

Transient Voltage Suppressors for ESD Protection

ESDXXV52D-LCF Series

Description

The ESDXXV52D-LCF series 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, ultra-low capacitance values, it is very suitable for signal port and board space speed transmission is very small places, such as Ethernet, mobile phones, MP3 players, digital cameras and other portable.

Feature

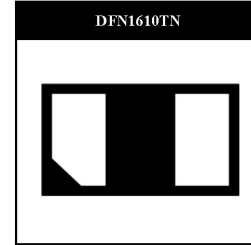
- ◆ 100 ~ 234 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects one I/O line (unidirection)
- ◆ Low clamping voltage
- ◆ Working voltages: 3.3V,5V,8V,12V,15V,18V and 24V
- ◆ Low leakage current
- ◆ IEC61000-4-5 (Lighting) 2 ~ 13A (8/20 μs)
- ◆ IEC61000-4-4 (EFT) 40A (5/50 ns)
- ◆ IEC61000-4-2 (ESD) ±25kV (air), ±15kV (contact) : 24V
- ◆ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact) : 3.3 ~ 15V

Applications

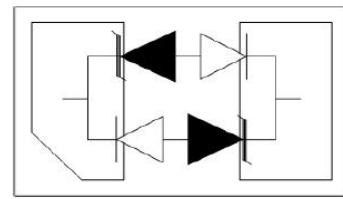
- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Peripherals
- ◆ USB Interface

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD03V52D-LCF	234	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD05V52D-LCF	220	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD08V52D-LCF	200	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD12V52D-LCF	150	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD15V52D-LCF	140	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD18V52D-LCF	114	Watts
P _{pp}	Peak Pulse Power (tp=8/20 μs waveform)--ESD24V52D-LCF	100	Watts
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature	260	°C



Functional Diagram



Mechanical Data

- ◆ DFN1610TN Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 3.5 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number	Device Marking Code	Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR}	Test Current I_T (mA)	V_C @1A (Max.)	V_C		Maximum Reverse Leakage I_R @ V_{RWM} (uA)	Maximum Junction Capacitance @0 V (pF)
						(Max.)	(@A)		
ESD03V52D-LCF	CL3	3.3	4.0	1.0	7.5	18	13	0.1	0.6
ESD05V52D-LCF	CL5	5.0	6.0	1.0	9.8	20	11	0.1	0.6
ESD08V52D-LCF	CL8	8.0	8.5	1.0	14.0	25	8	1.0	0.6
ESD12V52D-LCF	CLA	12.0	13.3	1.0	19.0	30	5	1.0	0.6
ESD15V52D-LCF	CLC	15.0	16.7	1.0	23.0	35	4	1.0	0.6
ESD18V52D-LCF	CLD	18.0	20.0	1.0	27.0	38	3	1.0	0.6
ESD24V52D-LCF	CLF	24.0	26.7	1.0	35.0	50	2	1.0	0.6

Characteristic Curves

Fig1. 8/20µs Pulse Waveform

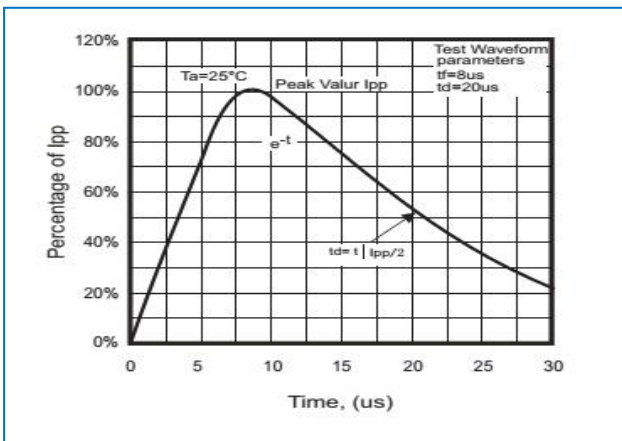


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

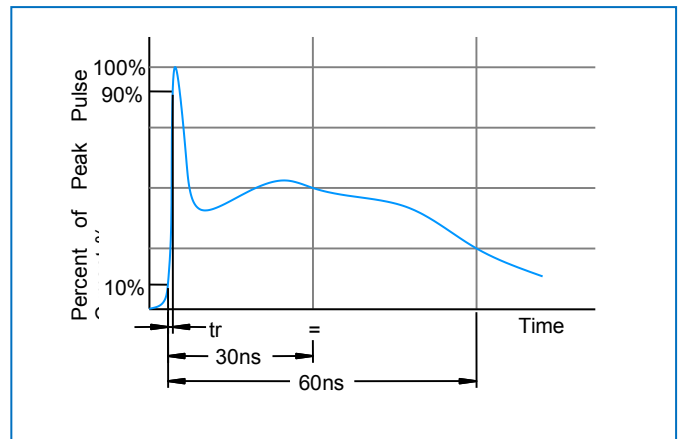
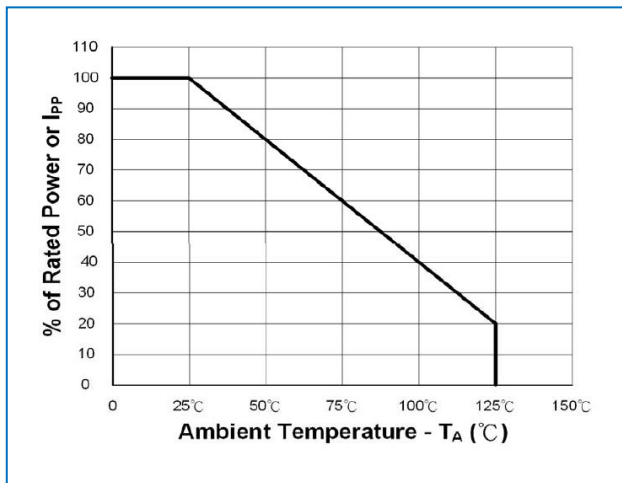


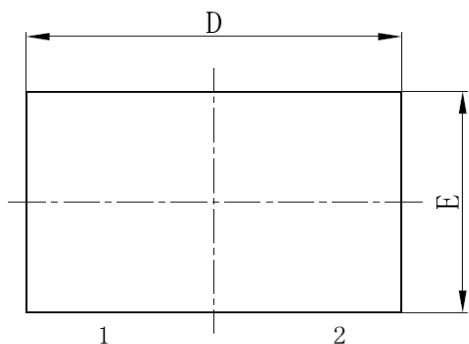
Fig3. Power Detating



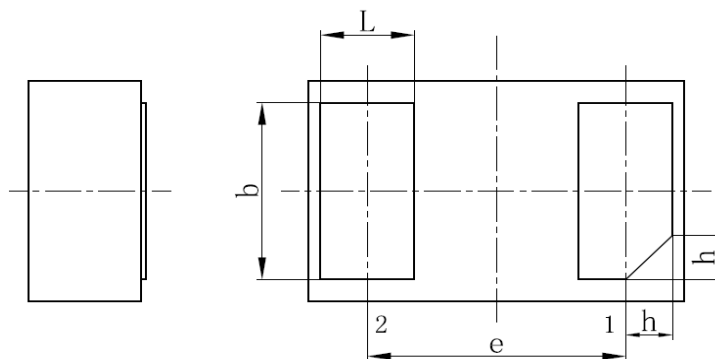
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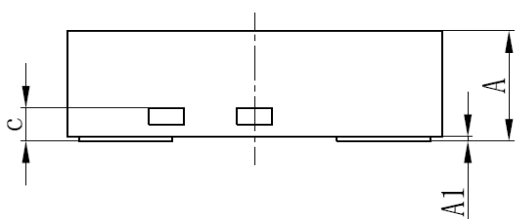
DFN1610TN Package Outline & Dimensions



TOP VIEW



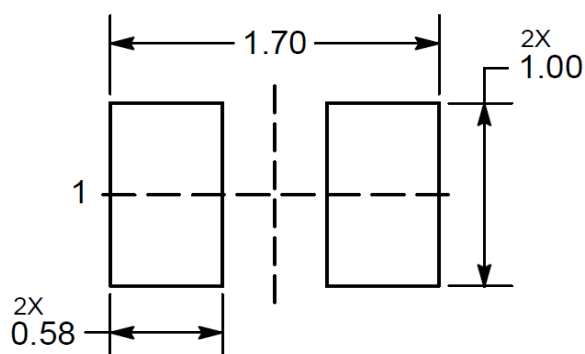
BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
AI	—	0.02	0.05
b	0.75	0.80	0.85
c	0.10	0.15	0.20
D	1.55	1.60	1.65
e	1.10BSC		
E	0.95	1.00	1.05
L	0.35	0.40	0.45
h	0.15	0.20	0.25

* SOLDERING FOOTPRINT



Note:
Controlling dimensions are in millimeter (mm)