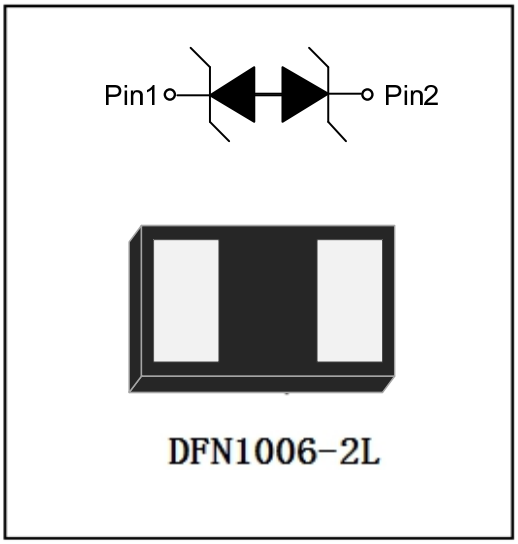
# 1-Line, Bi-directional, Transient Voltage Suppressor



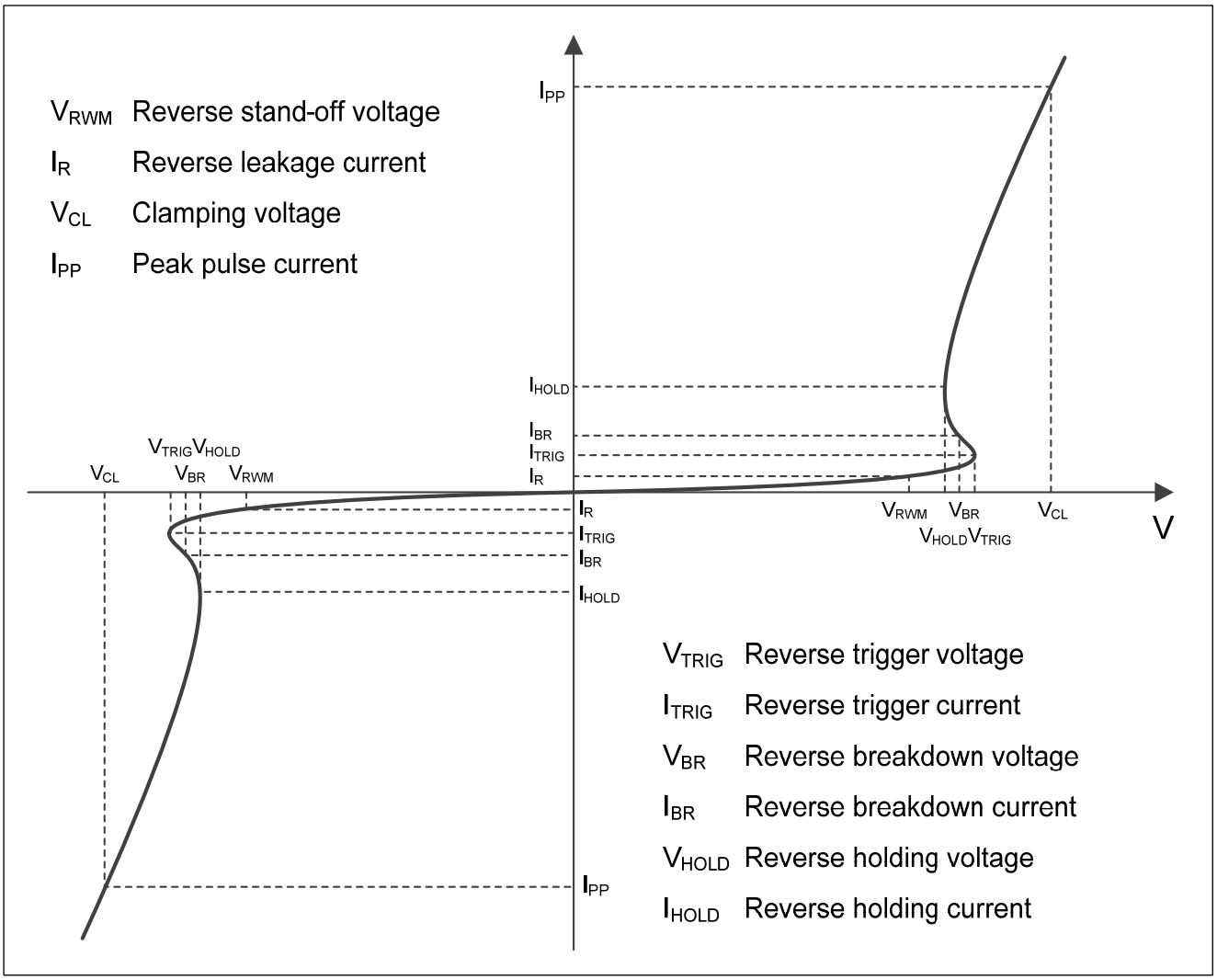

## Features

- Stand-off voltage: ±5.5V Max
- Transient protection for each line according to
IEC61000-4-2(ESD): ±30kV (contact)
IEC61000-4-4 (EFT): 40A (5/50ns)
IEC61000-4-5(surge): 6A (8/20μs)
- Ultra-low capacitance: $C_J$ = 10pF typ
- Low leakage current
- Low clamping voltage: $V_{CL}$ =11.0V typ. @ $I_{PP}$ = 16A (TLP)
- Solid-state silicon technology

## Mechanical Data

- **Package**: DFN1006-2L
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** No marking on bi-directional types
- **Marking:** 6A

## ■Definitions of electrical characteristics



## ■Maximum Ratings

| PARAMETER | SYMBOL | Rating | UNIT |
|---|---|---|---|
| Peak pulse power ($t_p$ = 8/20μs) | $P_{pk}$ | 72 | W |
| Peak pulse current ($t_p$ = 8/20μs) | $I_{PP}$ | 6 | A |
| ESD according to IEC61000-4-2 air discharge | $V_{ESD}$ | ±30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | ±30 | KV |
| Junction temperature | $T_J$ | 125 | °C |
| Operating temperature | $T_{OP}$ | -40~85 | °C |
| Storage temperature | $T_{STG}$ | -55~150 | °C |

## ■Electrical Characteristics（$T_a$=25℃ Unless otherwise specified）

| PARAMETER | Symbol | UNIT | Conditions | Min | Typ | Max |
|---|---|---|---|---|---|---|
| Reverse maximum working voltage | $V_{RWM}$ | V | | | | ±5.5 |
| Reverse leakage current | $I_R$ | nA | $V_{RWM}$ =5.5V | | | 100 |
| Reverse breakdown voltage | $V_{BR}$ | V | $I_{BR}$ = 1mA | 6.1 | 7 | |
| Reverse holding voltage | $V_{HOLD}$ | V | $I_{HOLD}$ = 50mA | 6.1 | 7 | |
| Clamping voltage [1] | $V_{CL}$ | V | $I_{PP}$ = 16A, $t_p$ = 100ns | | 11.0 | |
| Dynamic resistance [1] | $R_{DYN}$ | Ω | | | 0.28 | |
| Clamping voltage [2] | $V_{CL}$ | V | $V_{ESD}$ = 8kV | | 11.0 | |
| Clamping voltage [3] | $V_{CL}$ | V | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | | 8 |
| | | V | $I_{PP}$ = 6A, $t_p$ = 8/20μs | | | 12 |
| Junction capacitance | $C_J$ | pF | $V_R$ = 0V, f = 1MHz | | 10 | 13 |
| | | pF | $V_R$ = 2.5V, f = 1MHz | | 8 | 11 |

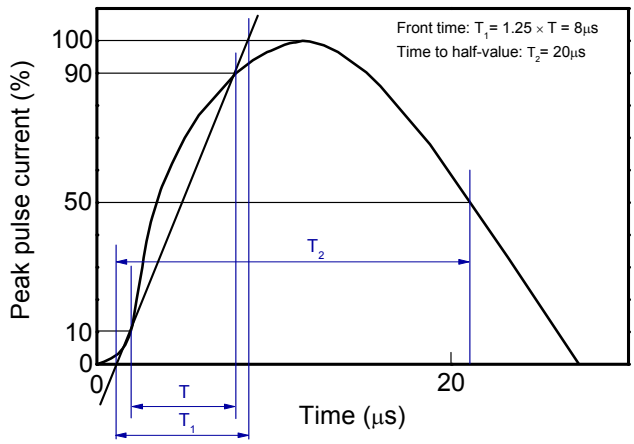
(1). TLP parameter: $Z_0$ = 50Ω, $t_p$ = 100ns, $t_r$ = 2ns, averaging window from 60ns to 80ns. $R_{DYN}$ is calculated from 4A to 16A.
(2). Contact discharge mode, according to IEC61000-4-2.
(3). Non-repetitive current pulse, according to IEC61000-4-5.

## ■Ordering Information (Example)

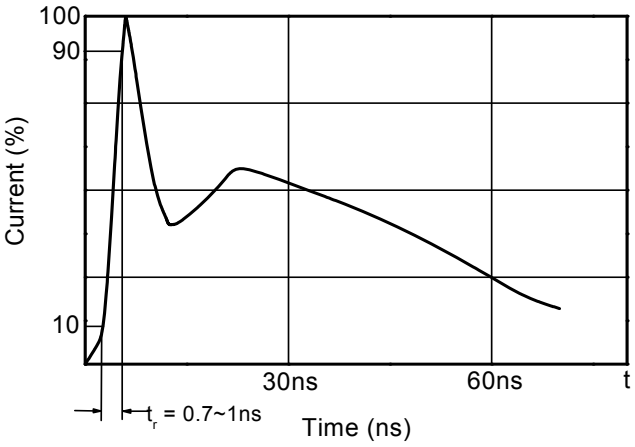
| PREFERED P/N | UNIT WEIGHT(mg) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|
| ESD5V5LB | Approximate 0.9 | 10000 | 100000 | 400000 | Tape & reel |

## ■ Characteristics (Typical)

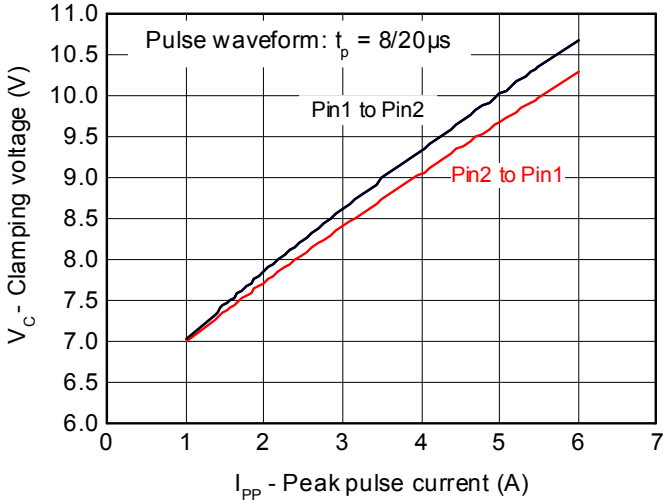
**8/20μs waveform per IEC61000-4-5**



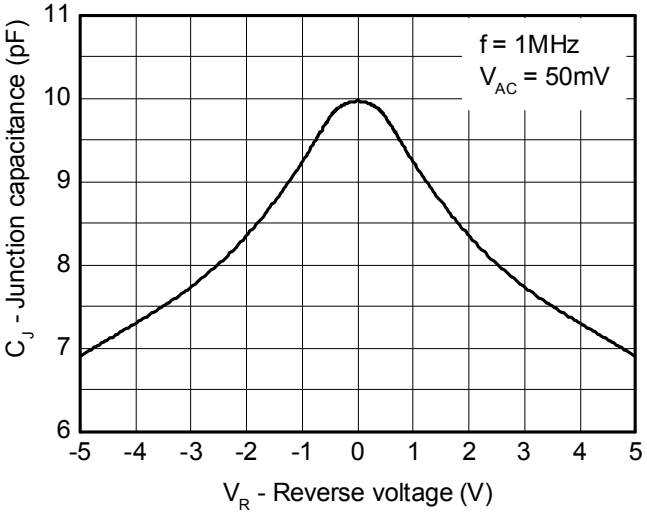

**Contact discharge current waveform per IEC61000-4-2**



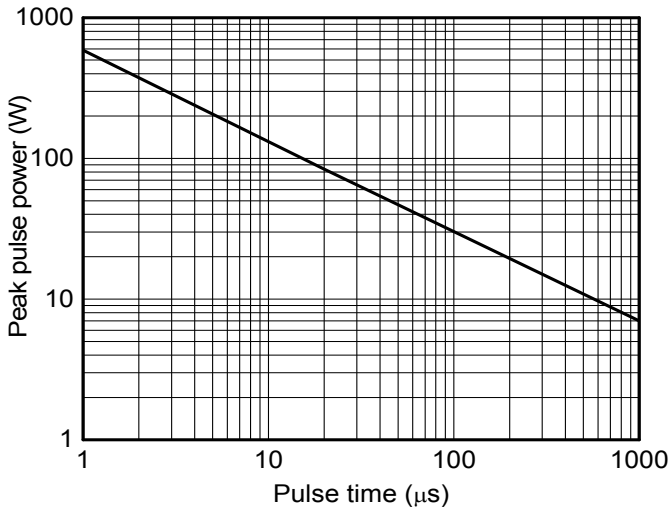

**Clamping voltage vs. Peak pulse current**



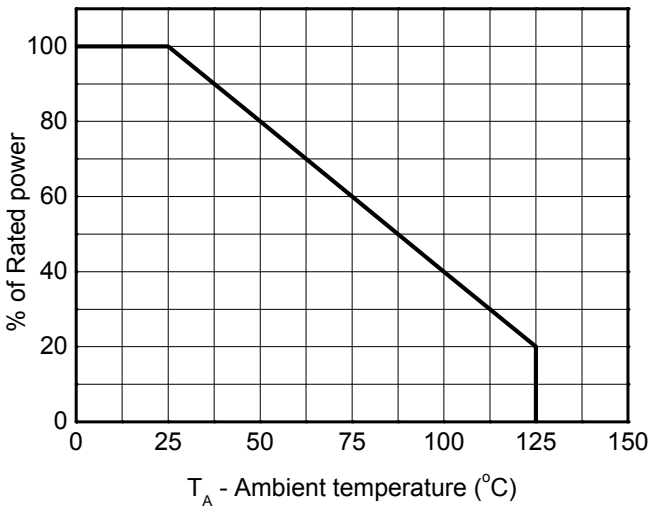

**Capacitance vs. Reverse voltage**



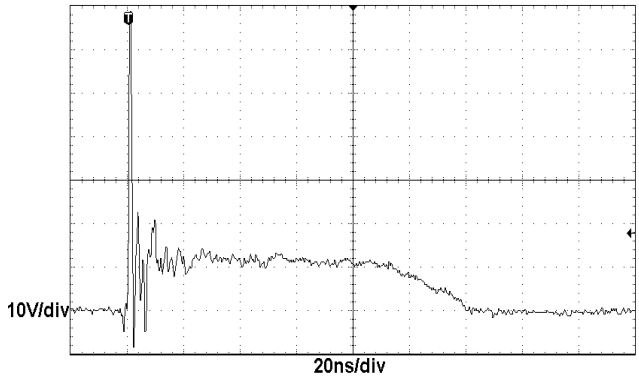

**Non-repetitive peak pulse power vs. Pulse time**



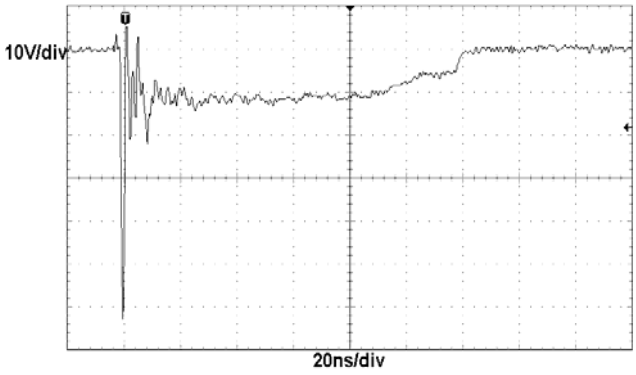

**Power derating vs. Ambient temperature**



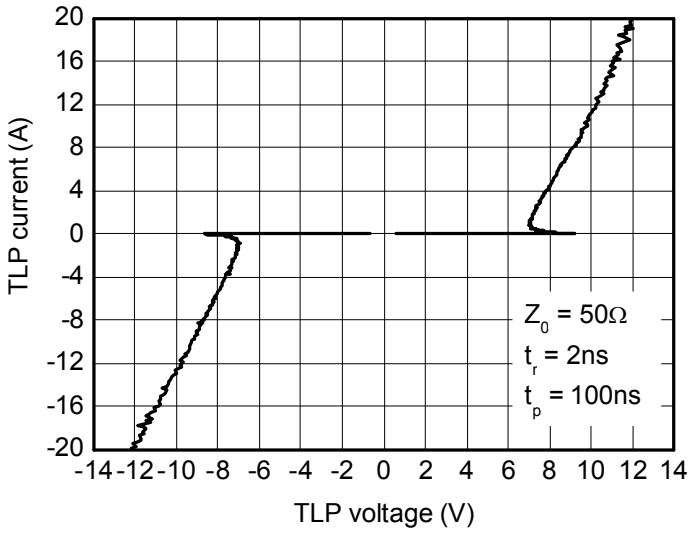
**ESD clamping**
**(+8kV contact discharge per IEC61000-4-2)**



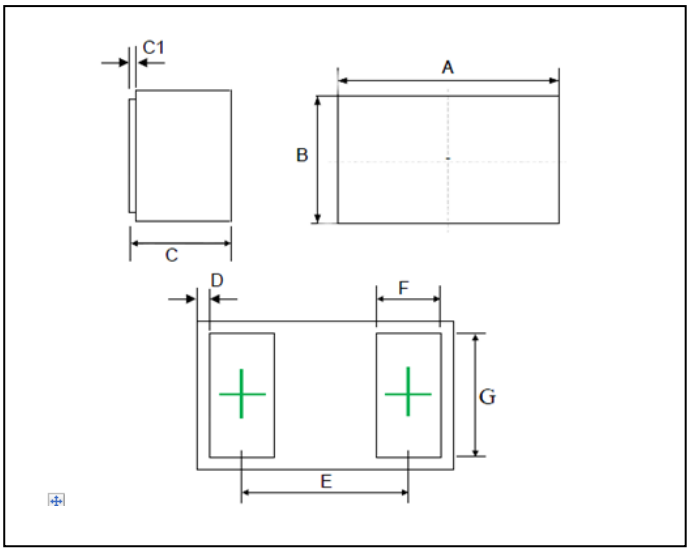

**ESD clamping**
**(-8kV contact discharge per IEC61000-4-2)**




**TLP Measurement**

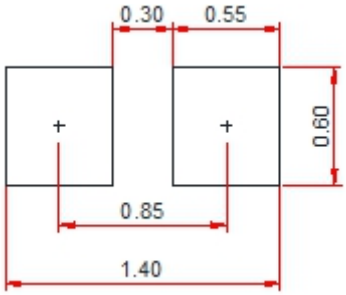



## ■ Outline Dimensions




| Symbol | min. (mm) | Max. (mm) |
|---|---|---|
| A | 0.95 | 1.05 |
| B | 0.55 | 0.65 |
| C | 0.4 | 0.5 |
| C1 | | 0.05 |
| D | 0.01 | 0.08 |
| E | | 0.65 |
| F | 0.2 | 0.3 |
| G | 0.45 | 0.55 |

## ■ Recommend land pattern (Unit:mm)




Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

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