

## Transient Voltage Suppressors for ESD Protection

### LC05CDQ

#### Description

The LC05CDQ is low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

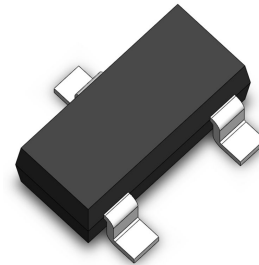
#### Feature

- ◆ 100 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects two high-speed I/O lines
- ◆ Low clamping voltage
- ◆ Working voltages : 5.0V
- ◆ Low leakage current
- ◆ IEC61000-4-2(ESD): ±15kV (air discharge)  
±15kV (contact discharge);
- ◆ IEC61000-4-4 (EFT) 40A (5/50 μs)
- ◆ IEC61000-4-5 (LIGHTING) 4A (8/20 μs)

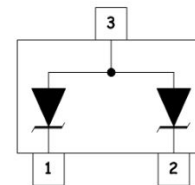
#### Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Industrial Controls
- ◆ Notebooks, Desktops, and Servers
- ◆ Set-Top Box
- ◆ Peripherals

#### SOT-23



#### Functional Diagram



#### Mechanical Data

- ◆ JEDEC SOT-23 Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 8.0 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free
- ◆ Device Marking: R02

#### Mechanical Characteristics

Symbol	Parameter	Value	Units
Ppp	Peak Pulse Power (tp=8/20μs waveform)	100	Watts
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>L</sub>	Soldering Temperature, T max = 10s	260	°C

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### Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	$V_{RWM}$	--	--	--	5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_t=1mA$	6	--	--	V
Reverse Leakage Current	$I_R$	$V_{RWM}=5V ; T=25^{\circ}C$	--	--	1	$\mu A$
Capacitance Between I/O And GND	$C_{J2}$	$V_R=0V , f=1MHz ;$	--	--	1.2	pF
Positive Clamping Voltage	$V_{C1}$	$I_{PP}=1A , T_P=8/20\mu S ;$	--	--	9.8	V
		$I_{PP}=4A , T_P=8/20\mu S ;$	--	--	14.5	

Fig1. 8/20 $\mu s$  Pulse Waveform

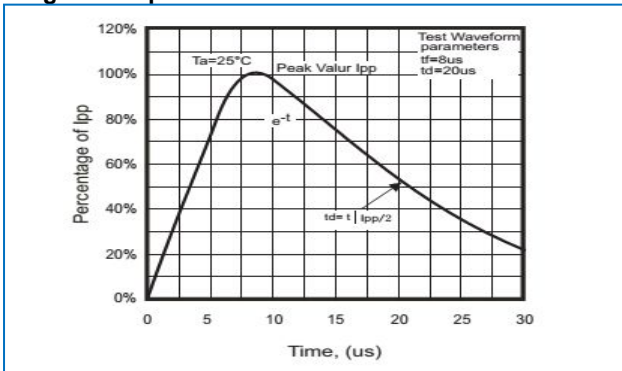


Fig3. ESD Clamping Voltage Screenshot Positive 8 KV contact per IEC 61000-4-2

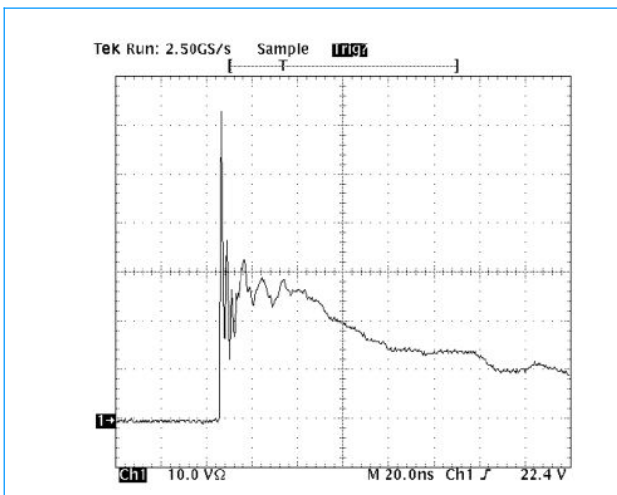


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

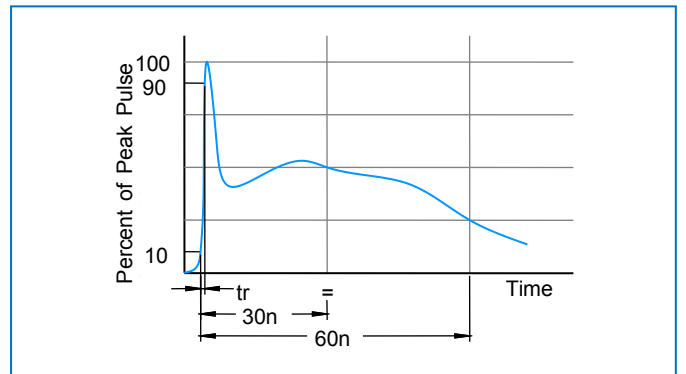
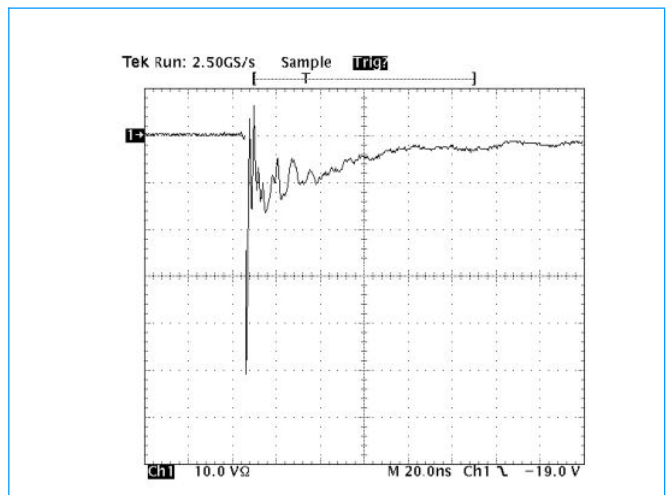


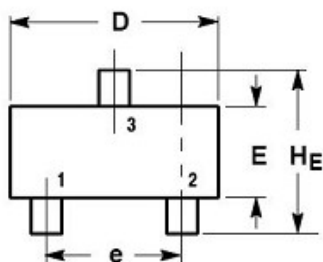
Fig4. ESD Clamping Voltage Screenshot Negative 8 KV contact per IEC 61000-4-2



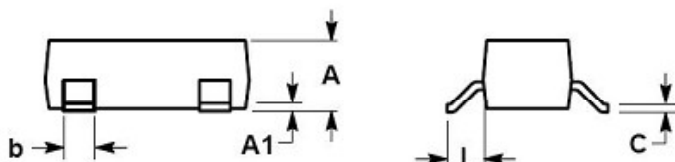
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### SOT-23 Package Outline & Dimensions



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104



### \* SOLDERING FOOTPRINT

