RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ESD0301BD

Ultra Low Capacitance ESD Protection Diode

DESCRIPTION

ESD0301BD is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25 pF, ESD0301BD 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.

ESD0301BD uses ultra-small DFN1006 package.Each ESD0301BD 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 ESD0301BD 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: 0.25pF (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

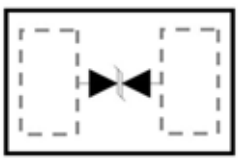
ORDERING INFORMATION

- ✧ Device: ESD0301BD
- ✧Package: DFN1006
- ✧Marking: 3BU
- ✧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



2019-11/01
REV:O

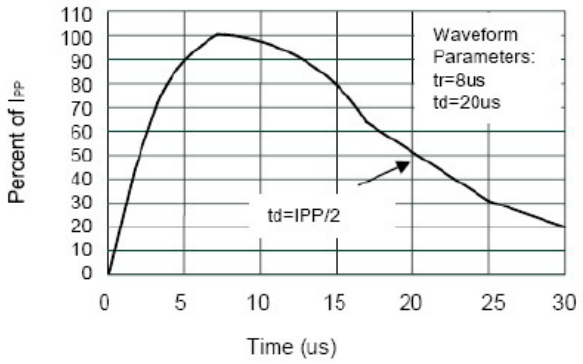
ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)

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)	84	W
T_{OPT}	Operating Temperature	-55~125	°C
T_{STG}	Storage Temperature	-55~150	°C

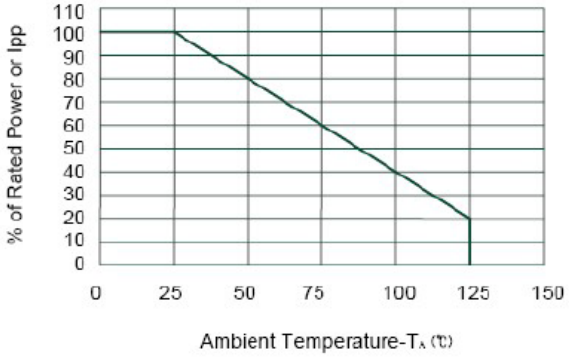
ELECTRICAL CHARACTERISTICS (Tamb=25°C,unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				3.3	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	4.2			V
I_R	Reverse Leakage Current	V_{RWM} = 3.3V			100	nA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			12	V
		I_{PP} = 4A, t_p = 8/20μs			21	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		0.25	0.40	pF

RATING AND CHARACTERISTICS CURVES (ESD0301BD)

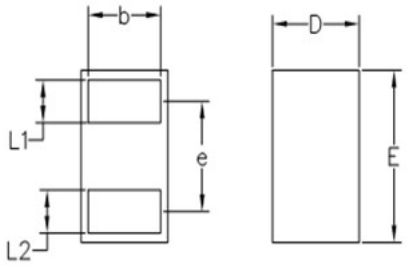


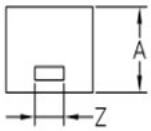
Pulse Waveform



Power Derating Curve

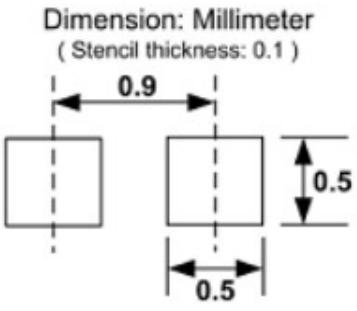
DFN1006 PACKAGE OUTLINE DIMENSIONS





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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