

Features

- Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air)
 $\pm 30\text{kV}$ (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 0.55mm)
- Protects one data, control or power line
- Low capacitance: 12pF (Typical)
- Low leakage current: 0.01 μA @ V_{RWM} (Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

Description

CS0801M is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power lines. With typical capacitance of 12pF only, CS0801M is designed to 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.

CS0801M uses ultra-small uDFN-2L package. Each CS0801M device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

Applications

- Portable Electronics
- Desktops, Servers and Notebooks
- Cellular Phones
- MP3 Ports
- Digital Camera Ports
- Subscriber Identity Module (SIM) card

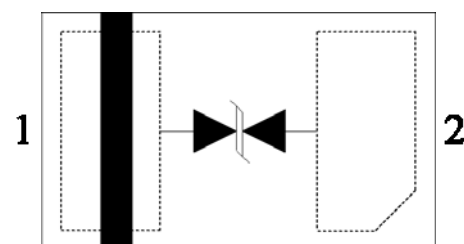
Mechanical Characteristics

- DFN1.0x0.6-2 package
- Flammability Rating: UL 94V-0
- Marking: Part number, date code
- Packaging: Tape and Reel

Circuit Diagram



Pin Configuration



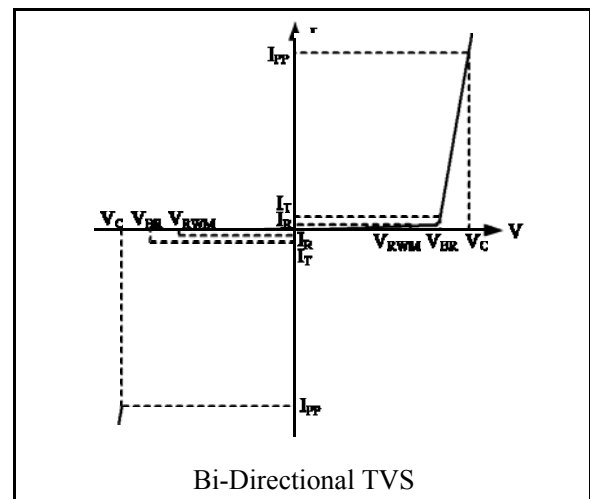
uDFN-2L
(Top View)

Absolute Maximum Rating

| Symbol | Parameter | Value | Units |
|-----------|--|----------------------|--------------|
| I_{PP} | Peak Pulse Current (8/20 μ s) | 4 | A |
| P_{PK} | Peak Pulse Power (8/20 μ s) | 50 | Watts |
| V_{ESD} | ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact) | ± 30 ± 30 | kV |
| T_{OPT} | Operating Temperature | -55/+125 | $^{\circ}$ C |
| T_{STG} | Storage Temperature | -55/+150 | $^{\circ}$ C |

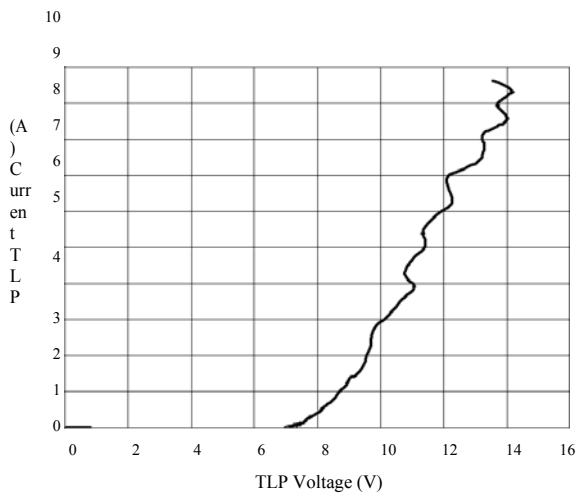
Electrical Characteristics (T = 25 $^{\circ}$ C)

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_{RWM} | Nominal Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Reverse Breakdown Voltage @ I_T |
| I_T | Test Current for Reverse Breakdown |
| V_C | Clamping Voltage @ I_{PP} |
| I_{PP} | Maximum Peak Pulse Current |
| C_{ESD} | Parasitic Capacitance |
| V_R | Reverse Voltage |
| f | Small Signal Frequency |

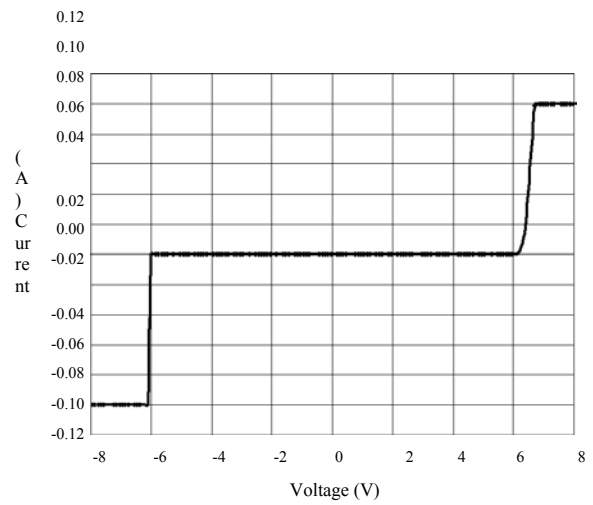


| Symbol | Test Condition | Minimum | Typical | Maximum | Units |
|-----------|--|---------|---------|---------|----------|
| V_{RWM} | | | | 5.0 | V |
| I_R | $V_{RWM} = 5V, T = 25^{\circ}C$ Between I/O_1 and I/O_2 | | 0.01 | 1.0 | μ A |
| V_{BR} | $I_T = 1mA$ Between I/O_1 and I/O_2 | 5.5 | 6.0 | | V |
| V_C | $I_{PP} = 1A, t_p = 8/20\mu s$ Between I/O_1 and I/O_2 | | | 10.0 | V |
| V_C | $I_{PP} = 4A, t_p = 8/20\mu s$ Between I/O_1 and I/O_2 | | | 12.5 | V |
| R_{DYN} | Dynamic Resistance | | 0.4 | | Ω |
| C_{ESD} | $V_R = 0V, f = 1MHz$ Between I/O_1 and I/O_2 | | 12 | | pF |

TLP Measurement of I/O_1 to I/O_2

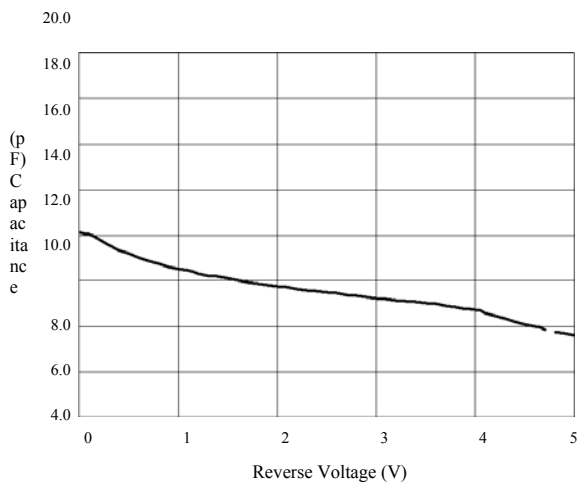


Voltage Sweeping of I/O_1 to I/O_2

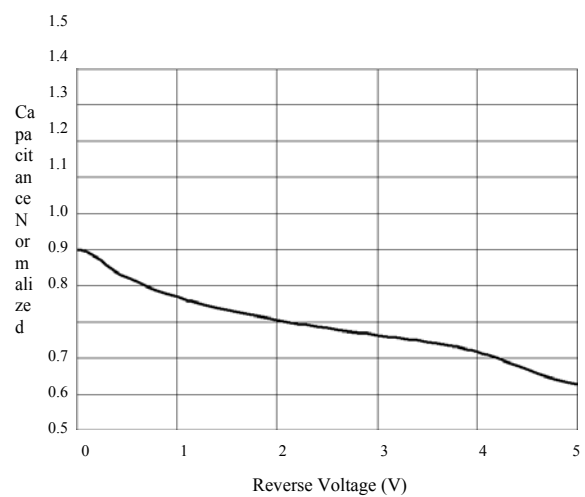


Capacitance vs. Voltage of I/O_1 to I/O_2 (f = 1MHz)

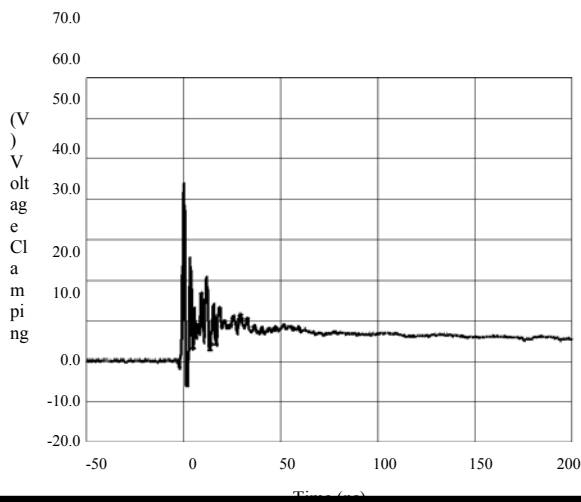
Capacitance vs. Reverse Voltage



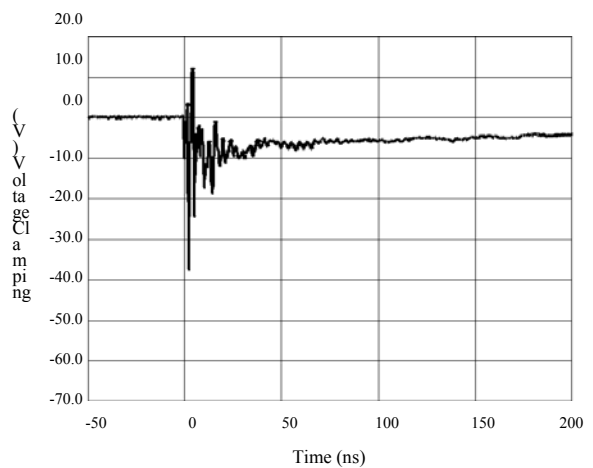
Normalized Capacitance vs. Reverse Voltage



ESD Clamping of I/O_1 to I/O_2 (+8kV Contact per IEC 61000-4-2)

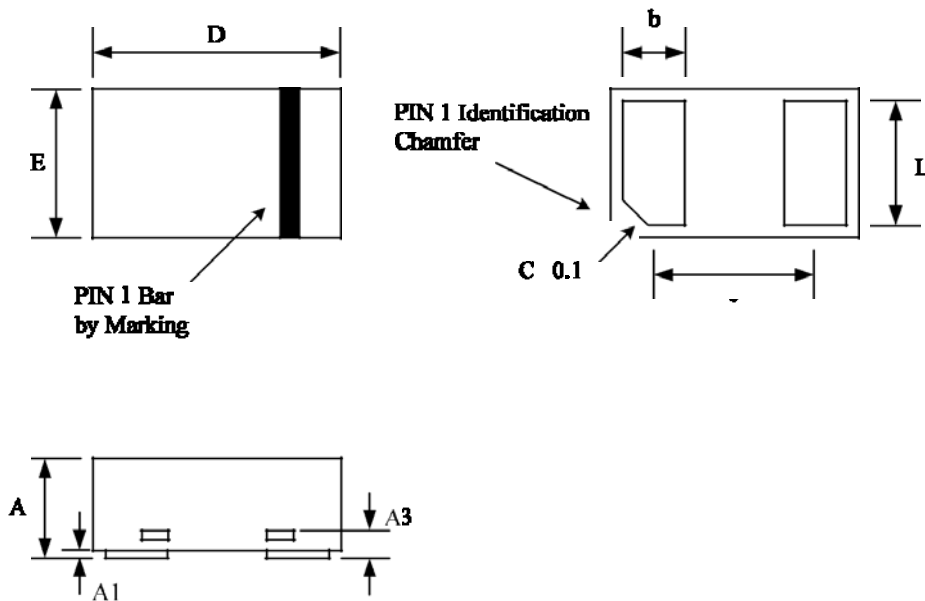


ESD Clamping of I/O_1 to I/O_2 (-8kV Contact per IEC 61000-4-2)



Package Outline

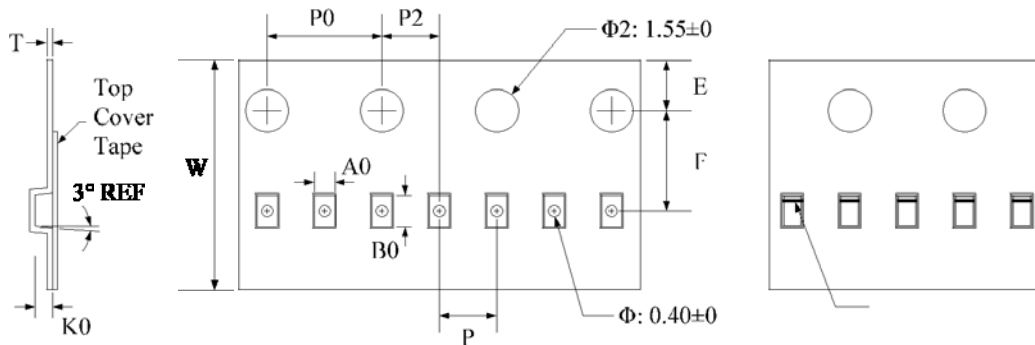
- uDFN-2L package
- 2 leads, very small package
- MSL-1



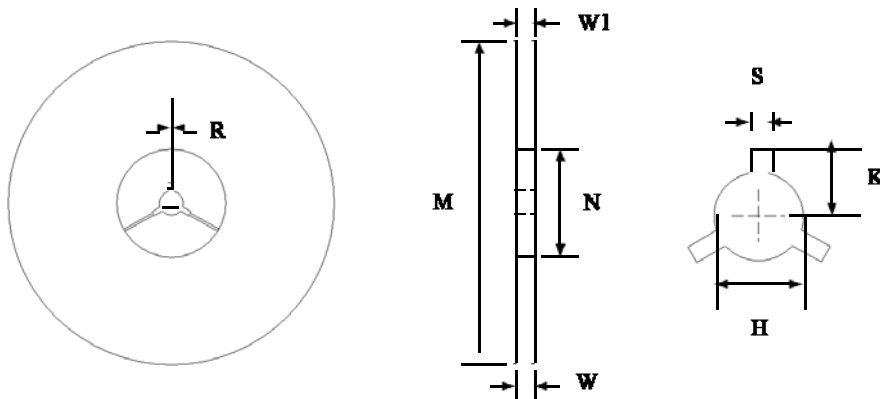
Package Dimensions (Controlling dimensions are in millimeters)

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|---------|----------------------|---------|
| | Minimum | Maximum | Minimum | Maximum |
| A | 0.400 | 0.550 | 0.016 | 0.022 |
| A1 | 0.000 | 0.050 | 0.000 | 0.002 |
| A3 | 0.125 REF | | 0.005 REF | |
| D | 0.950 | 1.050 | 0.037 | 0.041 |
| E | 0.550 | 0.650 | 0.022 | 0.026 |
| b | 0.200 | 0.300 | 0.008 | 0.012 |
| e | 0.650 BSC | | 0.026 BSC | |
| L | 0.450 | 0.550 | 0.018 | 0.022 |

Tape and Reel Specification



| Symbol | W | A0 | B0 | K0 | E | F | P | P0 | P2 | T |
|-----------------|----------|----------|-----------|-----------|----------|----------|---------|---------|----------|----------|
| Dimensions (mm) | 8.00±0.1 | 0.7±0.05 | 1.15±0.05 | 0.55±0.05 | 1.75±0.1 | 3.5±0.05 | 2.0±0.1 | 4.0±0.1 | 2.0±0.05 | 0.2±0.05 |



| Symbol | Reel Size | M | N | W | W1 | H | S | K | R |
|-----------------|-----------|-----------|----------|----------|---------|----------|---------|----------|----------|
| Dimensions (mm) | Φ178 | 178.0±1.0 | 60.0±1.0 | 11.5±0.5 | 9.0±0.5 | 13.0±0.5 | 2.0±0.1 | 11.0±0.2 | 1.0±0.05 |

Marking Codes



Note:

- (1) "F" is part number, fixed
- (2) "M" is date code, which is the assembly month in three years, changing as (1~9, 0, A~Z)

Ordering Information

| Part Number | Working Voltage | Quantity Per Reel | Reel Size |
|-------------|-----------------|-------------------|-----------|
| CS0801M | 5V | 10,000 | 7 Inch |

单击下面可查看定价，库存，交付和生命周期等信息

[>>SILERGY\(矽力杰\)](#)