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LCDA05

Low Capacitance TVS Diode Array For High-Speed Data Interfaces

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Features

- Low operating voltage: 5V
- Ultra low capacitance: 0.8pF typical
- Ultra low leakage: nA level
- Low clamping voltage
- -IEC 61000-4-2 (ESD) immunity test

  Air discharge: ±30kV

  Contact discharge: ±30kV

-IEC61000-4-4 (EFT) 40A (5/50ns)

-IEC61000-4-5(Lightning):17A(8/20μs)

- These are Pb−Free Devices
- Response Time is Typically < 1 ns

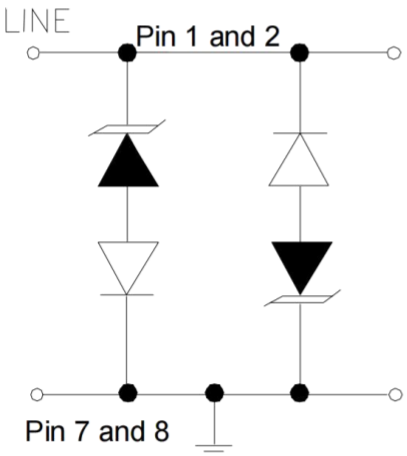
Mechanical Characteristics

- Package: SOP-8
- Case Material: “Green” Molding Compound
- Molding compound flammability rating:UL94V-0
- Packaging:Tube or Tape and Reel per EIA 481

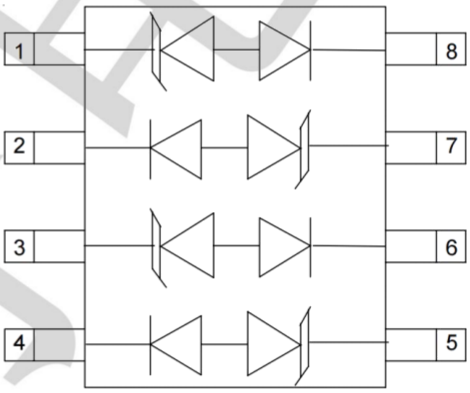
Applications

- LAN/WAN Equipment
- High-Speed Data Lines
- Notebooks, Desktops, and Servers
- Universal Serial Bus (USB) Port Protection

Circuit Diagram (Each Line Pair)

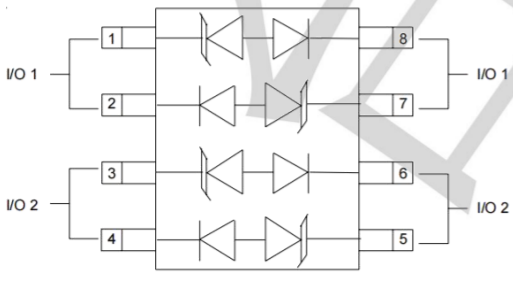


Schematic and Pin

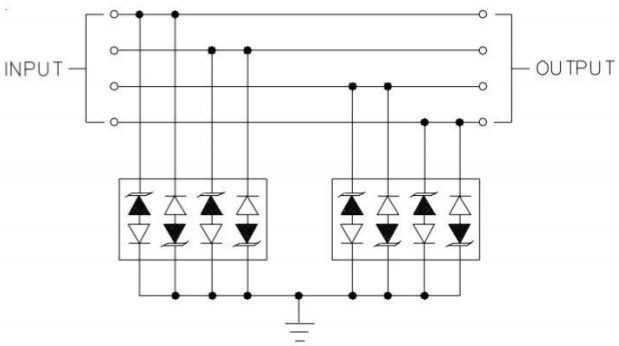


SOP-8 (Top View)

LCDA Connection Diagram



I/O Line Protection



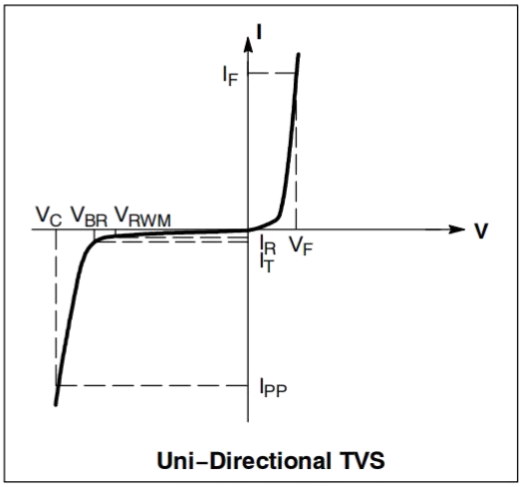
Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	280	W
Peak Pulse Current (8/20μs)	Ipp	17	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±30 ±30	KV
Operating Temperature Range	TJ	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM	--	--	5	V	Any I/O pin to ground
Breakdown Voltage	VBR	6	--	--	V	IT= 1mA,Any I/O pin to ground
Reverse Leakage Current	IR	--	--	0.2	uA	VRWM=5V,Any I/O pin to ground
Clamping Voltage	VC	--	--	9	V	Ipp=1A(8x 20us pulse), Any I/O pin to ground
Clamping Voltage	VC	--	--	16	V	Ipp=17A(8x 20us pulse), Any I/O pin to ground
Junction Capacitance	Cvo-GND	--	0.8	--	pF	VR=0V,f=1MHz, Any I/O to GND

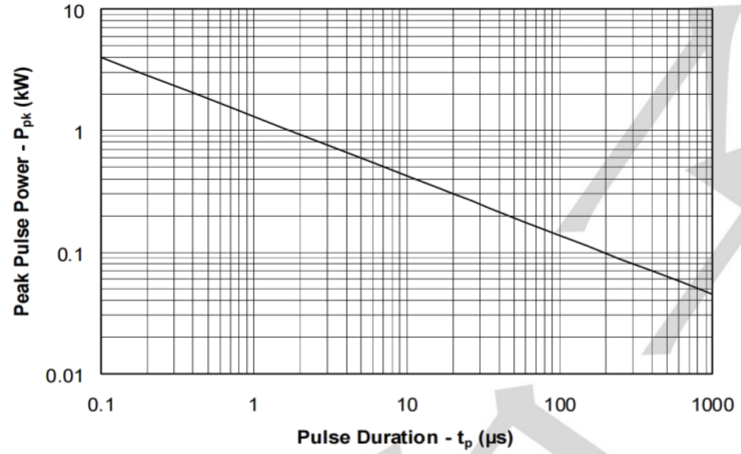
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F
P_{pk}	Peak Power Dissipation
C	Capacitance @ V_R = 0 and f = 1.0 MHz



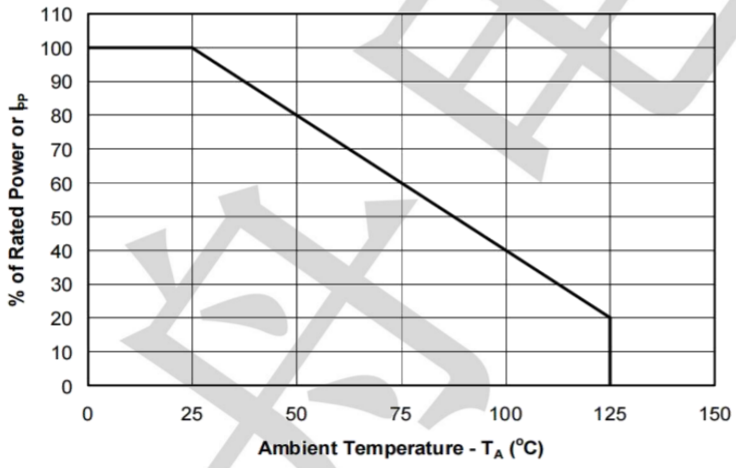
Uni−Directional TVS

Characteristic Curves

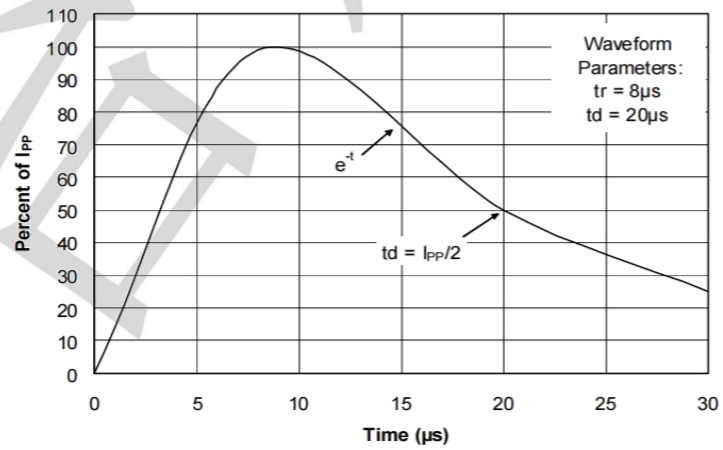
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

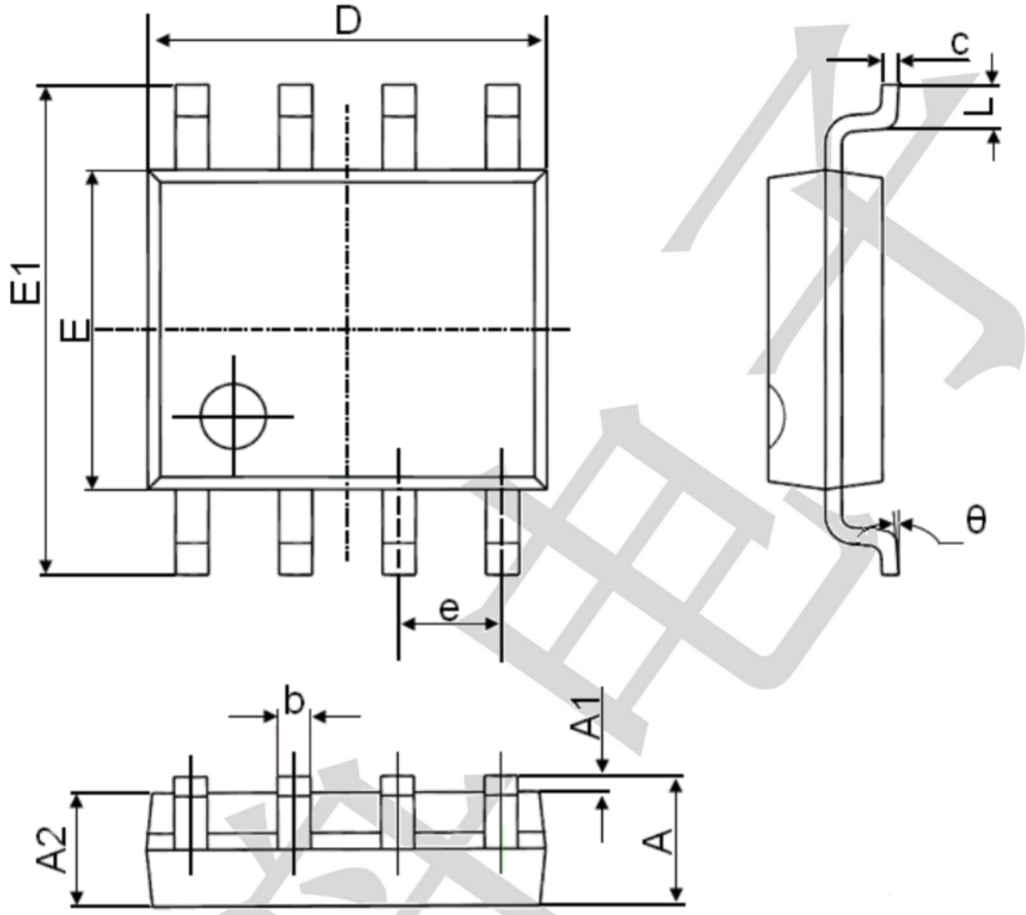


Pulse Waveform



Package Outline & Dimensions

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°