

**DESCRIPTION**

KESD0501BL a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.5pF, KESD0501BL designed protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

**FEATURES**

- ◇ Transient protection for high-speed data lines  
IEC 61000-4-2 (ESD)  $\pm 15\text{kV}$  (Air)  
 $\pm 8\text{kV}$  (Contact)
- IEC 61000-4-4 (EFT) 40A (5/50 ns)  
Cable Discharge Event (CDE)
- ◇ Package optimized for high-speed lines
- ◇ Ultra-small package (1.0mm $\times$ 0.6mm $\times$ 0.5mm)
- ◇ Protects one data, control line
- ◇ Low capacitance: 0.5pF (Typical)
- ◇ Low leakage current
- ◇ Low clamping voltage

**MACHANICAL DATA**

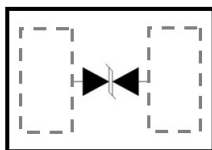
- ◇ DFN1006 package
- ◇ Flammability Rating: UL 94V-0
- ◇ Packaging: Tape and Reel
- ◇ High temperature soldering guaranteed:  
260 $^{\circ}\text{C}$ /10s
- ◇ Reel size: 7 inch

**ORDERING INFORMATION**

- ◇ Package: DFN1006
- ◇ Material: Halogen free
- ◇ Packing: Tape & Reel
- ◇ Quantity per reel: 10,000pcs

**APPLICATIONS**

- ◇ Serial ATA
- ◇ Desktops, Servers and Notebooks
- ◇ Cellular Phones
- ◇ MDDI Ports
- ◇ USB Data Line Protection
- ◇ Display Ports
- ◇ Digital Visual Interfaces (DVI)

**PIN CONFIGURATION****PACKAGE OUTLINE**

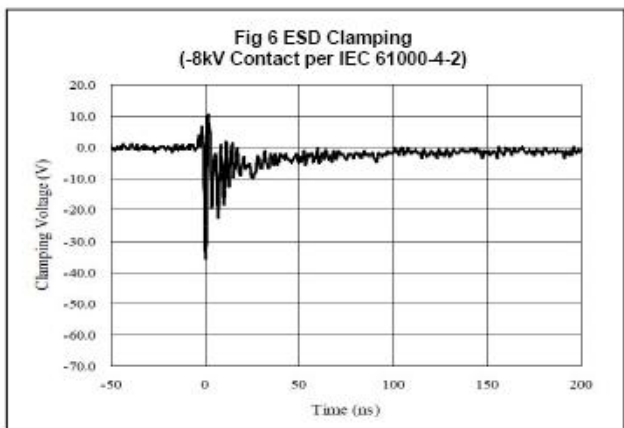
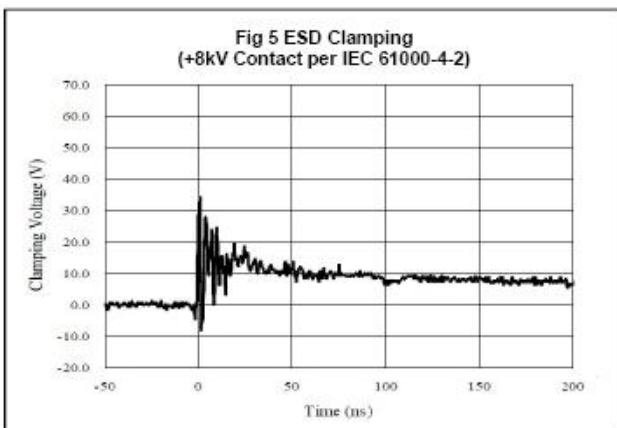
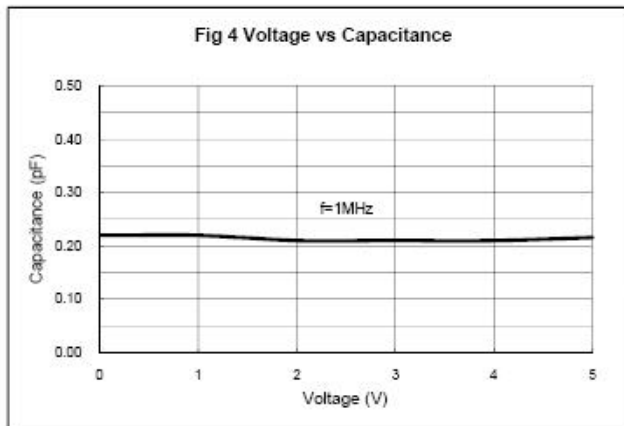
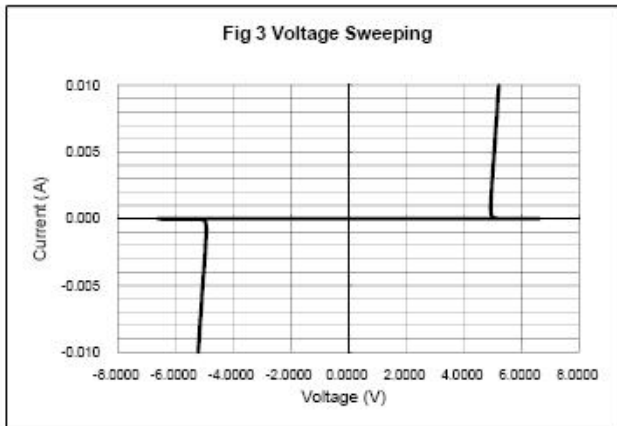
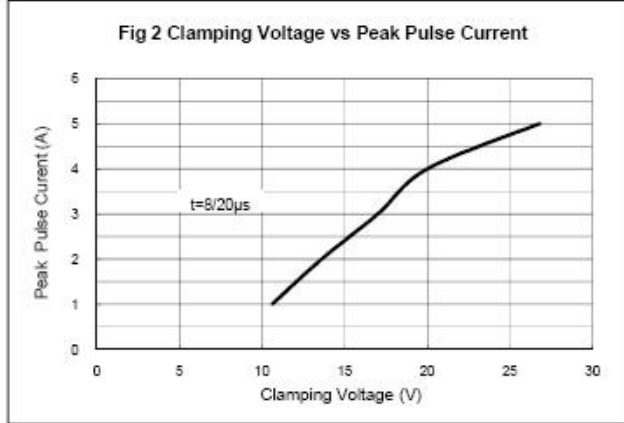
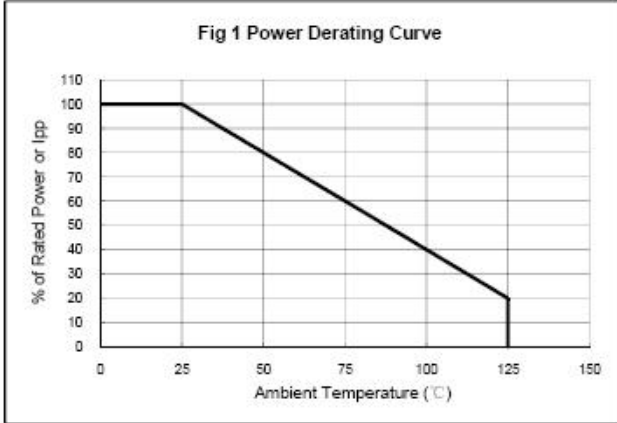
**ABSOLUTE MAXIMUM RATING**

| Symbol    | Parameter                       | Value    | Units        |
|-----------|---------------------------------|----------|--------------|
| $V_{ESD}$ | ESD per IEC 61000-4-2 (Air)     | $\pm 20$ | kV           |
|           | ESD per IEC 61000-4-2 (Contact) | $\pm 20$ |              |
| $P_{PP}$  | Peak Pulse Power (8/20 $\mu$ s) | 100      | W            |
| $T_{OPT}$ | Operating Temperature           | -55~125  | $^{\circ}$ C |
| $T_{STG}$ | Storage Temperature             | -55~150  | $^{\circ}$ C |

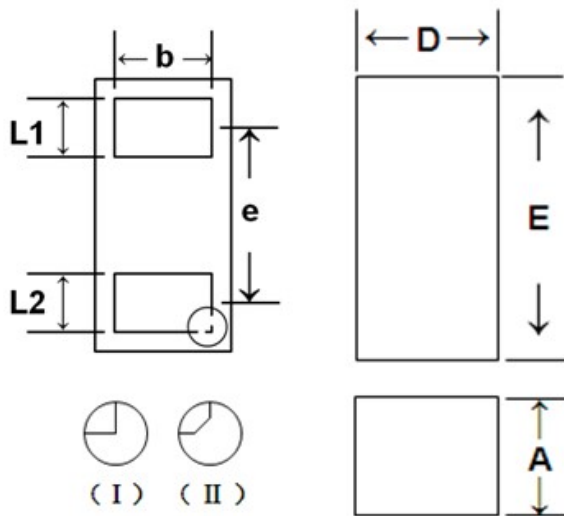
**ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}$ C)**

| Symbol    | Parameter                 | Test Condition                              | Min | Typ | Max | Units |
|-----------|---------------------------|---|-----|-----|-----|-------|
| $V_{RWM}$ | Reverse Working Voltage   |   |     |     | 5.0 | V     |
| $V_{BR}$  | Reverse Breakdown Voltage | $I_T = 1\text{mA}$                          | 6.0 |     |     | V     |
| $I_R$     | Reverse Leakage Current   | $V_{RWM} = 5\text{V}$                       |     |     | 100 | nA    |
| $V_C$     | Clamping Voltage          | $I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$ |     |     | 13  | V     |
|           |                           | $I_{PP} = 4\text{A}, t_p = 8/20\mu\text{s}$ |     |     | 25  | V     |
| $C_J$     | Junction Capacitance      | $V_R = 0\text{V}, f = 1\text{MHz}$          |     | 0.5 |     | pF    |

**ELECTRICAL CHARACTERISTICS CURVE**

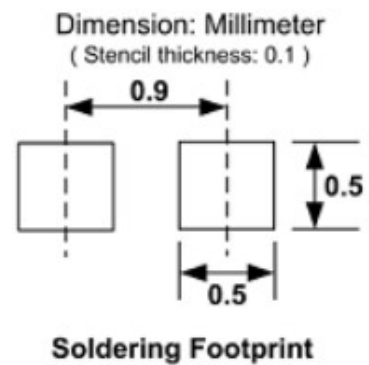


**DFN1006 PACKAGE OUTLINE DIMENSIONS**



**NOTE: ALL DIMENSIONS IN MM**

|           | MIN         | NOM            | MAX         |
|-----------|-------------|----------------|-------------|
| <b>D</b>  | <b>0.55</b> | <b>0.60</b>    | <b>0.65</b> |
| <b>E</b>  | <b>0.95</b> | <b>1.00</b>    | <b>1.05</b> |
| <b>L1</b> | <b>0.20</b> | <b>0.25</b>    | <b>0.30</b> |
| <b>L2</b> | <b>0.20</b> | <b>0.25</b>    | <b>0.30</b> |
| <b>A</b>  | <b>0.45</b> | <b>0.50</b>    | <b>0.55</b> |
| <b>b</b>  | <b>0.45</b> | <b>0.50</b>    | <b>0.55</b> |
| <b>e</b>  |             | <b>0.64BSC</b> |             |



**Soldering Footprint**

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