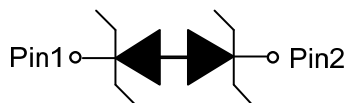
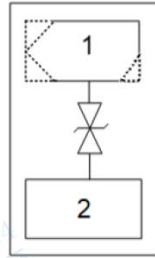


## 1-Line, Bi-directional, Transient Voltage Suppressor



**DFN0603-2L**

### Features

- Ultra small package
- Stand-off voltage: 1.5 V Max
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 15\text{kV}$  (contact)  
IEC61000-4-2(ESD):  $\pm 15\text{kV}$  (Air)  
IEC61000-4-5(surge): 5A (8/20 $\mu\text{s}$ )
- Ultra-low capacitance:  $C_J = 0.2\text{ pF}$  typ
- Low leakage current
- Low clamping voltage
- RoHS Compliant

### Applications

- Thunderbolt
- USB 3.0/3.1/3.2 and 4.0
- USB Type-C
- Cellular Handsets and Accessories
- Display Ports
- Consumer Electronics

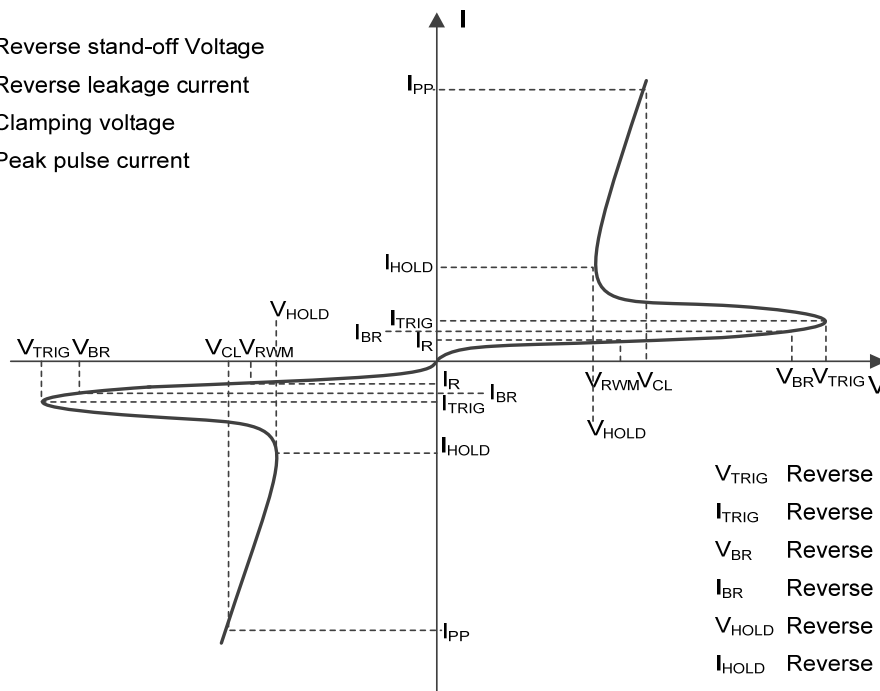
### Mechanical Characteristics

- Package: DFN0603-2L
- Case Material: "Green" Molding Compound.
- Marking Information: See Below

**1B**

### ■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



# SESDULC1V5LZBA1

## ■Absolute Maximum Ratings (Ta=25°C unless otherwise specified)

| PARAMETER                                       | SYMBOL    | Rating   | UNIT |
|-------------------------------------------------|-----------|----------|------|
| Peak pulse power ( $t_p = 8/20\mu s$ )          | $P_{pk}$  | 35       | W    |
| Peak pulse current ( $t_p = 8/20\mu s$ )        | $I_{pp}$  | 5        | A    |
| ESD according to IEC61000-4-2 air discharge     | $V_{ESD}$ | $\pm 15$ | KV   |
| ESD according to IEC61000-4-2 contact discharge |           | $\pm 15$ | KV   |
| Junction temperature                            | $T_J$     | 125      | °C   |
| Operating temperature                           | $T_{OP}$  | -55~125  | °C   |
| Storage temperature                             | $T_{STG}$ | -55~150  | °C   |

## ■Electrical Characteristics (Ta=25°C Unless otherwise specified)

| PARAMETER                        | Symbol    | UNIT     | Conditions                       | Min | Typ  | Max |
|----------------------------------|-----------|----------|----------------------------------|-----|------|-----|
| Reverse maximum working voltage  | $V_{RWM}$ | V        |                                  |     |      | 1.5 |
| Reverse leakage current          | $I_R$     | nA       | $V_{RWM} = 5V$                   |     |      | 100 |
| Reverse breakdown voltage        | $V_{BR}$  | V        | $I_{BR} = 1mA$                   | 3.5 |      |     |
| Clamping voltage                 | $V_{CL}$  | V        | $I_{PP} = 5A, t_p = 8/20\mu s$   |     | 4    |     |
| Clamping voltage <sup>1)</sup>   | $V_{CL}$  | V        | $IPP = 4A, t_p = 1/100ns$ (TLP)  |     | 3.6  |     |
| Clamping voltage <sup>1)</sup>   | $V_{CL}$  | V        | $IPP = 16A, t_p = 1/100ns$ (TLP) |     | 6.2  |     |
| Dynamic resistance <sup>2)</sup> | $R_{DYN}$ | $\Omega$ | $t_p = 1/100ns$ (TLP)            |     | 0.22 |     |
| Junction capacitance             | $C_J$     | pF       | $V_R = 1V, f = 1MHz$             |     | 0.20 |     |

(1) Transmission Line Pulse Test (TLP) Settings:  $t_p = 100ns, t_r = 1ns$ .

(2) Dynamic resistance calculated from ITLP = 4A to ITLP = 16A.

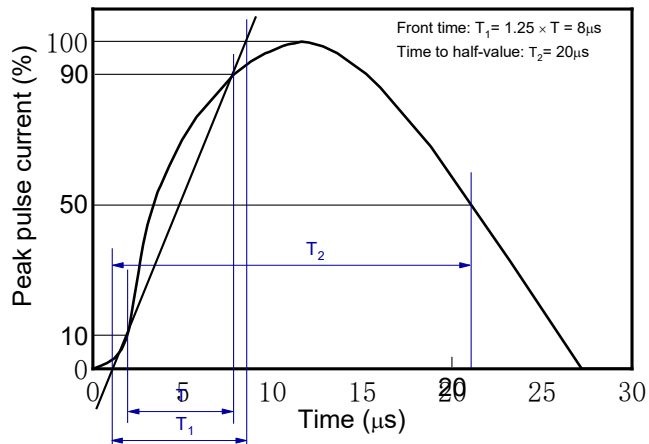
## ■Ordering Information (Example)

| PREFERRED P/N   | UNIT WEIGHT(mg)  | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|-----------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| SESDULC1V5LZBA1 | Approximate 0.18 | 3000                 | 30000                   | 120000                     | Tae& reel     |

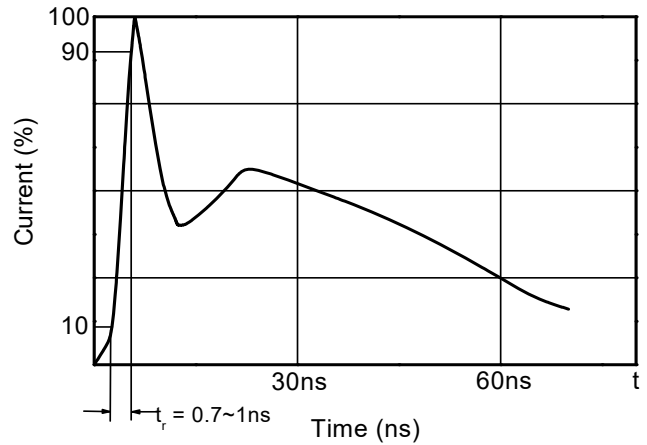


## ■ Typical Performance Characteristics (Ta=25°C unless otherwise Specified)

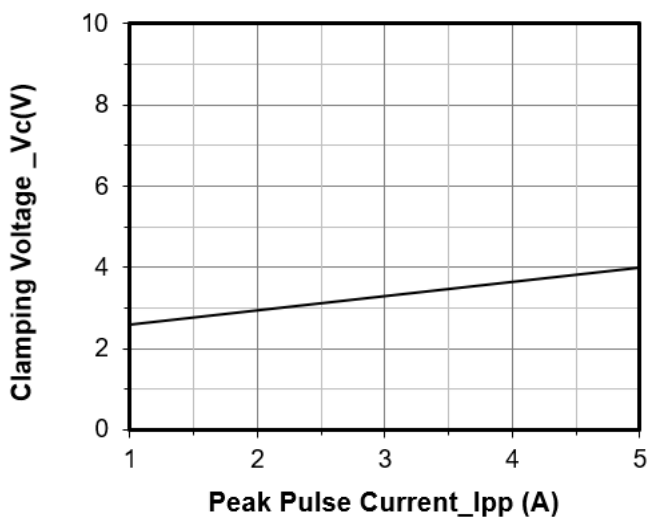
8/20μs waveform per IEC61000-4-5



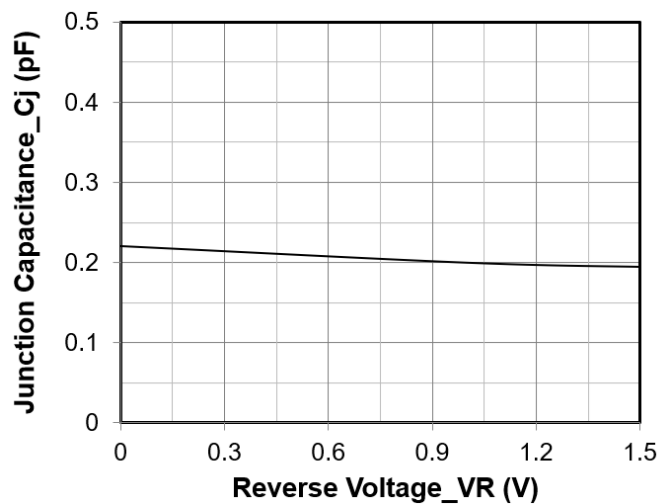
Contact discharge current waveform per IEC61000-4-2



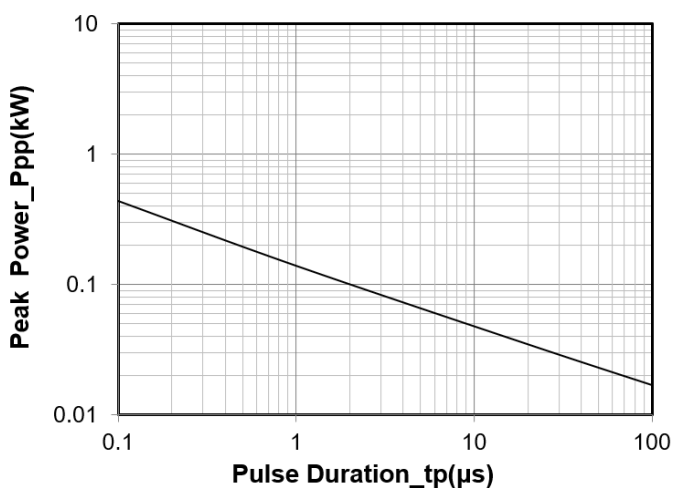
Clamping voltage vs. Peak pulse current



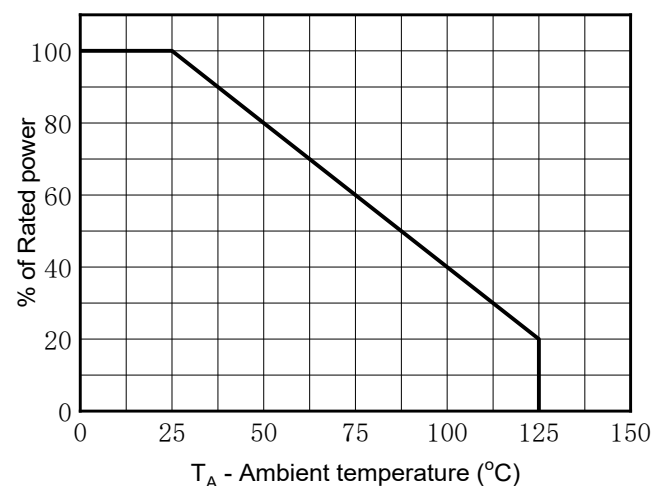
Capacitance vs. Reverse voltage



Non-repetitive peak pulse power vs. Pulse time

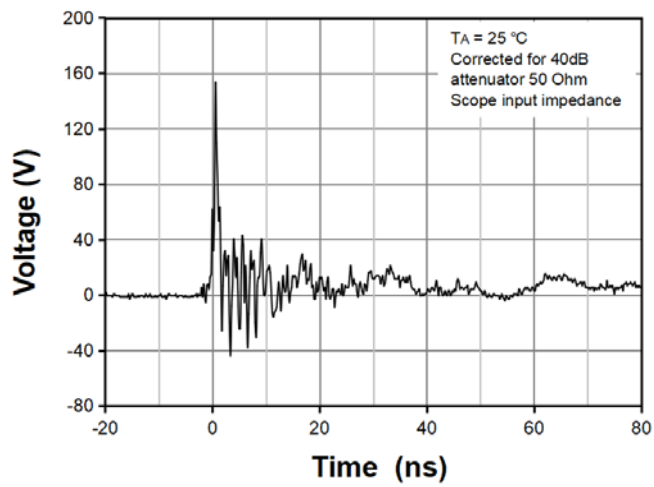


Power derating vs. Ambient temperature

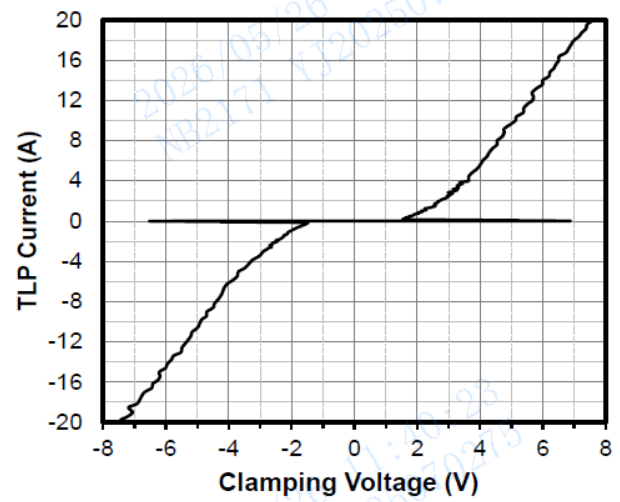




**ESD clamping**  
(+8kV contact discharge per IEC61000-4-2)



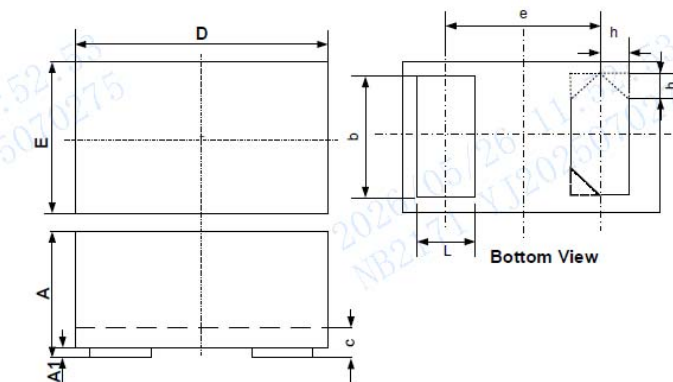
**TLP Measurement**





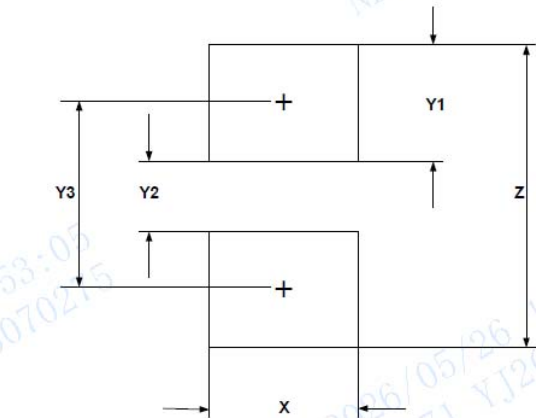
# SESDULC1V5LZBA1

## ■ Outline Dimensions



| SYM | DIMENSIONS  |     |       |
|-----|-------------|-----|-------|
|     | MILLIMETERS |     |       |
|     | MIN         | NOM | MAX   |
| A   | 0.230       | -   | 0.340 |
| A1  | 0.000       | -   | 0.050 |
| b   | 0.200       | -   | 0.300 |
| c   | 0.050       | -   | 0.180 |
| D   | 0.550       | -   | 0.650 |
| e   | 0.360 BSC   |     |       |
| E   | 0.250       | -   | 0.350 |
| L   | 0.130       | -   | 0.240 |
| h   | 0.079 BSC   |     |       |

## ■ Recommend land pattern (Unit:mm)



| SYM | DIMENSIONS  |        |
|-----|-------------|--------|
|     | MILLIMETERS | INCHES |
| X   | 0.30        | 0.012  |
| Y1  | 0.25        | 0.010  |
| Y2  | 0.15        | 0.006  |
| Y3  | 0.40        | 0.016  |
| Z   | 0.65        | 0.026  |



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