

Data Sheet

- ITEM : ESD CLAMP
-PART NO : IECS0505C040FR

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1. SCOPE

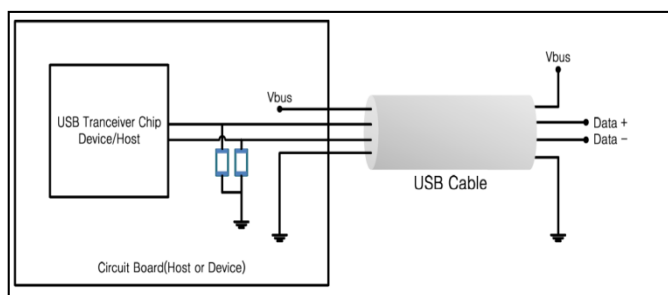
- ◆ ESD Clamps are specifically designed to protect sensitive devices against the threat of electrostatic discharge (ESD) and are well suited for high speed applications where low capacitance is needed. (HDMI and USB port devices using transmission line of high-speed signal) These components are aimed to protect the circuits from electrostatic discharges without any signal distortions.

2. FEATURES

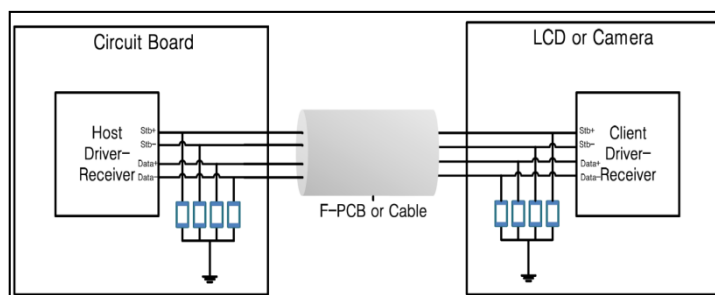
- ◆ Ultra-low capacitance
- ◆ Bi-directional regardless of polarity
- ◆ Excellent characteristics for differential signaling data lines in various digital appliances
- ◆ Fast response time
- ◆ Very low leakage current
- ◆ SMD Type
- ◆ Withstands multiple ESD strikes.

3. APPLICATION

- ◆ LVDS Lines in Notebook PC (USB2.0, IEEE1394)
- ◆ HDMI (HDTV, STB)
- ◆ Computer peripherals (Keyboard, Mouse, Printer, Scanner Data line etc.)
- ◆ Portable Device using High Speed Data Lines (PDA, PMP, Navigation)
- ◆ MDDI & MIPI Application in Mobile Phone



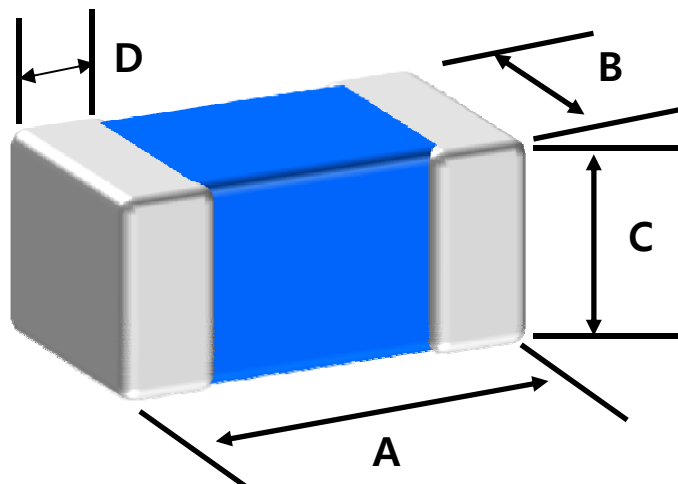
Application (USB)



Application (HDMI)

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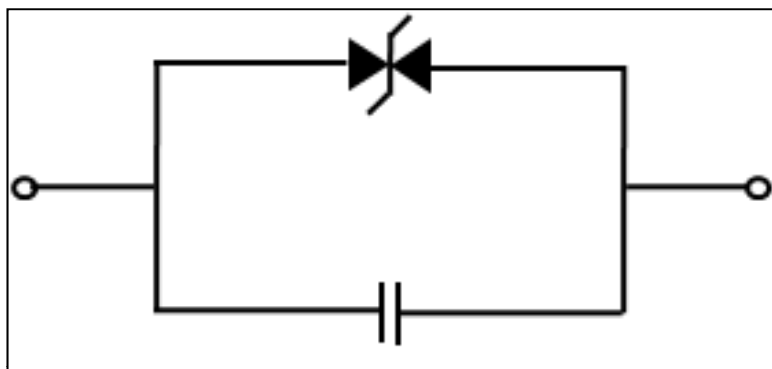
4. CONFIGURATION and DIMENSIONS



[Unit : mm]

CODE	A	B	C	D
03	0.6±0.05	0.3±0.05	0.3±0.05	0.15±0.05
05	1.0±0.05	0.5±0.05	0.5±0.05	0.2±0.05
10	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.1

5. EQUIVALENT CIRCUIT



6. PART NUMBER CODE

IECS **05** **05** **C040** **F** **R**
 ① ② ③ ④ ⑤ ⑥

① Series Name

CODE	PRODUCT NAME
IECS	ICT ESD CLAMP Single type

② Size Designator

CODE	SIZE (mm)
05	1.0 * 0.5

③ Rated Voltage

CODE	VOLTAGE (Vdc)
05	5

④ Typical Capacitance

CODE	Capacitance(pF) @1MHz
C040	0.4

⑤ Termination Type

CODE	TYPE
F	Electroplate (Pb-free)

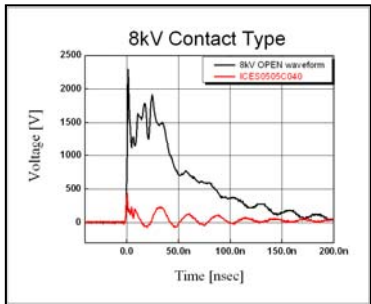
⑥ Packaging Type

CODE	TYPE
R	Tape & Reel pack

7. NOMINAL SPECIFICATIONS

- Ultra Low capacitance (0.4pF Typ.) is required for very high-speed data transmission or Antenna port.
- Low leakage current (I_L) is necessary for battery operated equipment

Characteristics	Unit	Typical	Max.
Capacitance, @1MHz (C_p)	pF	0.4	0.5
Rated Voltage	V	5	-
Leakage current (I_L)	μ A		10
ESD Clamping Voltage (V_c)	V	30	100
ESD Trigger voltage (V_T)	V	500	800
Insertion loss, 0-2GHz	dB	-	0.05
Response time	ns	0.6	1

	TEST CONDITION	WAVEFORM
ESD TEST (IEC 61000-4-2,level4)	<ol style="list-style-type: none"> ESD gun (IEC61000-4-2 standard) C=150pF R=330Ω Used Attenuator 36dB 8kV Contact type / 15kV Air type Polarity : + , - Measured a room ambient temperature after placing for 24 hours 	

■ TERMINOLOGY

- V_c : Per IEC 61000-4-2, level 4, clamp measurement made 30ns after initiation of pulse, all test in contact discharge mode.
- C_p : Device capacitance measured with zero volt bias 0.5Vrms and 1MHz