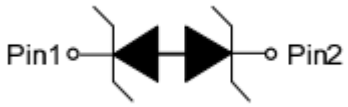
# 1- Line, Bi-directional, Transient Voltage Suppressor






**DFN1006-2L**

## Features

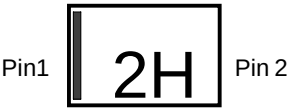
- Stand-off voltage: 1.8V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-5(surge): 15A (8/20μs)
- Low leakage current
- Ultra-low capacitance: CJ = 25pF typ
- Low clamping voltage
- RoHS Compliant

## Applications

- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

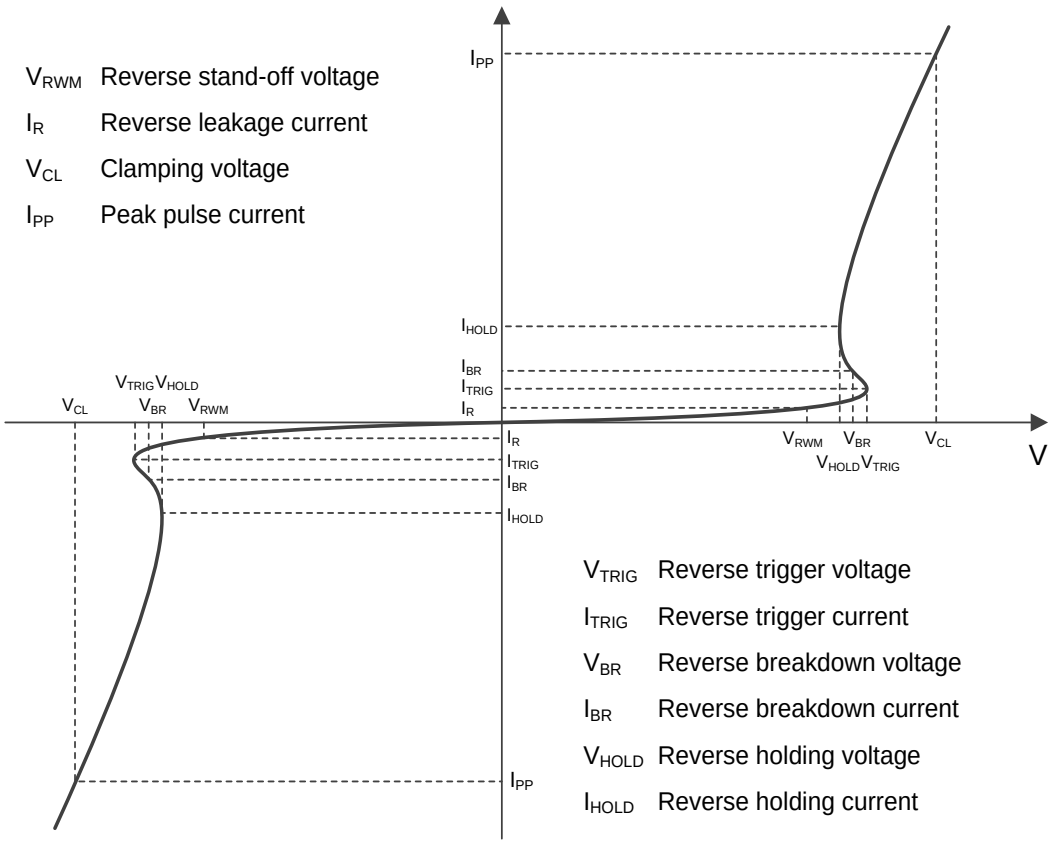
## Mechanical Data

- **Package**: DFN1006-2L
- **Case Material**: “Green” Molding Compound
- **Marking Information**: See Below




## ■Definitions of electrical characteristics

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




| | |
|---|---|
| $V_{TRIG}$ | Reverse trigger voltage |
| $I_{TRIG}$ | Reverse trigger current |
| $V_{BR}$ | Reverse breakdown voltage |
| $I_{BR}$ | Reverse breakdown current |
| $V_{HOLD}$ | Reverse holding voltage |
| $I_{HOLD}$ | Reverse holding current |

## ■Maximum Ratings

| PARAMETER | SYMBOL | LIMITS | UNIT |
|---|---|---|---|
| Peak pulse power ($t_p$ = 8/20μs) | $P_{pk}$ | 150 | W |
| Peak pulse current ($t_p$ = 8/20μs) | $I_{PP}$ | 15 | A |
| ESD according to IEC61000-4-2 air discharge | $V_{ESD}$ | ±30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | ±30 | |
| Junction temperature | $T_J$ | -55~125 | °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 | | | | 1.8 |
| Reverse leakage current | $I_R$ | uA | $V_{RWM}$ = 1.8V, | | | 0.1 |
| Reverse breakdown voltage | $V_{(BR)}$ | V | $I_T$ = 1mA, | 2.5 | | |
| Clamping voltage[1)] | $V_{CL}$ | V | $I_{PP}$ = 16A, $t_p$ = 100ns | | 7 | |
| Clamping voltage[2)] | $V_{CL}$ | V | $V_{ESD}$ = 8kV | | 7 | |
| Clamping voltage[3)] | $V_{CL}$ | V | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | | 4 |
| | | | $I_{PP}$ = 12A, $t_p$ = 8/20μs | | | 8.5 |
| | | V | $I_{PP}$ = 15A, $t_p$ = 8/20μs | | | 10 |
| Junction capacitance | CJ | pF | $V_R$ = 0V, f = 1MHz | | 25 | |

Notes:

(1). TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.

(2). Contact discharge mode, according to IEC61000-4-2.

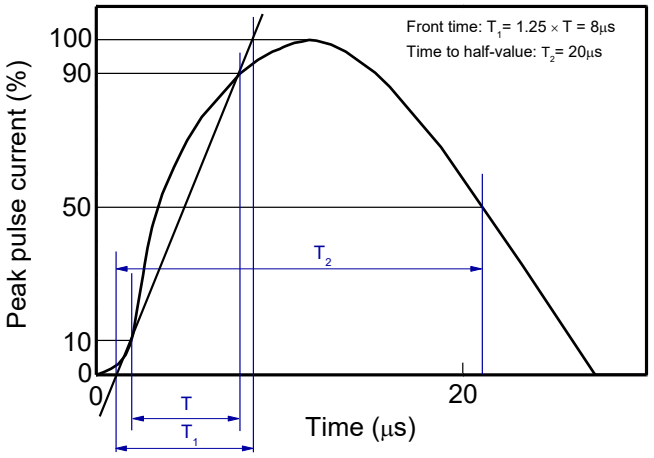
(3). Non-repetitive current pulse, according to IEC61000-4-5

## ■Ordering Information (Example)

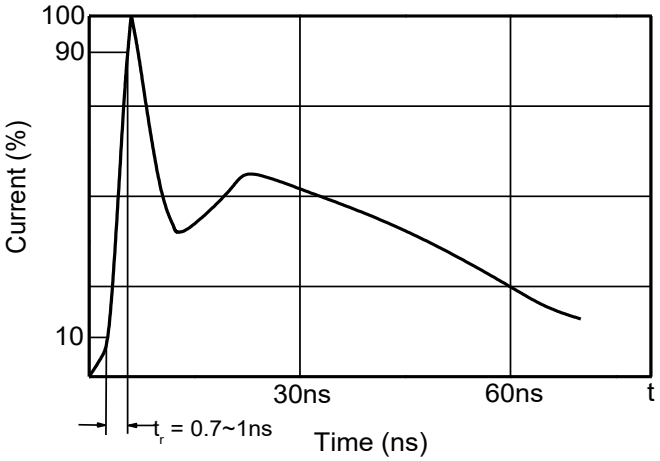
| PREFERED P/N | PACKING CODE | UNIT WEIGHT(mg) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| ESD1V8LB | F1 | Approximate 0.9 | 10000 | 100000 | 400000 | 7 reel |

## ■ Characteristics (Typical)

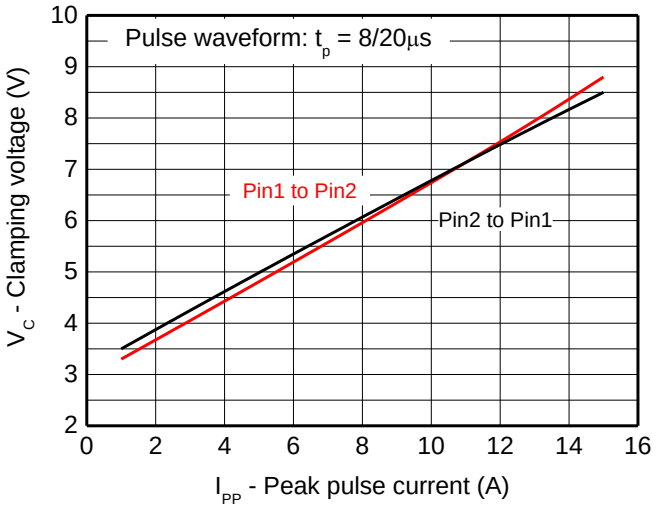
**8/20μs waveform per IEC61000-4-5**



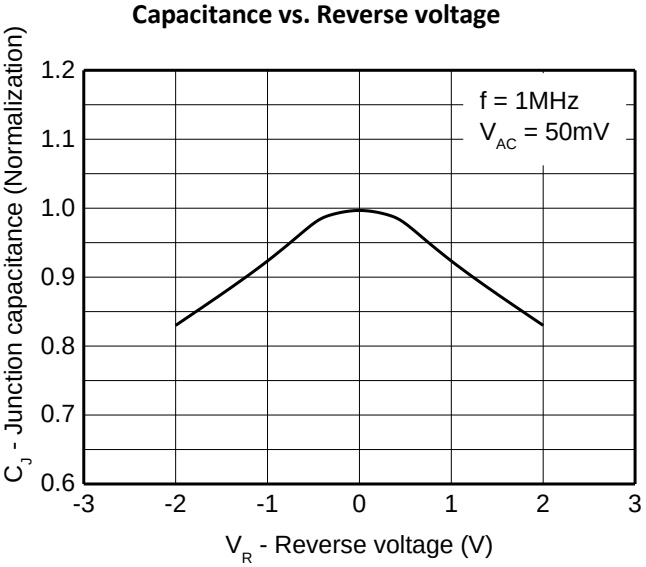

**Contact discharge current waveform per IEC61000-4-2**



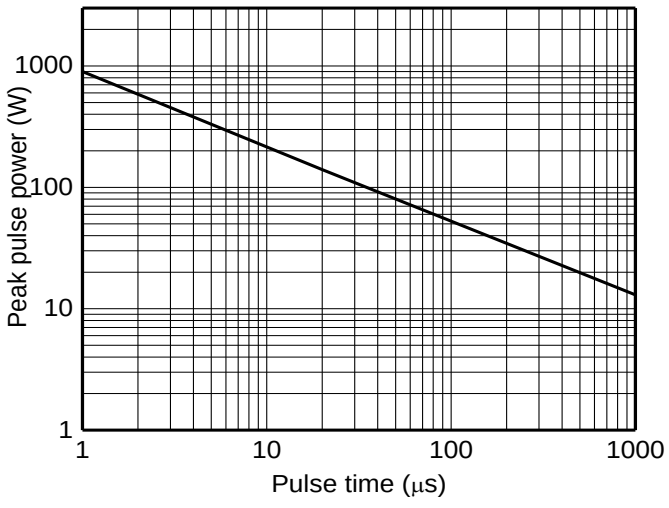

**Clamping voltage vs. Peak pulse current**



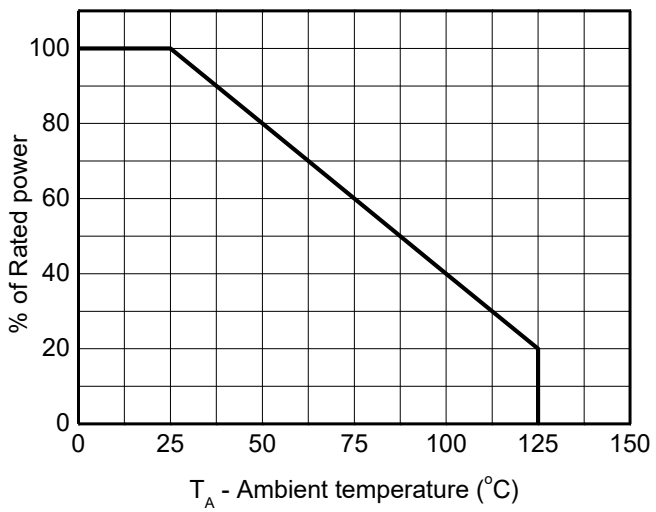

**Capacitance vs. Reverse voltage**



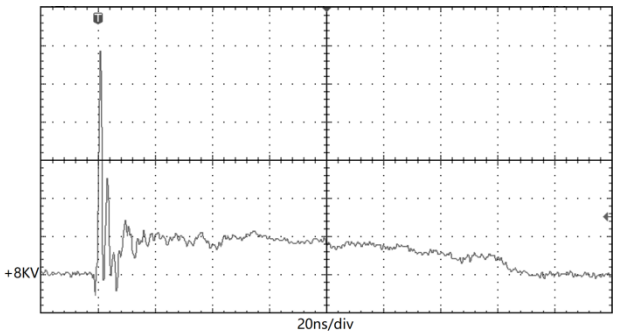

**Non-repetitive peak pulse power vs. Pulse time**



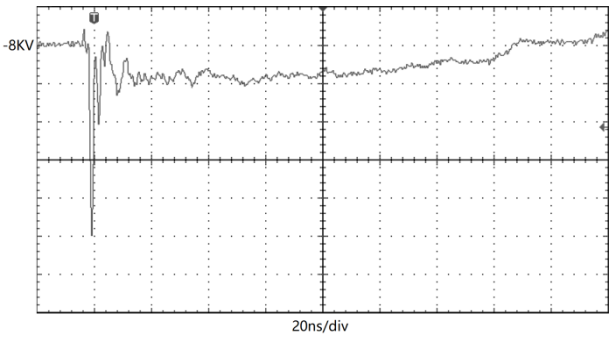

**Power derating vs. Ambient temperature**



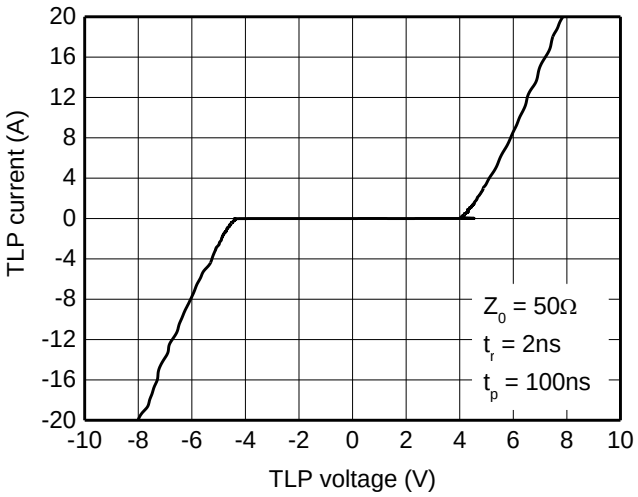
**ESD clamping**
**(+8kV contact discharge per IEC61000-4-2)**



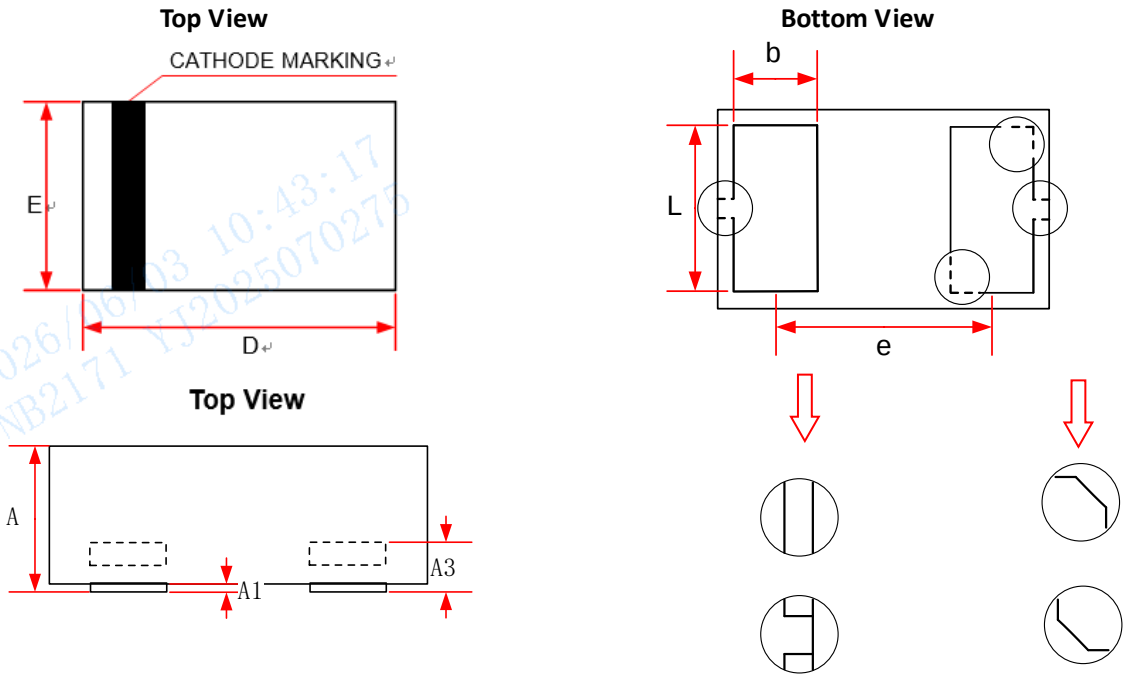

**ESD clamping**
**(-8kV contact discharge per IEC61000-4-2)**




**TLP Measurement**

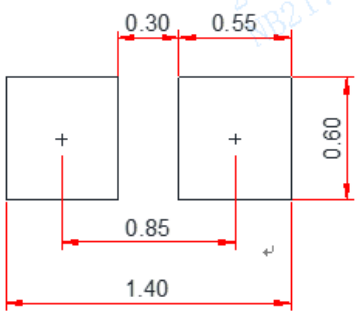


## ■ Outline Dimensions




| Symbol | Dimensions in Millimeters | | |
|---|---|---|---|
| | Min. | Typ. | Max. |
| A | 0.340 | 0.450 | 0.550 |
| A1 | 0.000 | 0.020 | 0.050 |
| A3 | 0.125 Ref. | | |
| D | 0.950 | 1.000 | 1.080 |
| E | 0.550 | 0.600 | 0.680 |
| b | 0.200 | 0.250 | 0.300 |
| L | 0.450 | 0.500 | 0.550 |
| e | 0.650 BSC | | |

## Recommended PCB Layout (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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