

## 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).

### Ordering Information

Device: ESD05D6CU  
Package: DFN0603  
Marking: Y  
Material: Halogen free  
Packing: Tape & Reel  
Quantity per reel: 10,000pcs

### Features

IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)  
IEC61000-4-4 (EFT) 40A (5/50ns)  
Peak power dissipation: 35W (8/20 $\mu\text{s}$ )  
Protects one directional I/O line  
Low clamping voltage  
Working voltages : 5V  
Low leakage current  
Low capacitance

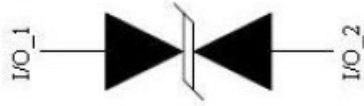
### Machanical Data

DFN0603 package  
Terminals: Gold plated, solderable per MIL-STD-750, method 2026  
Packaging: Tape and Reel  
Reel size: 7 inch

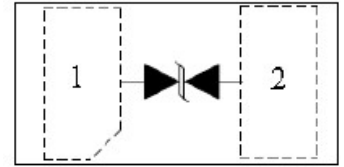
### Applications

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



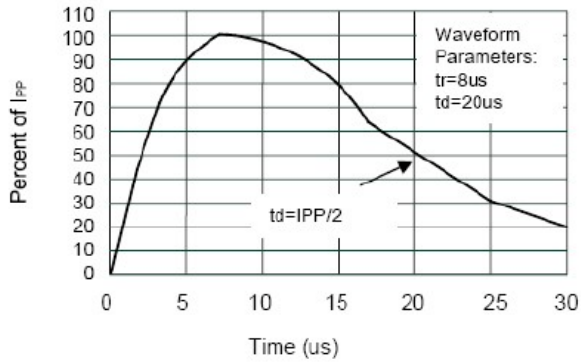
## Absolute Maximum Rating

Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$\pm 15$ $\pm 8$	kV
$P_{PP}$	Peak Pulse Power (8/20 $\mu$ s)	35	W
$T_{OPT}$	Operating Temperature	-55~150	$^{\circ}$ C
$T_{STG}$	Storage Temperature	-55~150	$^{\circ}$ C

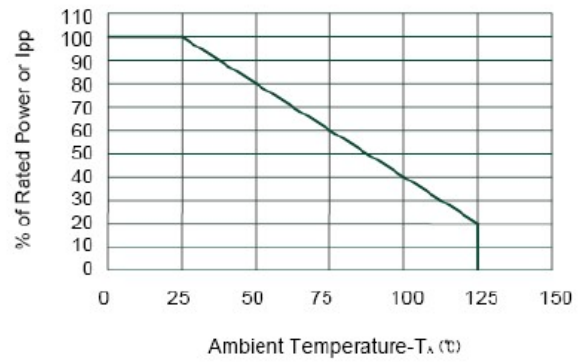
## Electrical Characteristics( $T_{amb}=25^{\circ}$ C)

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	$\mu$ A
$V_C$	Clamping Voltage	$I_{PP} = 1A, t_p = 8/20\mu s$			10.5	V
		$I_{PP} = 2A, t_p = 8/20\mu s$			14.0	V
$C_J$	Junction Capacitance	$V_R = 0V, f = 1MHz$		3.0	4.5	pF

## Electrical Characteristics Curve

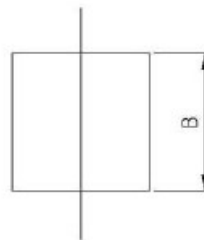
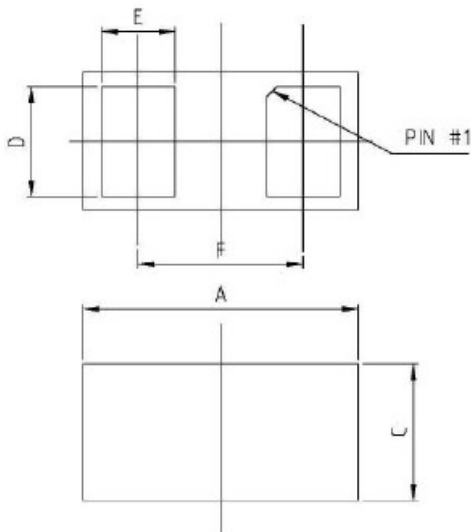


Pulse Waveform



Power Derating Curve

## 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	