Description

The EPI-FLO Polymer Voltage Suppressor (PVS) connector array provides a shunt for electro static-discharge (ESD) which protects sensitive electronic circuits from the damaging effects of over voltage and over current events.

EPI-FLO devices are capable of shunting voltages of up to 25 KV or more after trigger point is exceeded. While in the inactive state, EPI-FLO remains invisible to the electronic circuitry. Upon an ESD event trigger, conduction begins in less than <1nS, reaching full conduction in <2 nS.

Electronic Polymer’s unique construction yields a total device thickness of <5 mils. This patented design contributes to capacitance values <500 ff (10⁻¹⁵ Farads).

Devices are certified with Transmission Line Pulse (TLP) test procedures exceeding standard based testing commonly available.

Features

- Protection against ESD events
- High tolerance to repeated pulses
- Extremely fast response time
- Ultra-low capacitance (femto-Farads)
- Very low leakage current
- Bi-directional conduction
- Press fit to connector pins
- Available in standard connector pinouts
- Low profile (< 5 mils)
- 100/1000 TX, USB, IEEE 1394 Applications
**EPI-FLO – PVS Connector Array Device**

**Electrical Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Component Type</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>VDC</td>
<td>continuous</td>
<td>Connector Array</td>
<td>20</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Trigger Voltage</td>
<td>(V_T)</td>
<td>TLP: Step increase in voltage to trigger point</td>
<td>Connector Array</td>
<td>300</td>
<td>200</td>
<td>600</td>
<td>V</td>
</tr>
<tr>
<td>Clamping Voltage</td>
<td>(V_C)</td>
<td>TLP: 24 A, @ 30 nS</td>
<td>Connector Array</td>
<td>50</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Response Time</td>
<td>(T_R)</td>
<td>TLP: 24 A, @ 30 nS</td>
<td>Connector Array</td>
<td>200</td>
<td></td>
<td></td>
<td>pS</td>
</tr>
<tr>
<td>Input Capacitance</td>
<td>(C_{ni})</td>
<td>VDC = 0 V, f = 1 MHz</td>
<td>Connector Array</td>
<td>200</td>
<td>500</td>
<td></td>
<td>fF</td>
</tr>
<tr>
<td>Leakage Current</td>
<td>(I_L)</td>
<td>VDC = 12 V</td>
<td>Connector Array</td>
<td>100</td>
<td></td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td>ESD Withstand</td>
<td># pulses</td>
<td>TLP: Pulse Width = 48 nS, 24 A</td>
<td>Connector Array</td>
<td>20</td>
<td>100</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>(T_A)</td>
<td></td>
<td>Connector Array</td>
<td>-55</td>
<td>+25</td>
<td>+85</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Device selection:**

The table details an approximate correlation between two ESD test methods: Transmission Line Pulser (TLP) ESD versus industry standard ESD test methods.

<table>
<thead>
<tr>
<th>Transmission Line Pulser Method</th>
<th>Industry Specification Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 1: Transmission Line Pulser Method</strong></td>
<td><strong>Table 2: Industry Specification Methods</strong></td>
</tr>
<tr>
<td>Pulse Width</td>
<td>Source Impedance</td>
</tr>
<tr>
<td>48ns</td>
<td>50Ω</td>
</tr>
<tr>
<td>48ns</td>
<td>50Ω</td>
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<tr>
<td>48ns</td>
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<td>50Ω</td>
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</table>

**Environmental Test:**
- Vibration: MIL-STD-202F, Method 201A, 10 to 55 Hz, 1 minute cycle, 2 hours each in x-y-z.
- Chemical Resistance: ASTM D-543, 4 hrs @ 40°C, 3 solutions (H₂O, detergent solution, defluxer).
- Operating Temperature Characteristics: measurement at 25°C, 85°C and -56°C.
- Full Load Voltage: 20 VDC for 1000 hours at 25°C
- Solder Leach Resistance and Terminal Adhesion: Per EIA-576
- Solderability: MIL-STD-202, Method 208 (95% coverage)
- Solder Shock: IPC-TM-650-2.4.13

**Mechanical Specifications:**
Customer specific and standard connector pin out applications to include high speed high density for 802.11 a/b/g RF, Bluetooth RF, Cellular RF, SATA, USB, Fire Wire, IEEE 1394, Flash Card, MiniPCI, PCMCIA or 10/100/1000 TX interfaces.
### Ordering Information:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA – 01 – xxxx – 020 – A – 8KV – S – T</td>
<td></td>
</tr>
</tbody>
</table>

**Series Type**
- CA = Connector Array

**Protection Units**
- 01 = 1
- 39 = 39

**Chip Size (EIA for Surface Mount)**
- xxxx

**Max Operating Voltage**
- 006 = 6 volts
- 012 = 12 volts
- 020 = 20 volts

**Trigger Voltage**
- 050 = 50 volts
- 100 = 100 volts
- 150 = 150 volts
- 200 = 200 volts
- 400 = 400 volts
- 600 = 600 volts

**Performance Standard**
- A – IEC61000-4-2, 330 Ω source impedance
- B – HBM (human body model), 1500 Ω source impedance
- C – MM (Machine Model)
- D – CDM (Charged Device Model)
- E – CDE (Cable Discharge Event)

**ESD Voltage**
- 2KV = 2 kilovolts, contact discharge
- 4KV = 4 kilovolts, contact discharge
- 8KV = 8 kilovolts, contact discharge
- 15KV = 15 kilovolts, air discharge
- 25KV = 25 kilovolts, air discharge

**Special Requirements**
- S = Standard EIA footprint
- CU = Custom

**Packaging Options**
- T = Tape & Reel
- B = Bulk
- P = Panel
- G = Gel pack

**Notes:**
- Manufacturer specifications subject to change.
- Measurements subject to change based upon test set up.
- Measurements subject to change based upon application circuit filtering or parasitic.