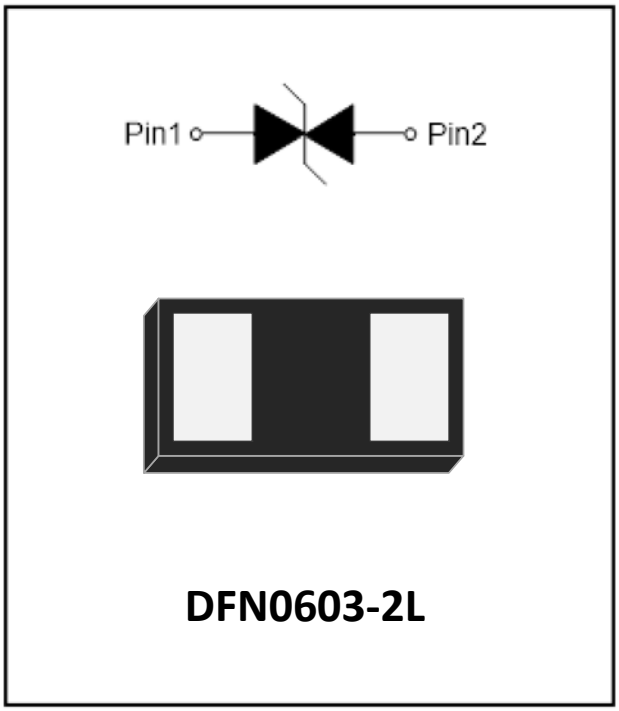
# 1-Line, Bi-directional, Ultra-low Capacitance Transient Voltage Suppressor




## Features

- Stand-off voltage: 5V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±20kV (contact)
  IEC61000-4-5(surge): 3A (8/20μs)
- Ultra-low leakage current
- Ultra low clamping voltage
- RoHS Compliant

## Applications

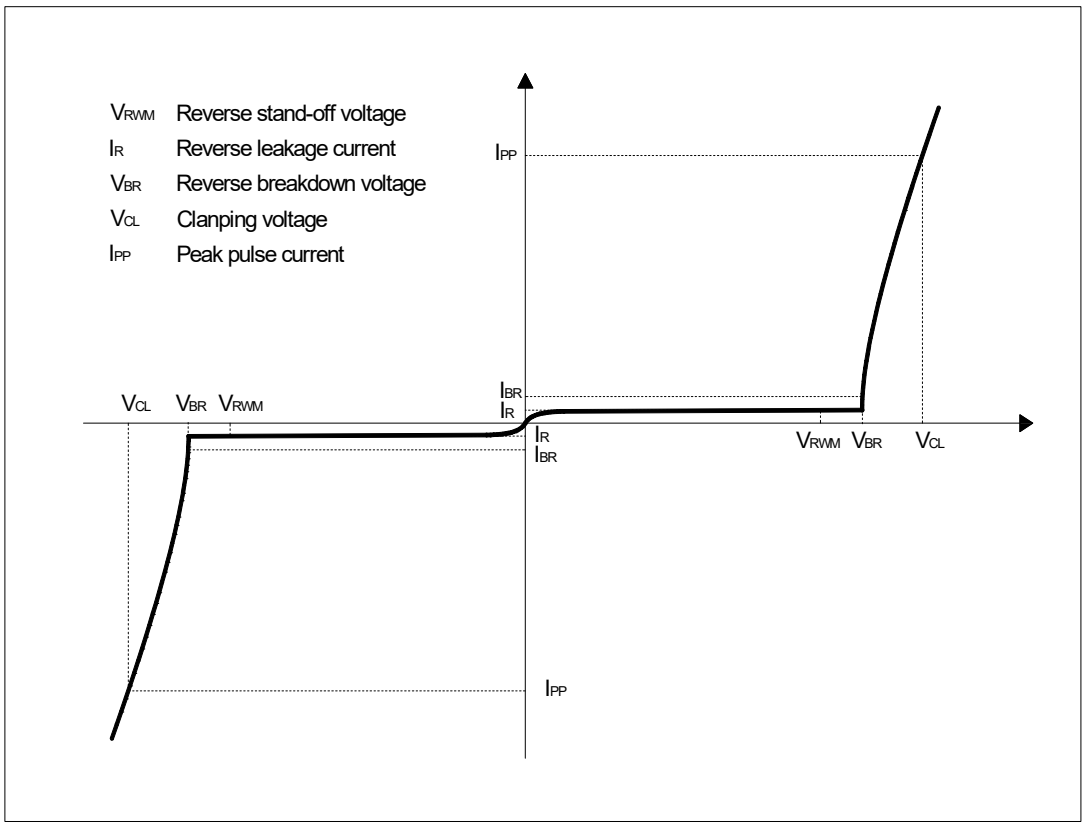
- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

## Mechanical Data

- Package: DFN0603-2L
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below




## ■Definitions of electrical characteristics



## ■Maximum Ratings

| PARAMETER | SYMBOL | LIMITS | UNIT |
|---|---|---|---|
| Peak pulse power ($t_p$ = 8/20μs) | $P_{pk}$ | 45 | W |
| Peak pulse current ($t_p$ = 8/20μs) | $I_{PP}$ | 3 | A |
| ESD according to IEC61000-4-2 air discharge | $V_{ESD}$ | ±20 | kV |
| ESD according to IEC61000-4-2 contact discharge | | ±20 | |
| Junction temperature | $T_J$ | -55~125 | ºC |
| Storage temperature | $T_{STG}$ | -55~150 | ºC |

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

| PARAMETER | Symbol | UNIT | Conditions | Min | Typ | Max |
|---|---|---|---|---|---|---|
| Reverse maximum working voltage | $V_{RWM}$ | V | | | | 5 |
| Reverse leakage current | $I_R$ | μA | $V_{RWM}$ = 5V | | | 0.2 |
| Reverse breakdown voltage | $V_{BR}$ | V | $I_T$=1mA | 6 | | |
| Clamping voltage [1)] | $V_{CL}$ | V | $I_{PP}$ = 1A, $t_p$ = 8/20μs | | | 11 |
| | | V | $I_{PP}$ = 3A, $t_p$ = 8/20μs | | | 15 |
| Junction capacitance | $C_J$ | pF | $V_R$ = 0V, f = 1MHz | | 0.15 | 0.25 |
| Junction capacitance | $C_J$ | pF | $V_R$ = 0V, f = 2.5GHz | | 0.13 | |

Notes:
(1). 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 |
|---|---|---|---|---|---|---|
| ESDULC5V0LZBS | F1 | Approximate 0.18 | 10000 | 100000 | 400000 | 7” reel |

## ■ Characteristics (Typical)

**Fig.1 8/20μs waveform per IEC61000-4-5**

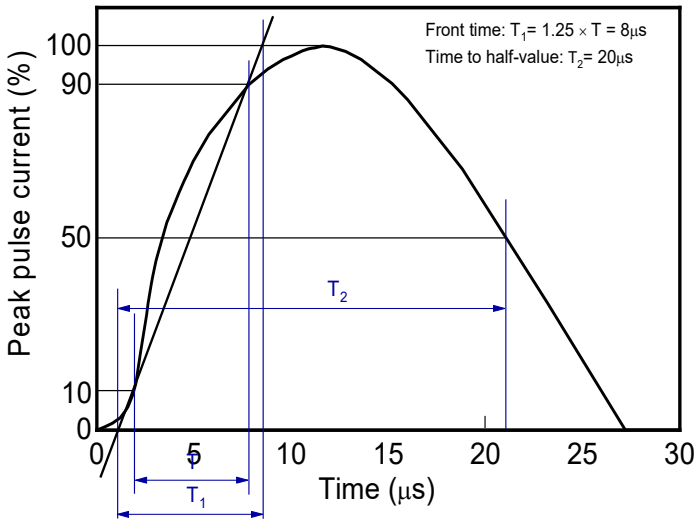



**Fig.2 Contact discharge current waveform per IEC61000-4-2**

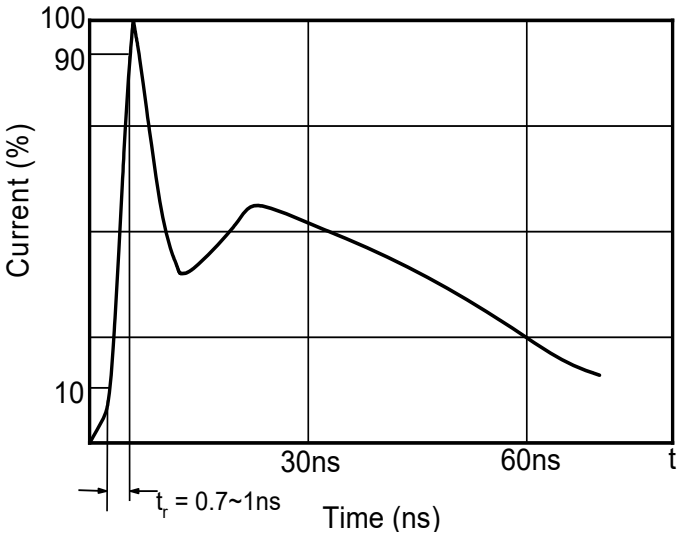



**Fig.3 Clamping voltage vs. Peak pulse current**

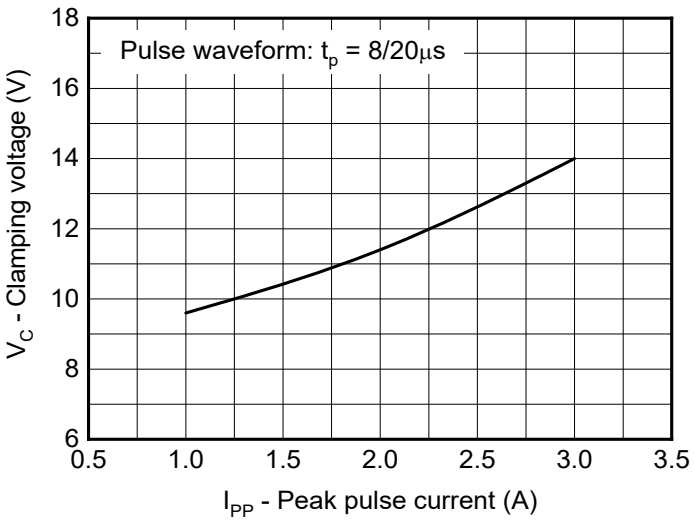



**Fig.4 Capacitance vs. Reverse voltage**

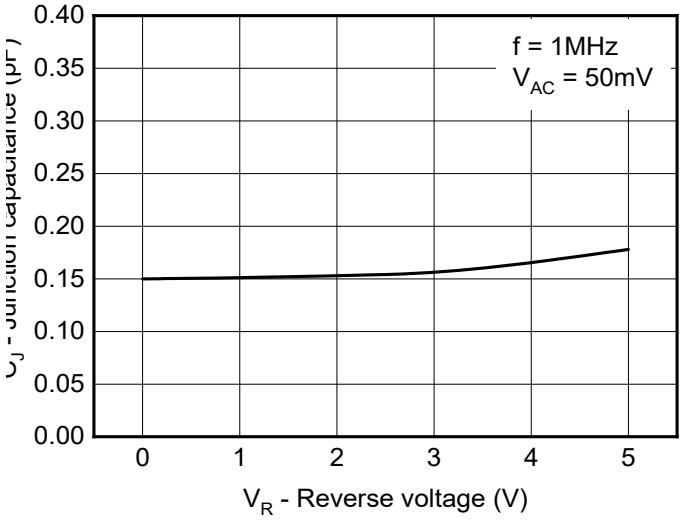



**Fig.5 Non-repetitive peak pulse power vs. Pulse time**

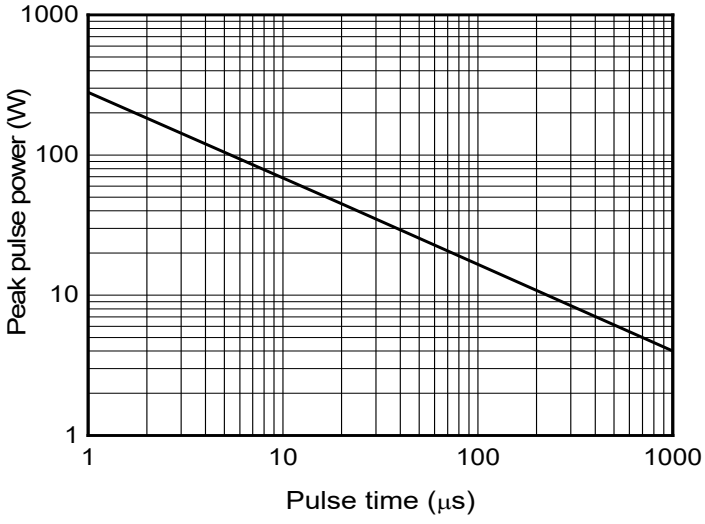



**Fig.6 Power derating vs. Ambient temperature**

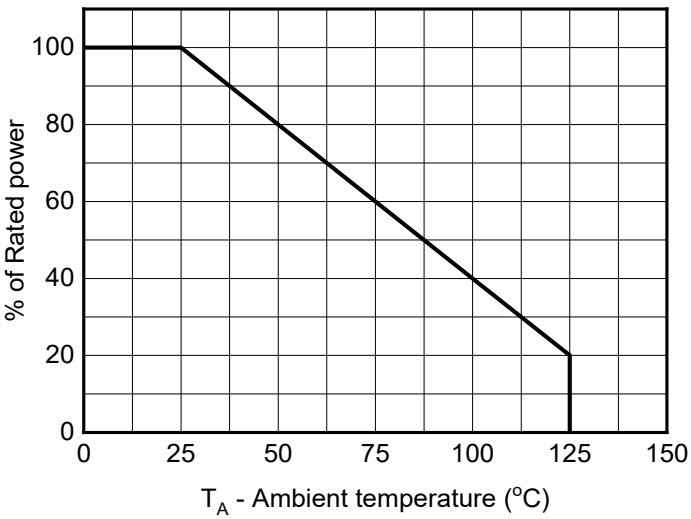


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

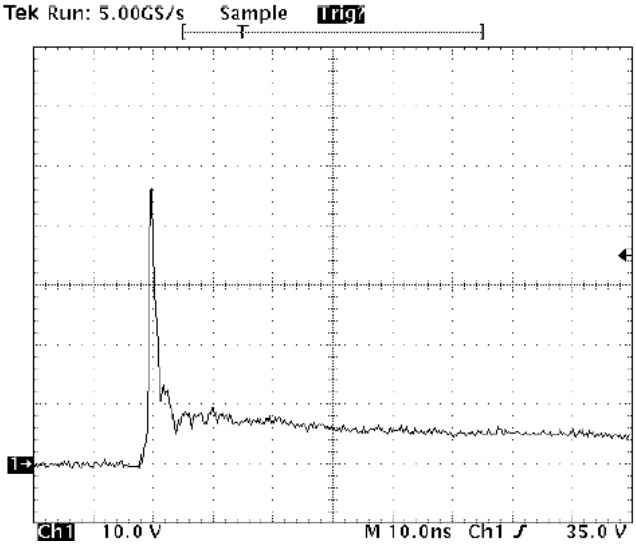
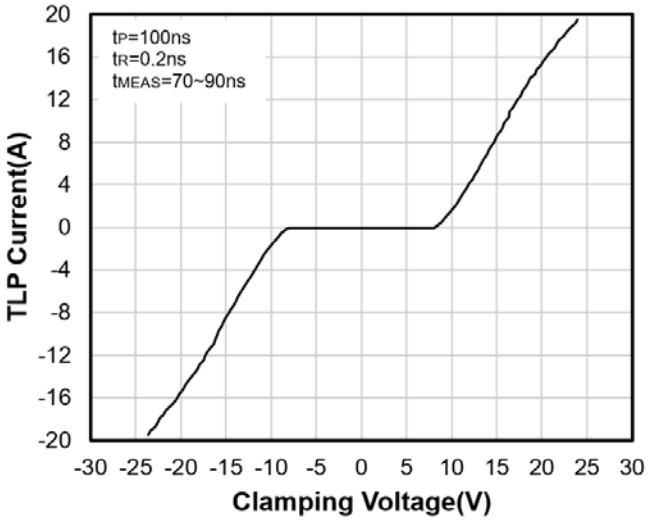
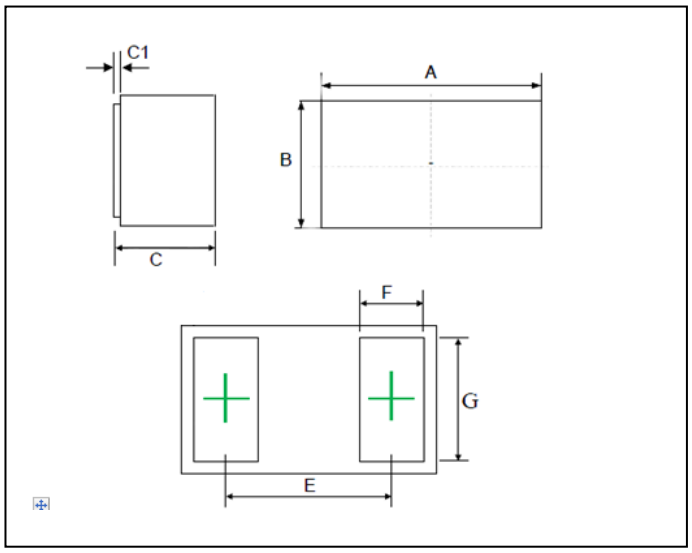



Fig.8 TLP Measurment

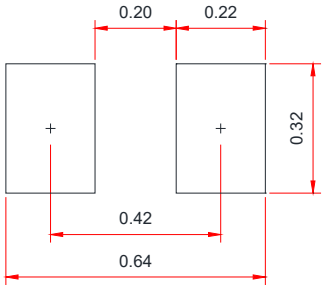



## ■ Outline Dimensions




| Symbol | min. (mm) | Max. (mm) |
|---|---|---|
| A | 0.55 | 0.67 |
| B | 0.25 | 0.37 |
| C | 0.23 | 0.34 |
| C1 | | 0.05 |
| E | | 0.4 |
| F | 0.115 | 0.195 |
| G | 0.215 | 0.295 |

## ■ 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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