ESD05D6CU

Low Capacitance Bi-directional ESD Protection Diodes

DFN0603 Plastic-Encapsulate ESD Protection Diodes

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.

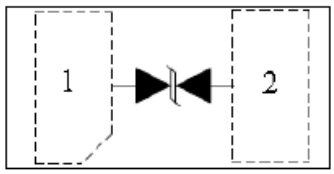
This device has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

Features

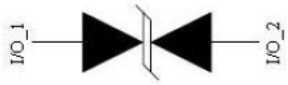
- Peak Power Dissipation :35 W (8/20μs)
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Protects one directional I/O line
- Low clamping voltage
- Working voltages : 5V
- Low Capacitance
- Low leakage current

Pin Configuration

RoHS COMPLIANT



Circuit Diagram



Applications

- Cell Phone Handsets and Accessories
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals
- High Speed Line :USB1.0/2.0, VGA, DVI, SDI

Mechanical Characteristics

- Package: DFN0603
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026
- Packaging: Tape and Reel
- Marking: Y

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

Parameter	Symbol	Value	Unit
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 15 ± 8	kV
Peak Pulse Power(tp=8/20us waveform)	P_{PP}	35	W
Operating Temperature	T_{OPT}	−55 to +150	°C
Storage Temperature	T_{STG}	−55 to +150	°C

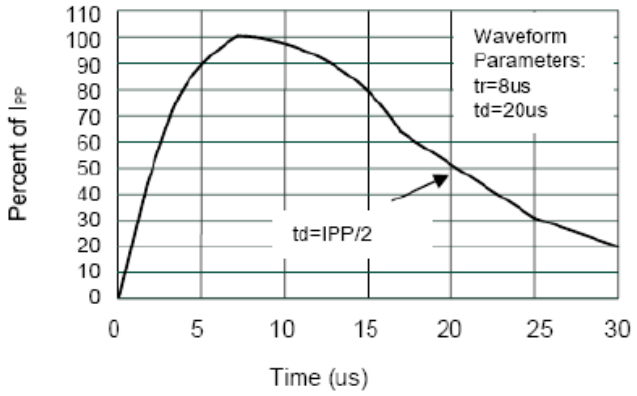
The above data are for reference only.

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

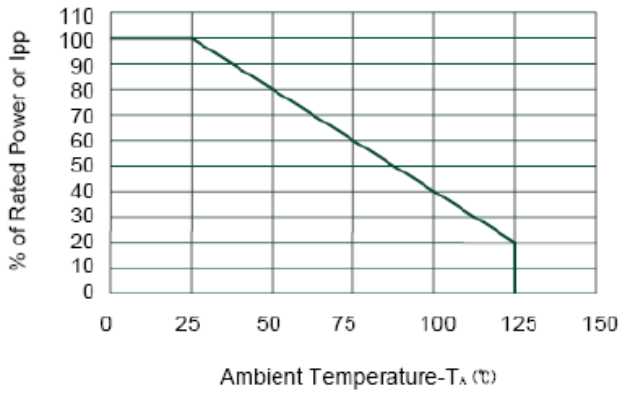
Symbol	Param	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	5.6		9.4	V
I_R	Reverse Leakage Current	V_{RWM} = 5V			2.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			10.5	V
		I_{PP} = 2A, t_p = 8/20μs			14	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		3.0	4.5	pF

The above data are for reference only.

ELECTRICAL CHARACTERISTICS CURVE



Pulse Waveform

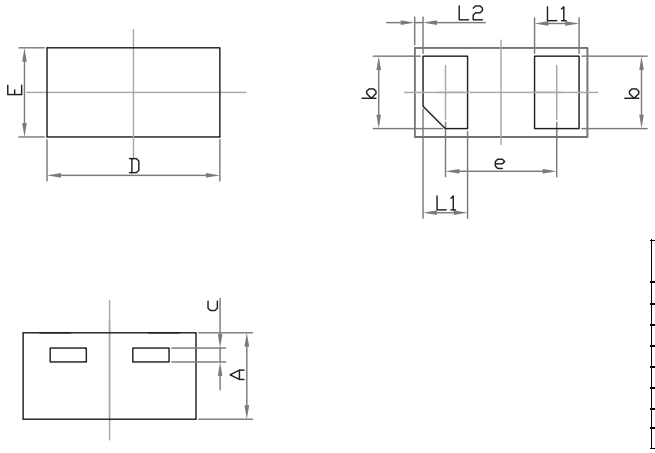


Power Derating Curve

The above data are for reference only.

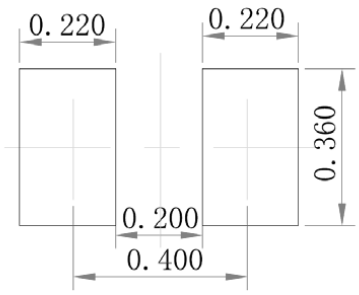
Outlitne Drawing

DFN0603 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.275	340	0.011	0.013
D	0.570	670	0.022	0.026
E	0.270	370	0.011	0.015
b	0.225	295	0.009	0.012
c	0.050 REF.		0.002 REF.	
e	0.365	435	0.014	0.017
L1	0.125	195	0.005	0.008
L2	0.030 REF.		0.001 REF.	

Suggested Pad Layout



Note:
1.Controlling dimension:in/millimeters.
2.General tolerance: ±0.05mm.
3.The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
DFN0603	7'	178	10,000	210×210×205	100,000	445×445×230	400,000

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