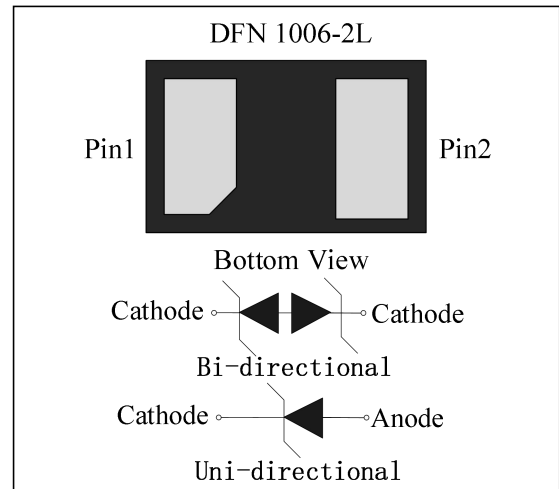


Power Transient Voltage Suppressor

Features

- Bi-directional/Uni-directional ESD Protection of one line
- Working voltage: 5.0V
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low leakage current
- Transient protection for each line according to IEC61000-4-2 (ESD): ± 30 kV (contact discharge)



Mechanical Characteristics

- Case: DFN 1006-2L package
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant
- Marking Code

Applications

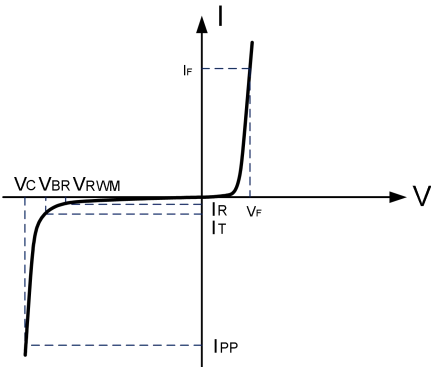
- MDDI Ports
- Cellular Handsets and Display Ports
- Computer and Peripherals

Absolute Maximum Rating(Ratings at 25 °C ambient temperature unless otherwise specified.)

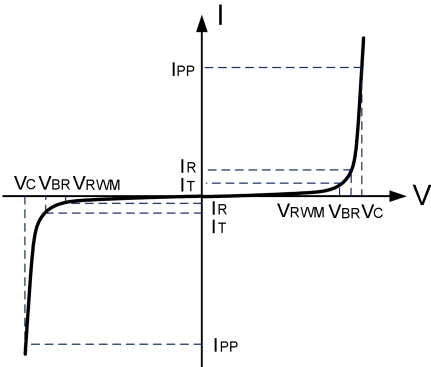
| Parameter | Symbols | Value | Unit |
|-----------------------------|-----------|-------------|------|
| IEC61000-4-2 (ESD) | V_{ESD} | ± 30 | KV |
| | | ± 30 | |
| Junction Temperature Range | T_J | 125 | °C |
| Operating Temperature Range | T_{OPR} | -40 to +125 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Electrical Parameter($T_c=25^\circ\text{C}$ Unless otherwise specified)

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_C | Clamping Voltage @ I_{PP} |
| I_{PP} | Peak Pulse Current |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{RWM} | Reverse Standoff Voltage |
| V_F | Forward Voltage@ I_F |



V-I characteristics for a Uni-directional TVS



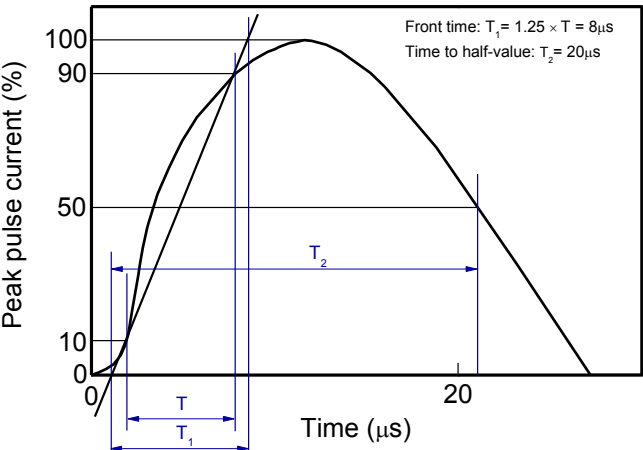
V-I characteristics for a Bi-directional TVS

Electrical Characteristics

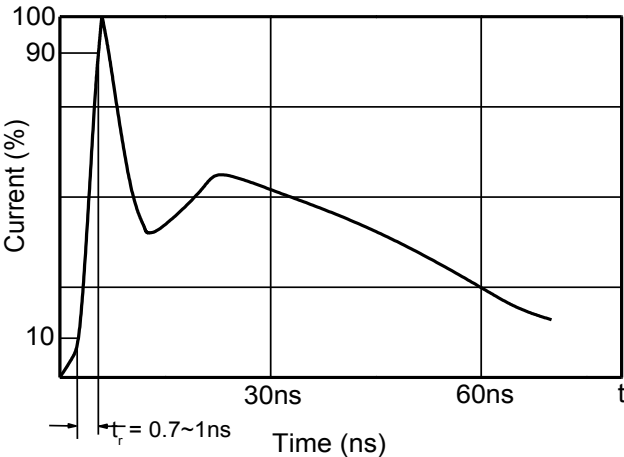
| ESDU5V0LDB | | | | | |
|---|-------------|------|------|----------|---------|
| Parameter | Symbols | Min. | Typ. | Max. | Unit |
| Reverse stand-off voltage | V_{RWM} | -- | -- | 5.5 | V |
| Reverse Leakage Current at $V_{RWM} = \pm 5.5V$ | I_R | -- | -- | 0.1 | μA |
| Forward Voltage at $I_F = 10mA$ | V_F | -- | -- | 1.2 | |
| Breakdown Voltage at $I_T = 1\text{ mA}$ | $V_{R(BR)}$ | 6.0 | -- | 9.0 | V |
| Peak Pulse Power Dissipation $t_p = 8/20\mu s$ | P_{PP} | -- | -- | 60 | W |
| Peak Pulse Current $t_p = 8/20\mu s$ | I_{PP} | -- | -- | 4 | A |
| Clamping Voltage at $I_{PP} = 1\text{ A}$, $t_p = 8/20\mu s$ at $I_{PP} = 4\text{ A}$, $t_p = 8/20\mu s$ | V_C | -- | -- | 10 15 | V |
| Junction Capacitance at $V_R = 0\text{ V}$, $f = 1MHz$ | C_J | -- | -- | 0.65 | pF |

| ESDB5V0LDB | | | | | |
|--|-------------|------|------|------|---------|
| Parameter | Symbols | Min. | Typ. | Max. | Unit |
| Reverse stand-off voltage | V_{RWM} | -- | -- | 5.5 | V |
| Reverse Leakage Current at $V_{RWM} = \pm 5.5V$ | I_R | -- | -- | -- | μA |
| Breakdown Voltage at $I_T = 1\text{ mA}$ | $V_{R(BR)}$ | -- | -- | -- | V |
| Peak Pulse Power Dissipation $t_p = 8/20\mu s$ | P_{PP} | -- | -- | -- | W |
| Peak Pulse Current $t_p = 8/20\mu s$ | I_{PP} | -- | -- | -- | A |
| Clamping Voltage at $I_{PP} = 1\text{ A}$, $t_p = 8/20\mu s$ at $I_{PP} = --\text{ A}$, $t_p = 8/20\mu s$ | V_C | -- | -- | -- | V |
| Junction Capacitance at $V_R = 0\text{ V}$, $f = 1MHz$ | C_J | -- | -- | -- | pF |

Typical Characteristics Curves



8/20μs waveform per IEC61000-4-5

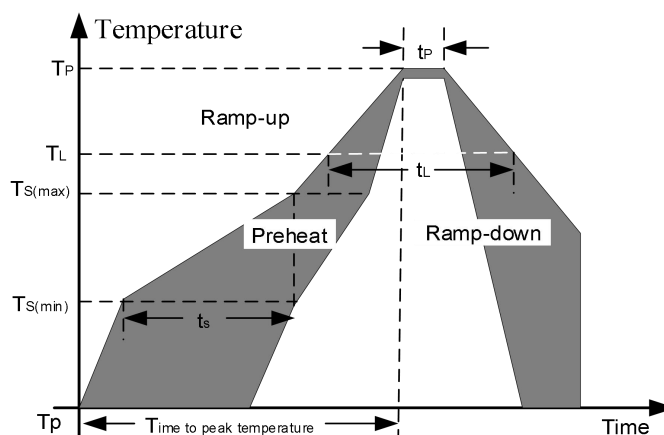


Contact discharge current waveform per IEC61000-4-2

Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

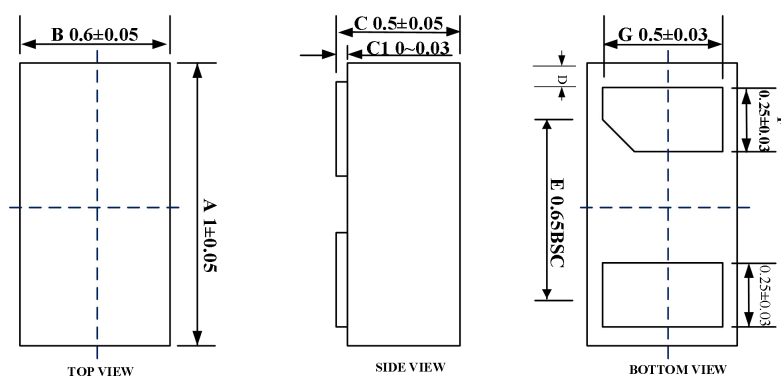
Soldering Parameters

| Reflow Condition | | Pb – Free assembly |
|---|-----------------------------|--------------------|
| Pre Heat | Temperature Min (Ts(min)) | 150°C |
| | Temperature Max (Ts(max)) | 200°C |
| | Time (min to max) (ts) | 60 – 190 secs |
| Average ramp up rate (Liquidus Temp) (TL) to peak | | 5°C/second max |
| TS(max) to TL—Ramp-up Rate | | 5°C/second max |
| Reflow | Temperature (TL) (Liquidus) | 217°C |
| | Temperature (tL) | 60 – 150 seconds |
| Peak Temperature (TP) | | 260+0/-5 °C |
| Time within actual peak Temperature (tp) | | 20 – 40 seconds |
| Ramp-down Rate | | 5°C/second max |
| Time 25°C to peak Temperature (TP) | | 8 minutes Max. |
| Do not exceed | | 280°C |



Outline Drawing – DFNx0.6-2L-0011

Dimensions in mm

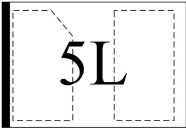
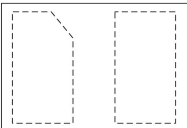


| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.037 | 0.041 | 0.95 | 1.05 | |
| B | 0.022 | 0.026 | 0.55 | 0.65 | |
| C | 0.016 | 0.022 | 0.40 | 0.50 | |
| C1 | ----- | 0.004 | ----- | 0.05 | |
| D | 0.001 | 0.003 | 0.02 | 0.08 | |
| E | 0.026 | | 0.65 | | TYP. |
| F | 0.008 | 0.012 | 0.20 | 0.30 | |
| G | 0.018 | 0.022 | 0.45 | 0.55 | |

Package Information


| Package Type | Description | Quantity (pcs) | Standard |
|-----------------|----------------------|----------------|----------|
| DFNX0.6-2L-0011 | Tape & Reel -7" tape | 10000 | EIA-481 |

Part Marking System(Top View)

| Device | ESDU5V0LDB | ESDB5V0LDB |
|------------------|---|---|
| DFN 1006-2L-0011 |  |  |

Contact Information

TANI website: <http://www.tanisemi.com> Email:tani@tanisemi.com
For additional information, please contact your local Sales Representative.

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Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. TANI shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up -to- date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

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