ESD05D6CU

Low Capacitance Bi-directional ESD Protection Diode

DESCRIPTION

The ESD05D6CU is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

This device has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

FEATURES

- ✧Transient protection for high-speed data line
  IEC 61000-4-2(ESD) ±8KV(Contact)
  ±15KV(Air)
  Cable Discharge Event (CDE)
- ✧Peak power dissipation: 35W (8/20μs)
- ✧Protects one I/O line
- ✧Low clamping voltage
- ✧Working voltage: 5V
- ✧Low leakage current
- ✧Low capacitance

MACHANICAL DATA

- ✧DFN0603 package
- ✧High temperature soldering guaranteed: 260℃/10s
- ✧Packaging: Tape and Reel
- ✧Reel size: 7 inch

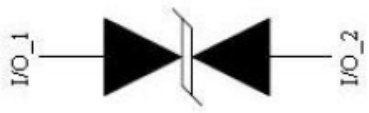
ORDERING INFORMATION

- ✧Device: ESD05D6CU
- ✧Package: DFN0603
- ✧Marking: Y
- ✧Material: Halogen free and RoHS compliant
- ✧Packing: Tape & Reel
- ✧Quantity per reel: 15,000pcs

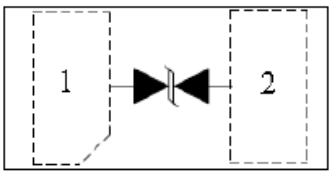
APPLICATIONS

- ✧High Speed Line: USB1.0/2.0, VGA, DVI, SDI
- ✧Serial and Parallel Ports
- ✧Notebooks, Desktops, Servers
- ✧Projection TV
- ✧Cellular handsets and accessories
- ✧Portable instrumentation
- ✧Peripherals

CIRCUIT DIAGRAM



PACKAGE OUTLINE



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ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±8 ±15	kV
P_{PP}	Peak Pulse Power (8/20μs)	35	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	5.6		9.4	V
I_R	Reverse Leakage Current	V_{RWM} = 5V			2.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			10.5	V
		I_{PP} = 2A, t_p = 8/20μs			14.0	V
V_{CTLP}	TLP Clamping Voltage	I_{PP} = 16A IEC61000-4-2 Level 4 equivalent (±8kV Contact, ±15kV Air)		14.5		V
R_{DYN}	Dynamic Resistance	t_P = 100ns		0.3		Ω
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		3.0	4.5	pF

ELECTRICAL CHARACTERISTICS CURVE

Fig 1 8/20μs Waveform per IEC61000-4-5

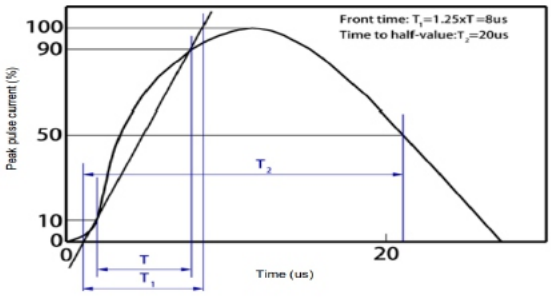


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

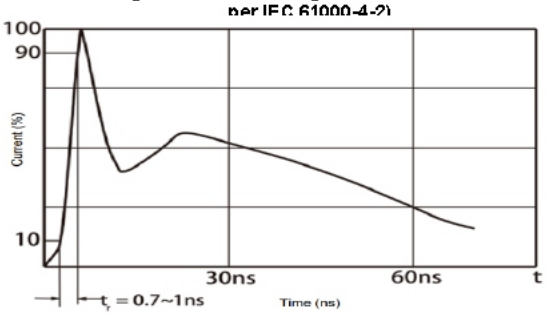


Fig 3 Power Derating Curve

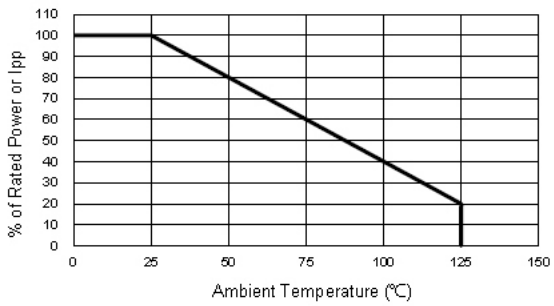


Fig 4 Voltage vs Capacitance

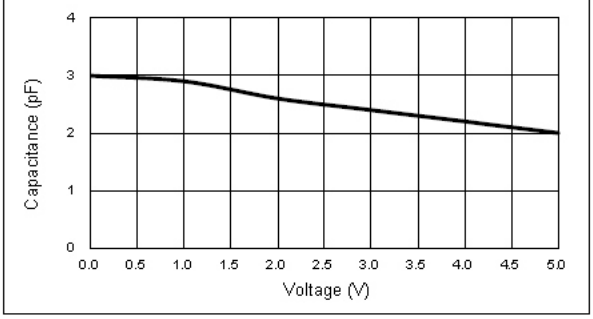


Fig 5 Transmission Line Pulsing (TLP) Measurement

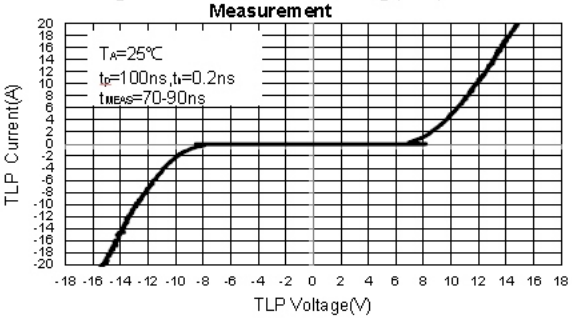
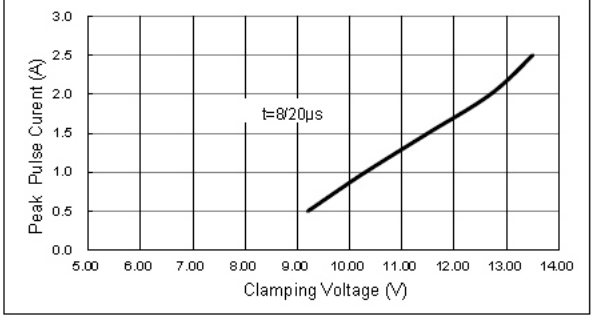
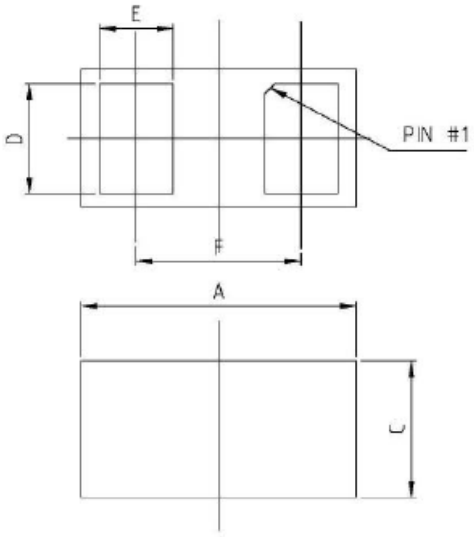
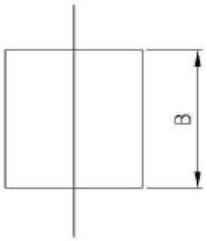


Fig 6 Clamping Voltage vs Peak Pulse Current



DFN0603 PACKAGE OUTLINE DIMENSIONS





Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	0.58	0.60	0.64
B	0.28	0.30	0.34
C	0.28	0.30	0.34
D	0.20	0.24	0.26
E	0.13	0.16	0.19
F		0.36	