

Transient Voltage Suppressors for ESD Protection

ESDXXV52D-A

Description

The ESDXXV52D-A 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.

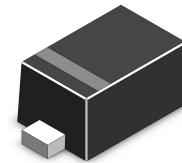
Feature

- ◆ 200 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$) -- 3.3V ~ 8.0V
- ◆ 150 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$) -- 12V ~ 36V
- ◆ Protects one I/O line
- ◆ Low clamping voltage
- ◆ Working voltages : 3.3V ~ 36V
- ◆ Low leakage current
- ◆ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact) -- 3.3V ~ 15V
- ◆ IEC61000-4-2 (ESD) $\pm 25kV$ (air), $\pm 15kV$ (contact) -- 24V ~ 36V

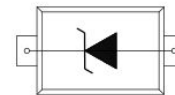
Applications

- ◆ Cellular Handsets and Accessories
- ◆ Portable Electronics
- ◆ Industrial Controls
- ◆ Set-Top Box
- ◆ Instrumentation
- ◆ Servers, Notebook, and Desktop PC
- ◆ Display Ports

SOD-523



Functional Diagram



Mechanical Data

- ◆ SOD-523 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Weight 2 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
P _{pp}	Peak Pulse Power ($t_p=8/20\mu s$ waveform)-- 3.3V ~ 8V	200	Watts
P _{pp}	Peak Pulse Power ($t_p=8/20\mu s$ waveform) -- 12V ~ 36V	150	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

Transient Voltage Suppressors for ESD Protection

ESDXXV52D-A

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)	Typ Junction Capacitance (pF)
						(Max.)	(@A)		
ESD3.3V52D-A	ZD	3.3	4	1.0	6.5	14	14	200	200
ESD05V52D-A	KE	5.0	6	1.0	9.0	16	12	5	110
ESD08V52D-A	ZE	8.0	8.5	1.0	13	20	10	5	70
ESD12V52D-A	ZM	12	13.3	1.0	16.5	28	6	1	60
ESD15V52D-A	KP	15	16.6	1.0	21	35	5	1	50
ESD18V52D-A	KK	18	19	1.0	26	37	4.5	1	30
ESD24V52D-A	KR	24	26.7	1.0	34.7	48	3	1	25
ESD36V52D-A	KT	36	40	1.0	62	75	2	1	25

Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

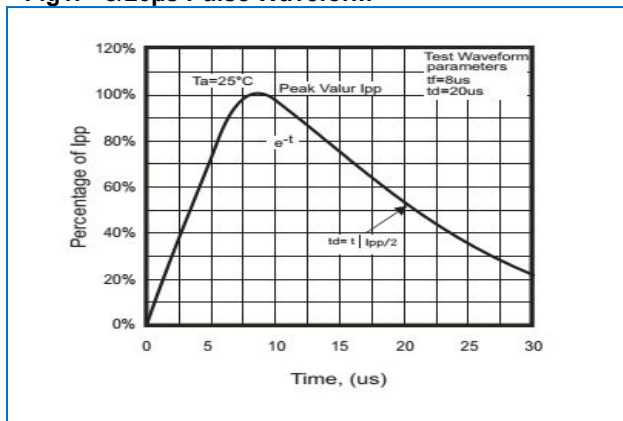


Fig2.ESD Pulse Waveform (according to IEC 61000-4-2)

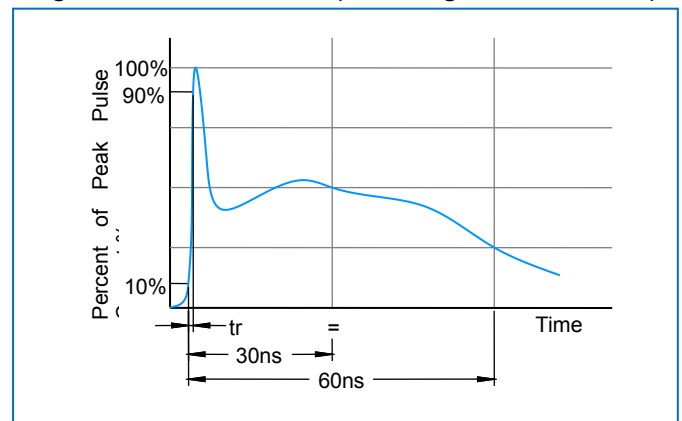


Fig3. ESD Clamping Voltage Screenshot
Positive 8 KV contact per IEC 61000-4-2

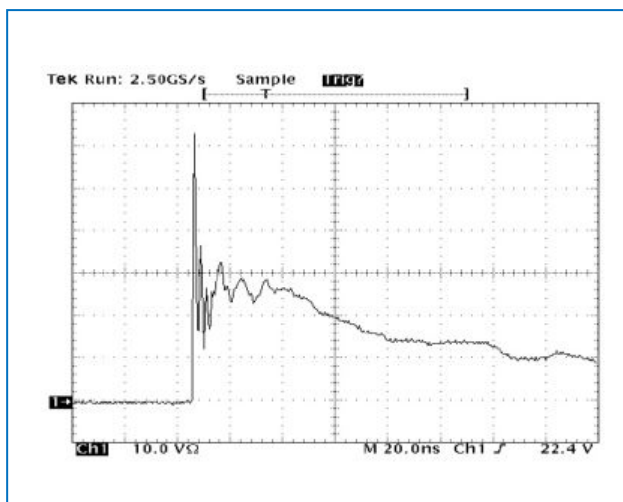
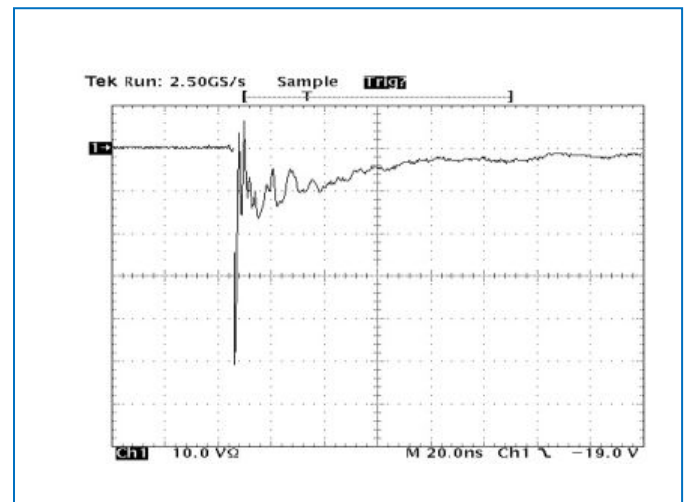


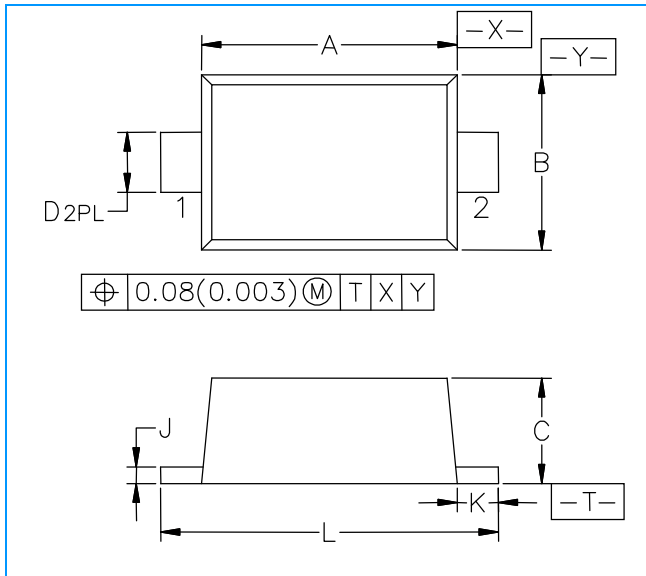
Fig4. ESD Clamping Voltage Screenshot
Negative 8 KV contact per IEC 61000-4-2



Transient Voltage Suppressors for ESD Protection

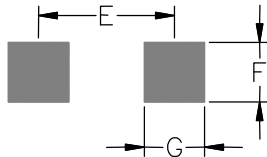
ESDXXV52D-A

SOD-523 Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.10	1.20	1.30	0.043	0.047	0.051
B	0.70	0.80	0.90	0.028	0.032	0.035
C	0.50	0.60	0.70	0.020	0.024	0.028
D	0.25	0.30	0.35	0.010	0.012	0.014
J	0.07	0.14	0.20	0.0028	0.0055	0.0079
K	0.15	0.20	0.25	0.006	0.008	0.010
S	1.50	1.60	1.70	0.059	0.063	0.067

Soldering Footprint



Symbol	Millimeters	Inches
E	1.40	0.0547
F	0.40	0.0157
G	0.40	0.0157