RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ESD0501LD

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

ESD0501LD is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.5pF, ESD0501LD is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 (±15kV air, ±8kV contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD0501LD uses ultra-small DFN1006 package. Each ESD0501LD device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make ESD0501LD ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

FEATURES

✧Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) ±15kV (Air)
±8kV (Contact)
IEC 61000-4-4 (EFT) 40A (5/50 ns)
Cable Discharge Event (CDE)
✧Package optimized for high-speed lines
✧Ultra-small package (1.0mm×0.6mm×0.5mm)
✧Protects one data, control line
✧Low capacitance: 0.5pF (Typical)
✧Low leakage current
✧Low clamping voltage

MACHANICAL DATA

✧DFN1006 package
✧Flammability Rating: UL 94V-0
✧Packaging: Tape and Reel
✧High temperature soldering guaranted:260℃/10s
✧Reel size: 7 inch

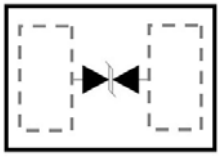
ORDERING INFORMATION

✧ Device: ESD0501LD
✧Package: DFN1006
✧Marking: 5BL or N
✧Material: Halogen free
✧Packing: Tape & Reel
✧Quantity per reel: 10,000pcs

APPLICATIONS

✧Serial ATA
✧Desktops, Servers and Notebooks
✧Cellular Phones
✧MDDI Ports
✧USB Data Line Protection
✧Display Ports
✧Digital Visual Interfaces (DVI)

PIN CONFIGURATION



PACKAGE OUTLINE



2020-12/01
REV:A

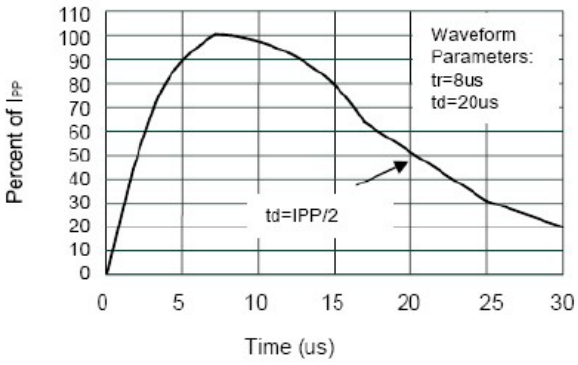
ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±20 ±20	kV
P_{PP}	Peak Pulse Power (8/20μs)	88	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

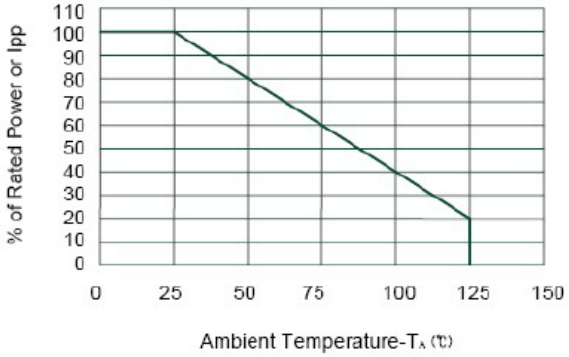
ELECTRICAL CHARACTERISTICS (Tamb=25°C,unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 5V			100	nA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			13	V
		I_{PP} = 4A, t_p = 8/20μs			22	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.5		pF

RATING AND CHARACTERISTICS CURVES (ESD0501LD)

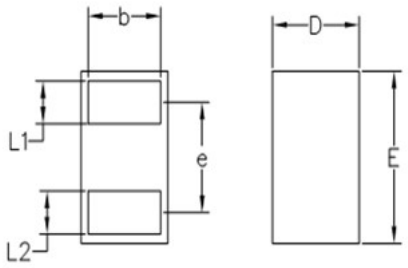


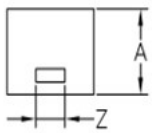
Pulse Waveform



Power Derating Curve

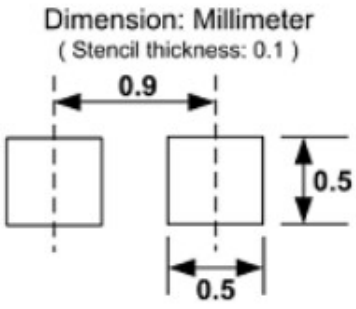
DFN1006 PACKAGE OUTLINE DIMENSIONS





NOTE:ALL DIMENSIONS IN MM

	MIN	NOM	MAX
D	0.55	0.60	0.65
E	0.95	1.00	1.05
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
A	0.45	0.50	0.55
Z	0.15	0.20	0.25
b	0.45	0.50	0.55
e		0.64BSC	



Soldering Footprint

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