

ESD3.3V02D-DLC

ROHS

Transient Voltage Suppressors for ESD Protection

Description

The ESD3.3V02D-DLC 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, MP3 players, digital cameras and many other portable applications where board space is at a premium.

Features

- ◆ Solid-State Silicon-Avalanche Technology
- ◆ Protects One Bidirectional I/O Line
- ◆ Low Capacitance: 0.2pF typical
- ◆ Reverse Stand-off Voltage: 3.3V
- ◆ Low Clamping Voltage
- ◆ Low Leakage Current
- ◆ IEC61000-4-2(ESD) ±15kV (air discharge), ±12kV (contact discharge);
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 4A (8/20us)

Applications

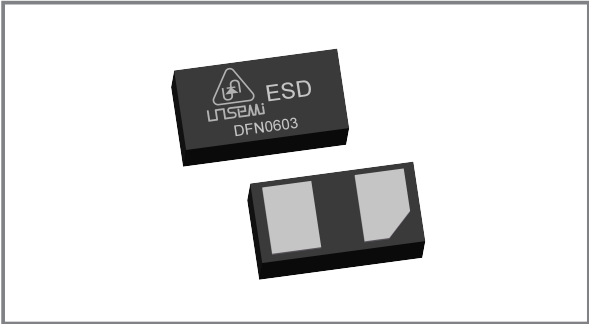
- ◆ USB 3.1 / 3.2 / 4.0 Interface
- ◆ HDMI 1.4 and HDMI 2.0
- ◆ SATA and eSATA interface
- ◆ DVI
- ◆ USB Type-C interface
- ◆ Hand Held Portable Applications

Mechanical Characteristics

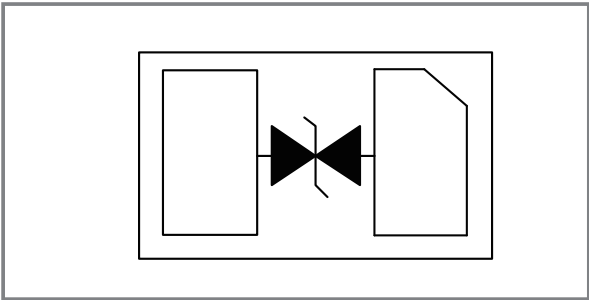
Parameter	Symbol	Value	Units
Peak Pulse Current (Tp=8/20μs waveform)	I _{PP}	4	A
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Operating Junction Temperature Range	T _J	-55 to +125	°C



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Functional Diagram



Mechanical Data

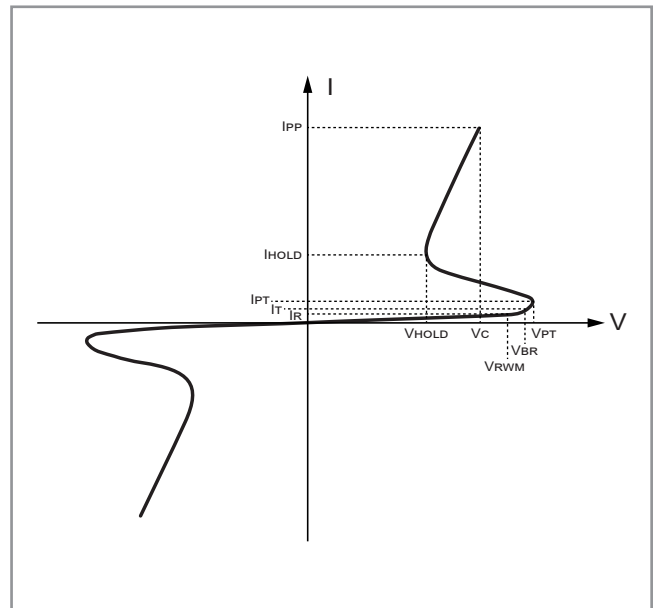
- ◆ JEDEC 0201/DFN0603 Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 0.3 Milligrams (Approximate)
- ◆ Lead Finish : Lead Free

Electrical Characteristics @ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	3.3	V
Reverse Breakdown Voltage	V_{BR}	$I_T=0.1mA$	5.0	6.5	--	V
Reverse Leakage Current	I_R	$V_{RWM}=3.3V, T=25^{\circ}C$	--	--	0.1	μA
Clamping Voltage	V_C	$I_{PP}=1.0A, T_P=8/20\mu s$	--	1.75	--	V
		$I_{PP}=4.0A, T_P=8/20\mu s$	--	2.9	--	V
Junction Capacitance	C_J	$V_{DC}=1.0V, f=1.0MHz$	--	0.2	0.3	pF

Electrical Parameters

Symbol	Definition
I_{PP}	Peak Pulse Current
V_C	Clamping Voltage
V_{RWM}	Reverse Working Voltage
I_R	Reverse Leakage Current
V_{BR}	Breakdown Voltage
I_T	Test Current
V_{PT}	Punch-Through Voltage
I_{PT}	Punch-Through Current
V_{HOLD}	Reverse Holding Voltage
I_{HOLD}	Reverse Holding Current



Characteristic Curves

Fig1. 8/20μs Pulse Waveform

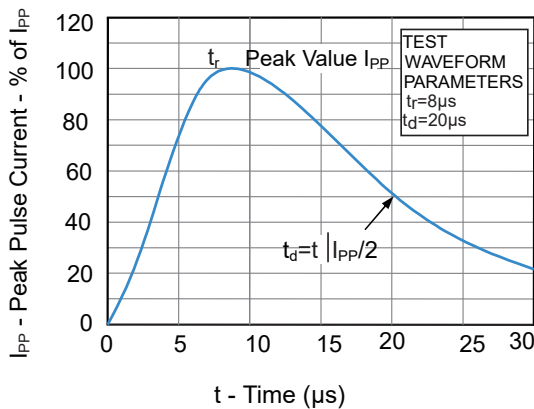


Fig2. Power Rating Derating Curve

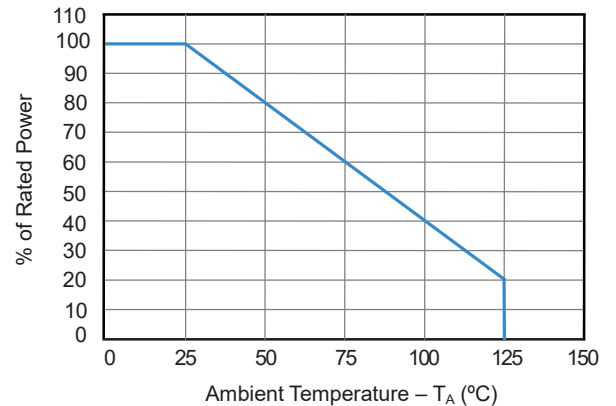


Fig3. ESD Pulse Waveform (according to IEC61000-4-2)

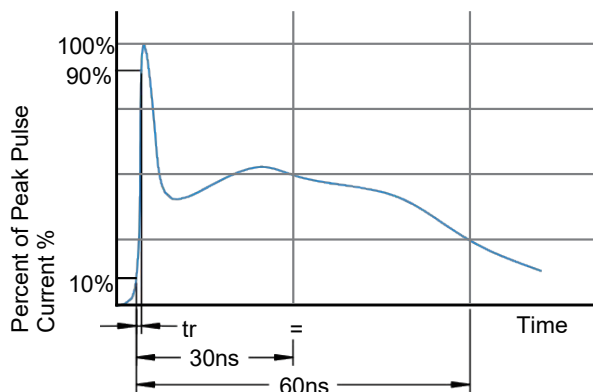
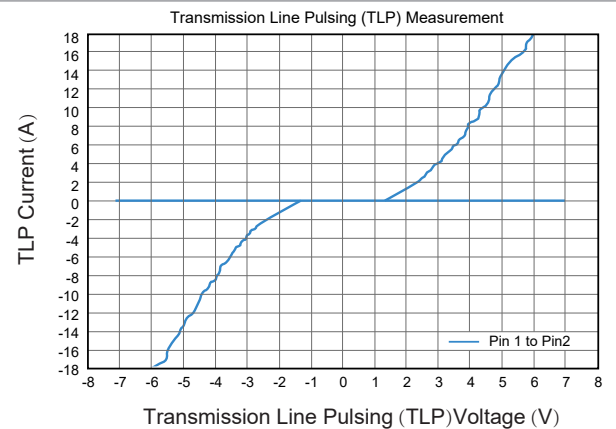
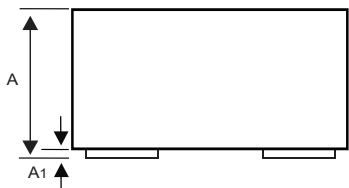
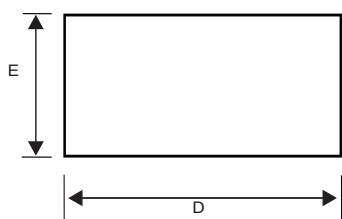


Fig4. Dynamic Resistance with Positive Clamping Voltage

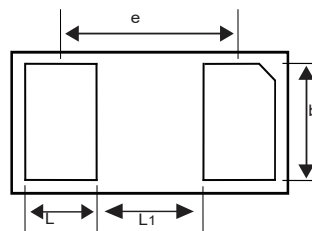
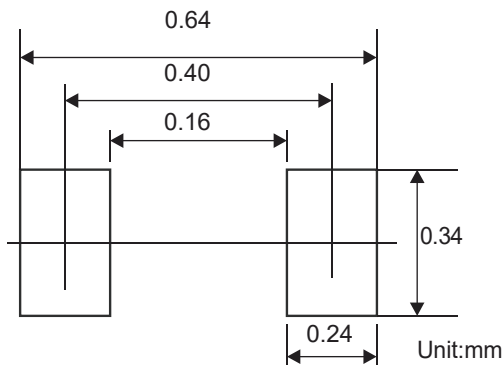


0201/DFN0603 Package Outline & Dimensions

0201/DFN0603



Suggested PAD Layout



Symbol	Millimeters		
	Min	Nom	Max
A	0.270	0.300	0.340
A1	0	0.020	0.050
D	0.550	0.600	0.650
E	0.250	0.300	0.350
e	0.340REF		
L	0.140	0.180	0.240
b	0.200	0.250	0.300
L1	0.150REF		

Ordering Information

Device	Marking	Package	Quantity	Reel Size
ESD3.3V02D-DLC	m	0201/DFN0603	10,000pcs/Reel	7 inch

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