



Micro Commercial Components

Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

## MLESD12A-1206A4

### Features

- ESD protection for high speed data lines to IEC61000-4-2 ESD contact discharge typical 8KV, max 15KV  
IEC61000-4-2 ESD air discharge typical 15KV, max 25KV
- Multilayer structure
- Surface mount
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications

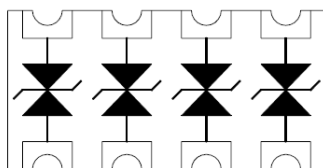
### Application

- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Display Port Interface
- Unified Display Interface (UDI)
- MDDI Ports
- Gigabit Ethernet
- USB2.0 and IEEE1394 interface

\* Caution: This component is designed for signal line protection only, not intended to be used under bias, not for application with a power line.

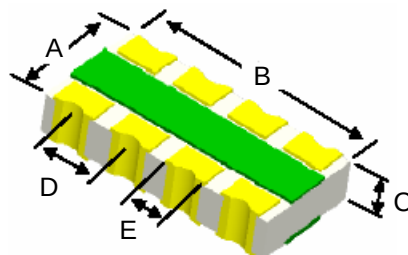
### Environmental Specifications

- Operation temperature: -40~90°C
- Moisture Resistance, Steady state: MIL-STD-883, Method 1004.7, 85% RH, 85°C, 1000hrs
- Thermal Shock: MIL-STD-202, Method 107G, -55°C to 150°C, 30 min cycle, 10 cycles.
- Vibration: MIL-STD-202F, Method 201A, (10 to 55 to 10HZ, 1 min. cycle, 2hrs each in X-Y-Z)
- Chemical Resistance: ASTM D-543, 4hrs @40°C, 3 solutions (H<sub>2</sub>O, detergent solution, deluxer)
- Solder leach resistance and terminal adhesion: Per EIA-576 test

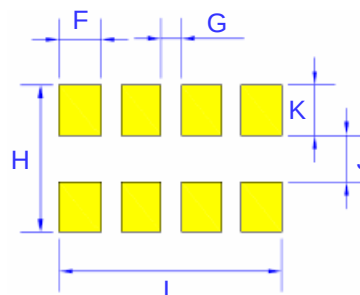


Electrical Diagram

1206



Suggested Solder Pad Layout



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .059   | .067 | 1.50 | 1.70 |      |
| B          | .138   | .147 | 3.52 | 3.72 |      |
| C          | .013   | .017 | 0.33 | 0.43 |      |
| D          | .033   | .041 | 0.83 | 1.03 |      |
| E          | .020   | .025 | 0.52 | 0.62 |      |
| F          | .021   | .026 | 0.55 | 0.65 |      |
| G          | .010   | .014 | 0.25 | 0.35 |      |
| H          | .082   | .091 | 2.10 | 2.30 |      |
| I          | .126   | .134 | 3.20 | 3.40 |      |
| J          | .025   | .030 | 0.65 | 0.75 |      |
| K          | .027   | .032 | 0.70 | 0.80 |      |

# MLESD12A-1206A4

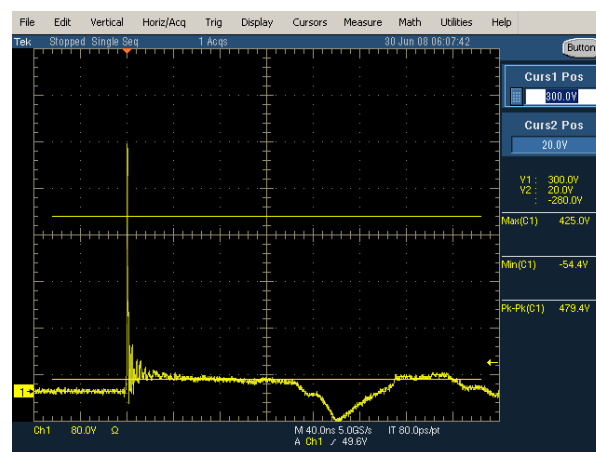
## Electrical Characteristics

| Electrical Characteristics   |          |                                    |      |      |     |       |
|------------------------------|----------|------------------------------------|------|------|-----|-------|
| Parameter                    | Symbol   | Conditions                         | Min  | Typ  | Max | Units |
| Continuous operating voltage | $V_{DC}$ | ---                                | ---  | ---  | 12  | V     |
| Trigger voltage              | $V_T$    | IEC61000-4-2 8KV contact discharge | ---  | 300  | --- | V     |
| Clamping voltage             | $V_C$    | IEC61000-4-2 8KV contact discharge | ---  | 20   | --- | V     |
| Leakage current              | $I_L$    | 12V $V_{DC}$                       | ---  | 0.10 | 10  | nA    |
| Capacitance                  | $C_P$    | VR = 0V, f = 1MHz                  | ---  | 0.15 | 0.3 | pF    |
| Operating Temperature        | ---      | ---                                | -40  | ---  | 90  | °C    |
| Storage Temperature          | ---      | ---                                | -55  | ---  | 150 | °C    |
| ESD pulse withstand          | Pulses   | IEC61000-4-2 8KV contact discharge | 2000 | ---  | --- | ---   |

Notes:

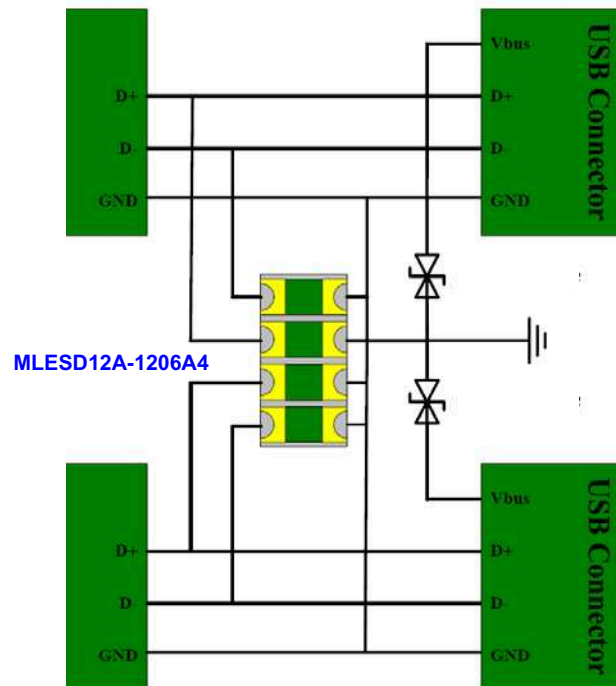
1, Trigger and clamping voltage measure per IEC 61000-4-2, 8KV direct discharge method

## Typical MLESD clamping for +8KV pulse per IEC61000-4-2

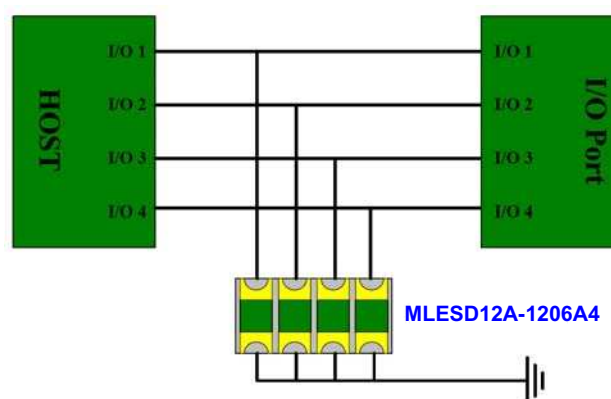


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## Design Recommendations for Dual USB2.0



## Design Recommendations for I/O Port





## Ordering Information

| Device           | Packing              |
|------------------|----------------------|
| (Part Number)-TP | Tape&Reel;3Kpcs/Reel |

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