

Electronic Polymers, Inc.

EPI-FLO – PVS Connector Array Device

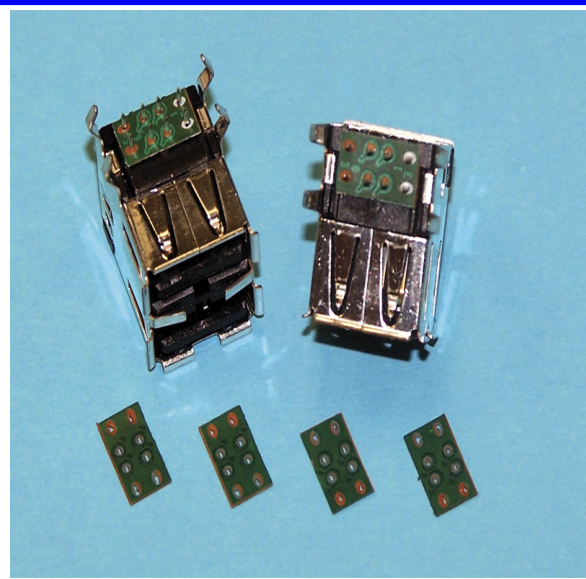
Description

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.

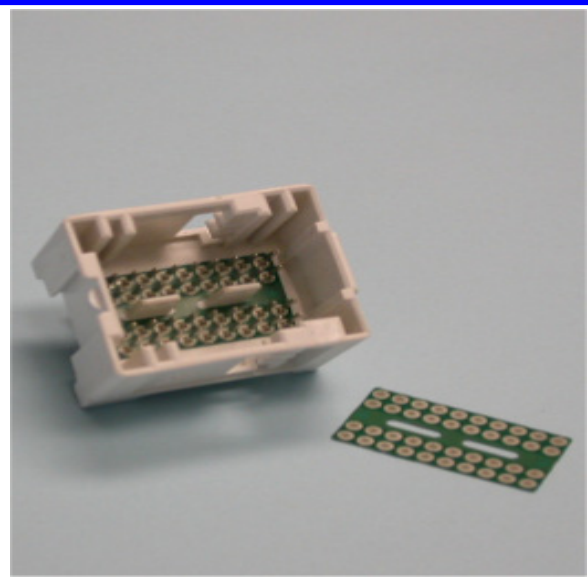
EPI-FLO devices are capable of shunting voltages of up to 25 KV or more after trigger point is exceeded. While in the inactive state, EPI-FLO remains invisible to the electronic circuitry. Upon an ESD event trigger, conduction begins in less then <1nS, reaching full conduction in <2 nS.

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.



Dual Port USB



40 Pin Automotive Connector

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

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

Device selection:

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

Transmission Line Pulser Method				Industry Specification Methods			
Pulse Width	Source Impedance	V_{in}	I_{in}	Industry Specification	Source Impedance	V_{in}	I_{in}
48ns	50Ω	150V	6A	HBM 4kV	1500Ω	4kV	2.7A
48ns	50Ω	250V	10A	HBM 8kV	1500Ω	8kV	5.3A
48ns	50Ω	300V	12A	IEC 61000-4-2-X	330Ω	4kV	12A
48ns	50Ω	500V	20A				
48ns	50Ω	600V	24A	IEC 61000-4-2-X	330Ω	8kV	24A
48ns	50Ω	1900V	76A	IEC 61000-4-2-X	330Ω	25kV	76A

Environmental Test:

- Moisture Resistance, steady state: MIL-STD-883, method 1004.7, 85% RH, 85°C, 1000 hours.
- Thermal Shock: MIL-STD-202, Method 107G, -65°C to 125°C, 30 minute cycle, 10 cycles.
- 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.

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EPI-FLO – PVS Connector Array Device

Ordering Information:

CA -01 - xxxx - 020 - 200 - A - 8KV - S - T

Series Type _____

CA = Connector Array

Protection Units _____

01 = 1

39 = 39

Chip Size (EIA for Surface Mount) _____

xxxx

xxxx

xxxx

xxxx

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.