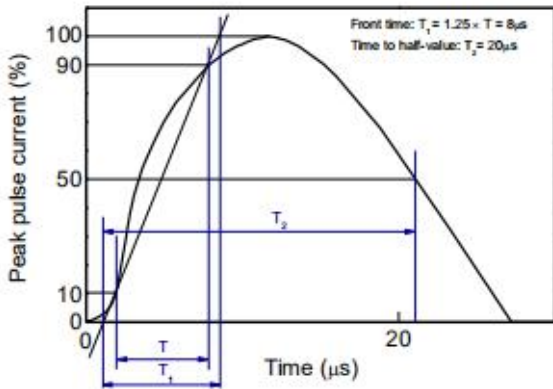
Definitions of electrical characteristics

| 参数 Parameter | 符号 Symbol | 测试条件 Test Conditions | 最小值 Min | 典型值 Typ | 最大值 Max | 单位 Unit |
|----------------------------------|--------------|---------------------------------|------------|------------|------------|------------|
| Reverse maximum working voltage | V_{RWM} | | | | 3.3 | V |
| Reverse leakage current | I_R | $V_{RWM} = 3.3V$ | | <1 | 50 | nA |
| Reverse breakdown voltage | V_{BR} | $I_T = 1mA$ | 7.0 | 10.0 | | V |
| Clamping voltage ¹⁾ | V_{CL} | $I_{PP} = 16A$ $t_p = 100ns$ | | 9 | | V |
| Dynamic resistance ¹⁾ | R_{DYN} | | | 0.25 | | Ω |
| Clamping voltage ²⁾ | V_{CL} | $V_{ESD} = 8kV$ | | 9 | | V |
| Clamping voltage ³⁾ | V_{CL} | $I_{PP} = 1A$ $t_p = 8/20\mu s$ | | 4.5 | 5.5 | V |
| | | $I_{PP} = 4A$ $t_p = 8/20\mu s$ | | 7 | 8.5 | V |
| Junction Capacitance | C_J | $V_R = 0V$ $f = 1MHz$ | | 0.35 | 0.5 | pF |

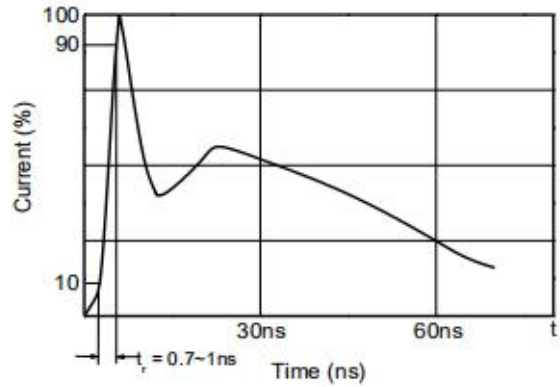
Notes:

- 1) TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.
- 2) Contact discharge mode, according to IEC61000-4-2.
- 3) Non-repetitive current pulse, according to IEC61000-4-5.

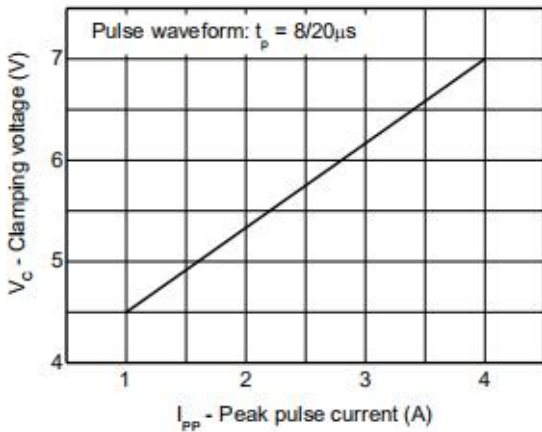
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



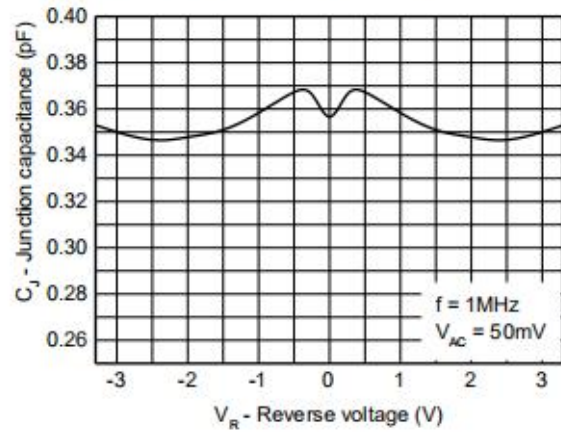
8/20μs waveform per IEC61000-4-5



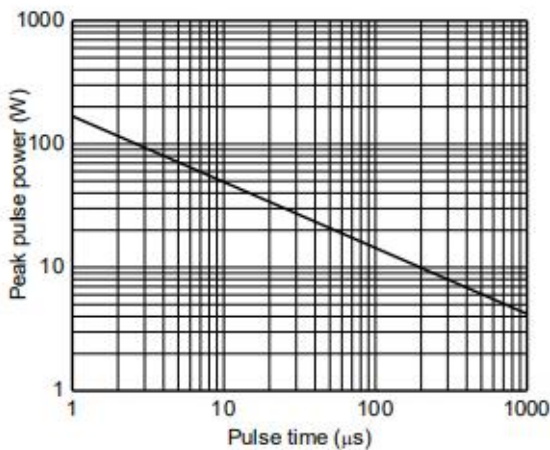
Contact discharge current waveform per IEC61000-4-2



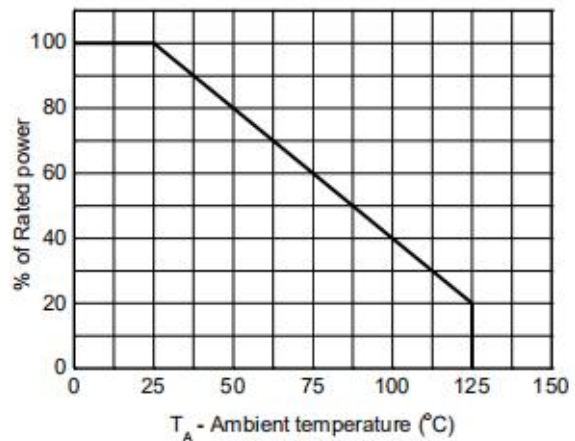
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

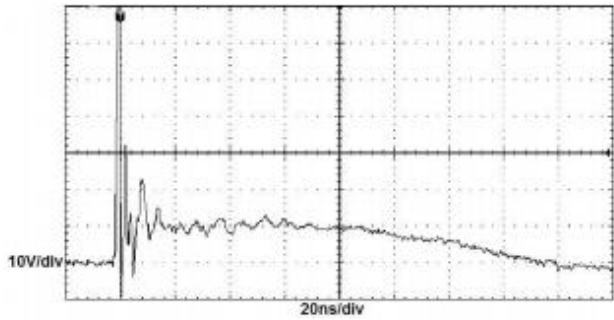


Non-repetitive peak pulse power vs. Pulse time

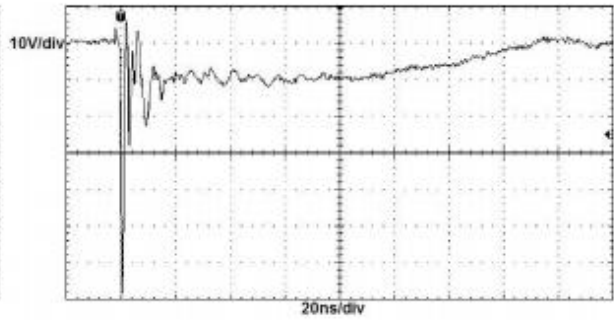


Power derating vs. Ambient temperature

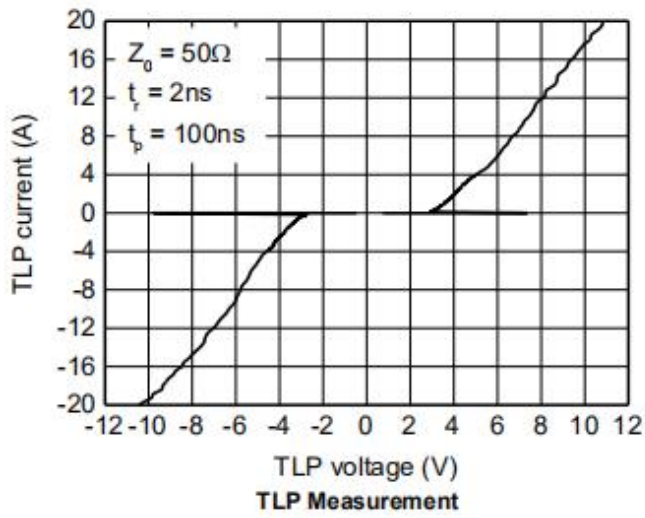
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



ESD clamping
(+8kV contact discharge per IEC61000-4-2)



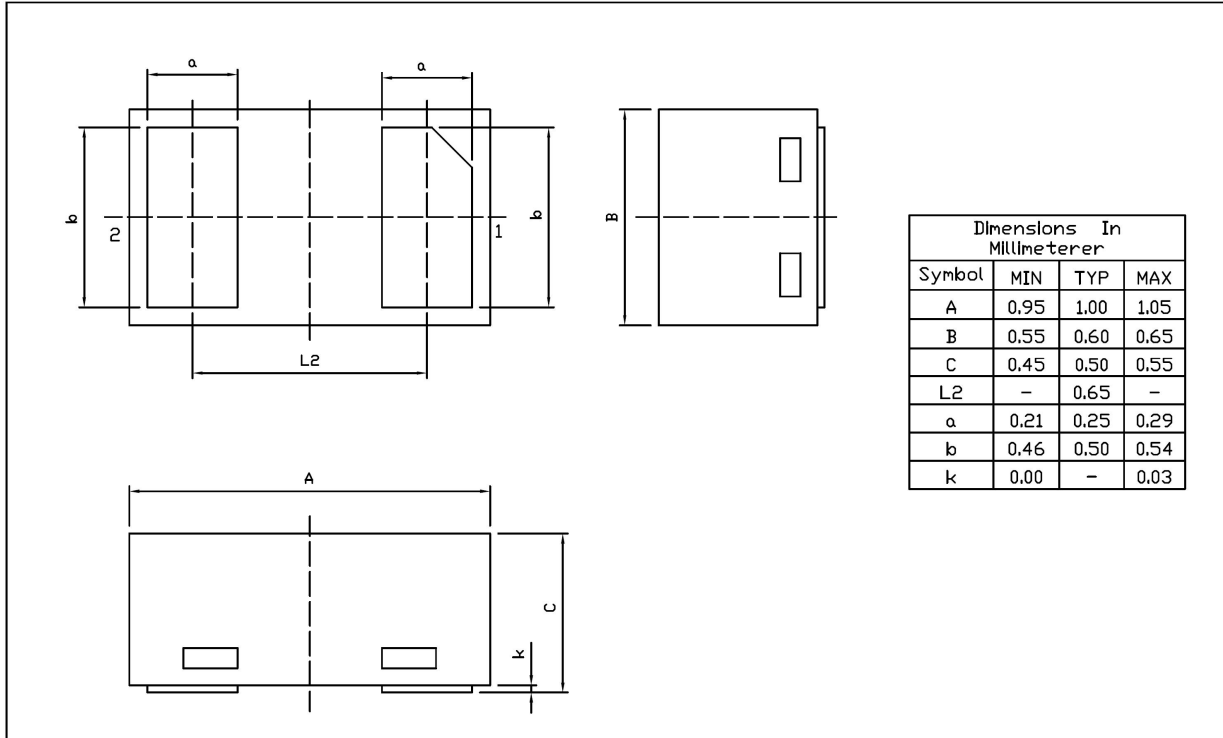
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



外形尺寸图 / Package Dimensions

DFN1006-2L

Unit:mm



Rev.01 202108



印章说明 / Marking Instructions



说明：

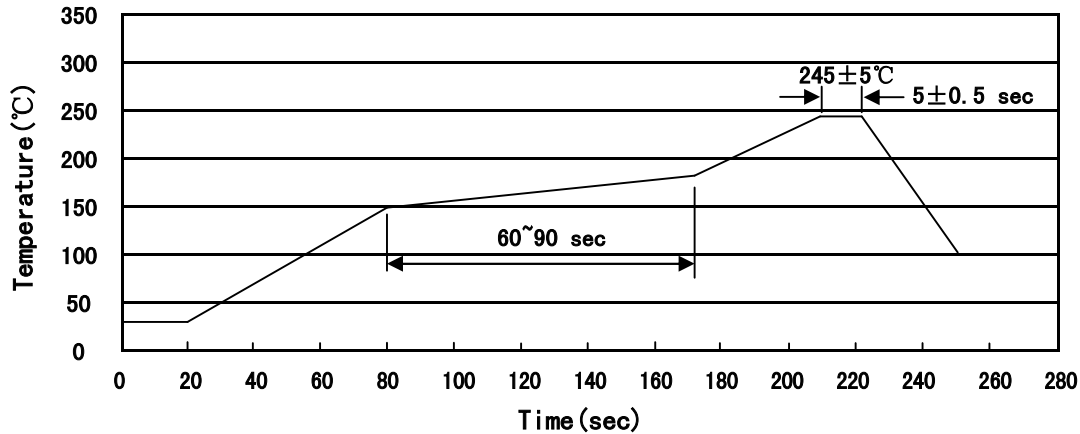
3U： 为型号代码

Note：

3U： Product Type.



回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit: mm ³) | | |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|---|-------------|-------------|
| | Units/Reel 只/卷盘 | Reels/Inner Box 卷盘/盒 | Units/Inner Box 只/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Reel | Inner Box 盒 | Outer Box 箱 |
| DFN1006-2L | 10,000 | 10 | 100,000 | 6 | 600,000 | 7" ×8 | 180×120×180 | 390×385×205 |

使用说明 / Notices