

Transient Voltage Suppressors for ESD Protection

ESD3.3V88D-2C

Description

The ESD3.3V88D-2C is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Feature

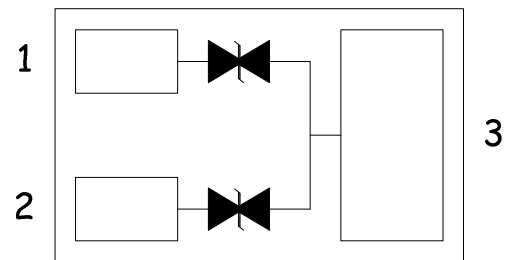
- ◆ 40 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects two bidirectional I/O lines
- ◆ Low clamping voltage
- ◆ Working voltages : 3.3V
- ◆ Low leakage current
- ◆ Provides ESD protection to IEC61000-4-2(ESD):
 $\pm 30\text{kV}$ (air discharge)
 $\pm 30\text{kV}$ (contact discharge);

Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Peripherals
- ◆ Pagers



Functional Diagram



Mechanical Data

- ◆ DFN1006P3 (1.0x0.6x0.5mm) Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 0.5 Milligrams (Approximate)
- ◆ Quantity Per Reel : 10,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power (tp=8/20μs waveform)	40	Watts
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature, T max = 10s	260	°C

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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}	$I_t=1mA$	3.5	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5V$; $T=25^{\circ}C$	--	--	0.01	μA
Positive Clamping Voltage	V_{C1}	$I_{PP}=4A$, $T_P=8/20\mu S$;	--	--	10.5	V
Capacitance Between I/O And GND	C_{J2}	$V_R=0V$, $f=1MHz$;	--	--	7	pF
		$V_R=3.3V$, $f=1MHz$;	--	--	4.5	

Characteristic Curves

Fig1. 8/20 μs Pulse Waveform

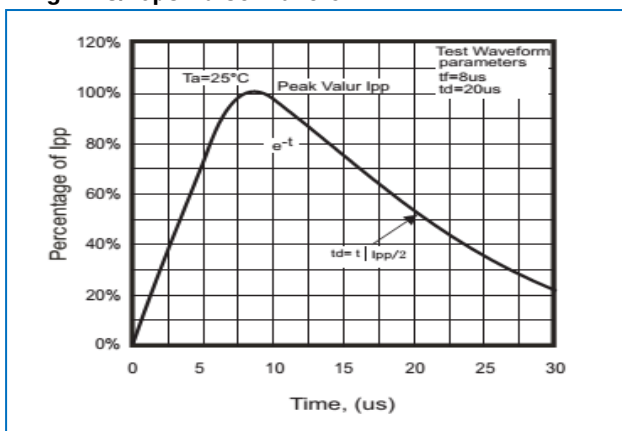


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

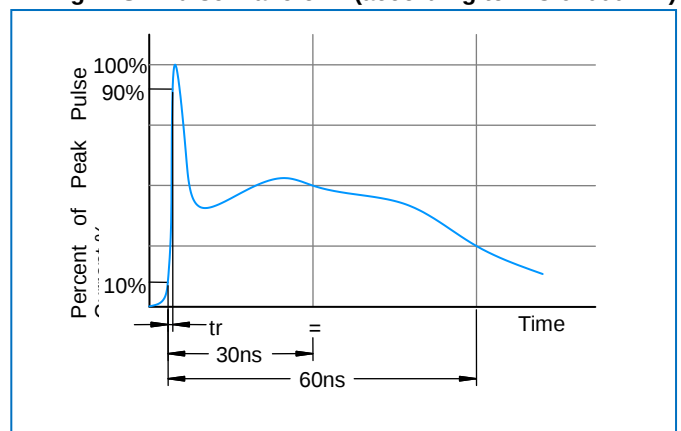


Fig3. Power Derating Curve

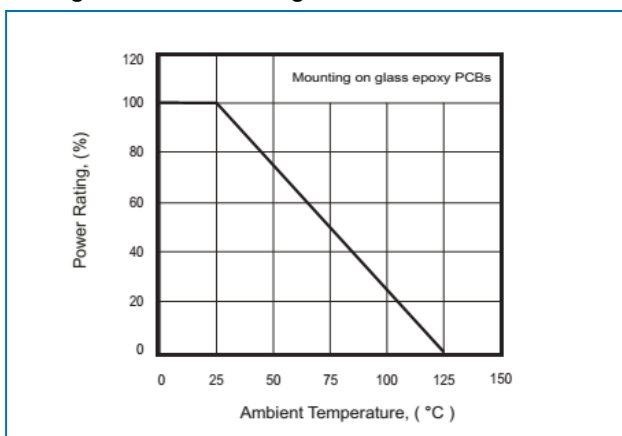
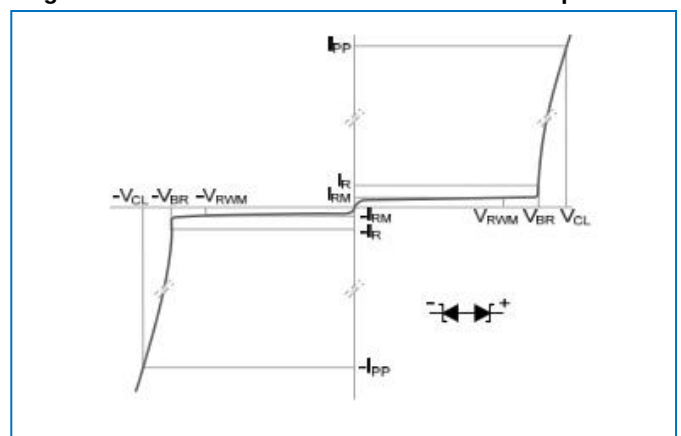


Fig4. V-I characteristics for a bidirectional ESD protection diode



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Characteristic Curves

Fig5. ESD Clamping Voltage Screenshot
Positive 8 KV contact per IEC 61000-4-2

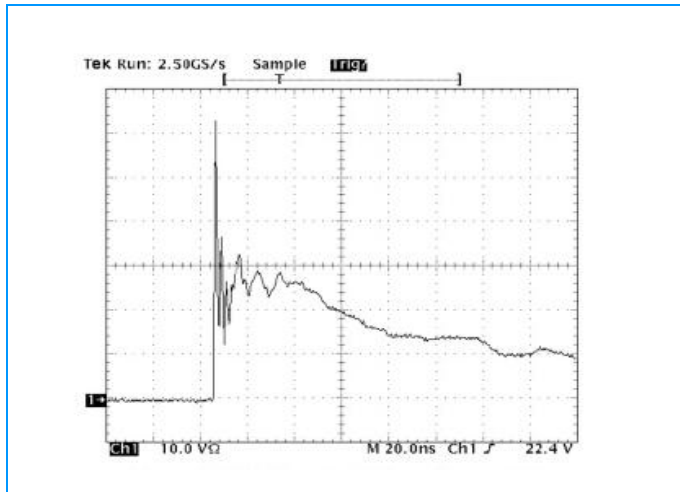
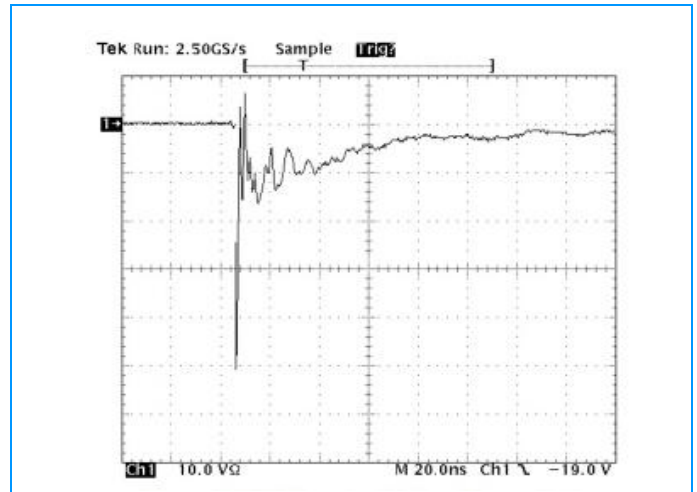
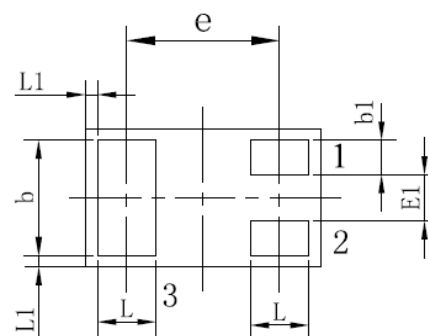
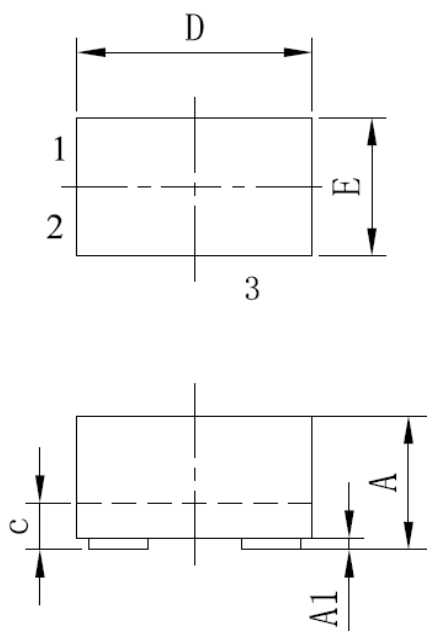


Fig6. ESD Clamping Voltage Screenshot
Negative 8 KV contact per IEC 61000-4-2



DNF1006P3 Package Outline & Dimensions



BOTTOM VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
c	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
E1	0.15	0.20	0.25
L	0.20	0.25	0.30
L1	0.05REF		