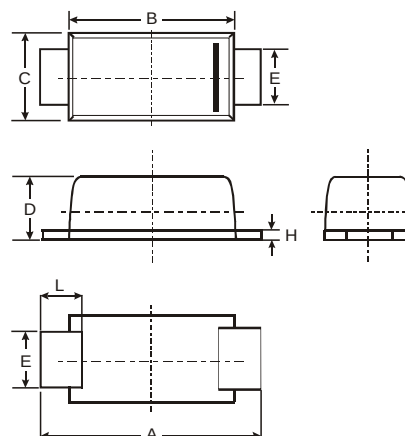


Transient Voltage Suppressors for ESD Protection

Description

The ESDXXV12D-A/C is designed to protect voltage sensitive components from electrostatic and transient voltage damage. Excellent clamping capability, low leakage current and fast response time make ESDXXV32D-A ideal for ESD protection in limited PCB space. Because of its small size, the TVS arrays are suitable for I/O interfaces, VCC bus, Computer, LED light, Consumer electronic, Telecom industry, etc.

SOD-123FL			
Dim	Min	Max	Typ
A	3.58	3.72	3.65
B	2.72	2.78	2.75
C	1.77	1.83	1.80
D	1.02	1.08	1.05
E	0.097	1.03	1.00
H	0.13	0.17	0.15
L	0.53	0.57	0.55
All Dimensions in mm			



Feature

- ◆ 1000 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- ◆ 200 Watts Peak Pulse Power per Line ($t_p=10/1000\mu s$)
- ◆ Protects one I/O line or power line
- ◆ Low clamping voltage
- ◆ Working voltages : 5V to 190V
- ◆ Low leakage current
- ◆ IEC61000-4-2 (ESD) $\pm 30kV$ (air), $\pm 30kV$ (contact)
- ◆ IEC61000-4-4 (EFT) 80A (5/50ns)

Applications

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

Mechanical Characteristics

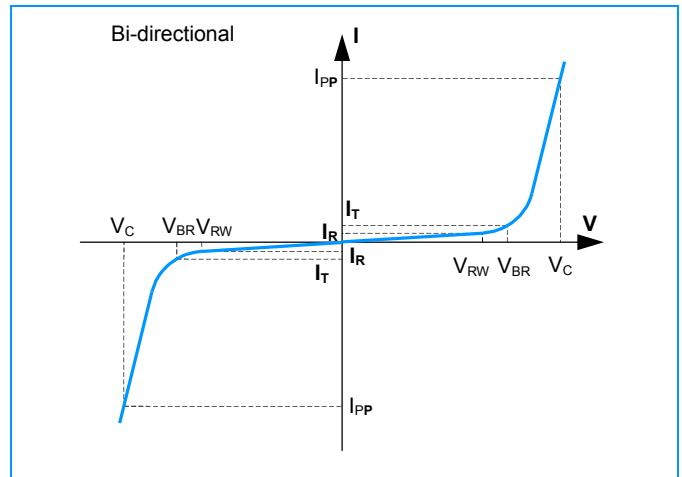
Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power ($t_p=8/20\mu s$ waveform)	1000	W
	Peak Pulse Power ($t_p=10/1000\mu s$ waveform)	200	
T_L	Lead Soldering Temperature	260 (10sec)	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)	Air Discharge Contact Discharge	KV
	IEC61000-4-4 (EFT)	80	A



Transient Voltage Suppressors for ESD Protection

I-V Curve Characteristics

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse leakage Current @ V_{RWM}
I_T	Test Current
V_B	Breakdown Voltage @ I_T



Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Device Marking		V_{RWM} (V) (Max.)	V_B (V) (Min.)	I_T (mA)	10/1000 μ s V_C		I_R (μ A) (Max.)	C (pF) (Typ.)
Uni	Bi	Uni	Bi				(Max.)	(@A)		
ESD05V12D-A	ESD05V12D-C	FE	KE	5.0	6.40	10	9.2	21.74	400	1500
ESD06V12D-A	ESD06V12D-C	FG	KG	6.0	6.67	10	10.3	19.42	400	1200
ESD6.5V12D-A	ESD6.5V12D-C	FK	KK	6.5	7.22	1	11.2	17.86	250	1200
ESD07V12D-A	ESD07V12D-C	FM	KM	7.0	7.78	10	12.0	16.67	100	1100
ESD7.5V12D-A	ESD7.5V12D-C	FP	KP	7.5	8.33	1	12.9	15.50	50	1000
ESD08V12D-A	ESD08V12D-C	FR	KR	8.0	8.89	1	13.6	14.71	25	900
ESD8.5V12D-A	ESD8.5V12D-C	FT	KT	8.5	9.44	1	14.4	13.89	10	800
ESD09V12D-A	ESD09V12D-C	FV	KV	9.0	10.00	1	15.4	12.99	5	600
ESD10V12D-A	ESD10V12D-C	FX	KX	10.0	11.10	1	17.0	11.76	2.5	500
ESD11V12D-A	ESD11V12D-C	FZ	KZ	11.0	12.20	1	18.2	10.99	2.5	500
ESD12V12D-A	ESD12V12D-C	HE	LE	12.0	13.30	1	19.9	10.05	2.5	500
ESD13V12D-A	ESD13V12D-C	HG	LG	13.0	14.40	1	21.5	9.30	1	450
ESD14V12D-A	ESD14V12D-C	HK	LK	14.0	15.60	1	23.2	8.62	1	450
ESD15V12D-A	ESD15V12D-C	HM	LM	15.0	16.70	1	24.4	8.20	1	400
ESD16V12D-A	ESD16V12D-C	HP	LP	16.0	17.80	1	26.0	7.69	1	380
ESD17V12D-A	ESD17V12D-C	HR	LR	17.0	18.90	1	27.6	7.25	1	360
ESD18V12D-A	ESD18V12D-C	HT	LT	18.0	20.00	1	29.2	6.85	1	350
ESD19V12D-A	ESD19V12D-C	HB	LB	19.0	21.10	1	30.6	6.54	1	350
ESD20V12D-A	ESD20V12D-C	HV	LV	20.0	22.20	1	32.4	6.17	1	330
ESD22V12D-A	ESD22V12D-C	HX	LX	22.0	24.40	1	35.5	5.63	1	310
ESD24V12D-A	ESD24V12D-C	HZ	LZ	24.0	26.70	1	38.9	5.14	1	300
ESD26V12D-A	ESD26V12D-C	JE	ME	26.0	28.90	1	42.1	4.75	1	280
ESD28V12D-A	ESD28V12D-C	JG	MG	28.0	31.10	1	45.4	4.41	1	270
ESD30V12D-A	ESD30V12D-C	JK	MK	30.0	33.30	1	48.4	4.13	1	260



Transient Voltage Suppressors for ESD Protection

ESD33V12D-A	ESD33V12D-C	JM	MM	33.0	36.70	1	53.3	3.75	1	250
ESD36V12D-A	ESD36V12D-C	JP	MP	36.0	40.00	1	58.1	3.44	1	240
ESD40V12D-A	ESD40V12D-C	JR	MR	40.0	44.40	1	64.5	3.10	1	220
ESD43V12D-A	ESD43V12D-C	JT	MT	43.0	47.80	1	69.4	2.88	1	220
ESD45V12D-A	ESD45V12D-C	JV	MV	45.0	50.00	1	72.7	2.75	1	220
ESD48V12D-A	ESD48V12D-C	JX	MX	48.0	53.30	1	77.4	2.58	1	200
ESD51V12D-A	ESD51V12D-C	JZ	MZ	51.0	56.70	1	82.4	2.43	1	200
ESD54V12D-A	ESD54V12D-C	XE	NE	54.0	60.00	1	87.1	2.30	1	190
ESD58V12D-A	ESD58V12D-C	XG	NG	58.0	64.40	1	93.6	2.14	1	190
ESD60V12D-A	ESD60V12D-C	XK	NK	60.0	66.70	1	96.8	2.07	1	180
ESD64V12D-A	ESD64V12D-C	XM	NM	64.0	71.10	1	103.0	1.94	1	170
ESD70V12D-A	ESD70V12D-C	XP	NP	70.0	77.80	1	113.0	1.77	1	160
ESD75V12D-A	ESD75V12D-C	XR	NR	75.0	83.30	1	121.0	1.65	1	150
ESD78V12D-A	ESD78V12D-C	XT	NT	78.0	86.70	1	126.0	1.59	1	150
ESD80V12D-A	ESD80V12D-C	XB	NB	80.0	88.80	1	129.0	1.55	1	130
ESD85V12D-A	ESD85V12D-C	XV	NV	85.0	94.40	1	137.0	1.46	1	130
ESD90V12D-A	ESD90V12D-C	XX	NX	90.0	100.00	1	146.0	1.37	1	120
ESD100V12D-A	ESD100V12D-C	XZ	NZ	100.0	111.00	1	162.0	1.23	1	120
ESD110V12D-A	ESD110V12D-C	TE	PE	110.0	122.00	1	177.0	1.13	1	110
ESD120V12D-A	ESD120V12D-C	TG	PG	120.0	133.00	1	193.0	1.04	1	100
ESD130V12D-A	ESD130V12D-C	TK	PK	130.0	144.00	1	209.0	0.96	1	100
ESD140V12D-A	ESD140V12D-C	TB	PB	140.0	155.00	1	224.0	0.89	1	90
ESD150V12D-A	ESD150V12D-C	TM	PM	150.0	167.00	1	243.0	0.82	1	90
ESD160V12D-A	ESD160V12D-C	TP	PP	160.0	178.00	1	259.0	0.77	1	80
ESD170V12D-A	ESD170V12D-C	TR	PR	170.0	189.00	1	275.0	0.73	1	80
ESD180V12D-A	ESD180V12D-C	TT	PT	180.0	200.00	1	292.0	0.69	1	80
ESD190V12D-A	ESD190V12D-C	TV	PV	190.0	211.00	1	308.0	0.69	1	80



Transient Voltage Suppressors for ESD Protection

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

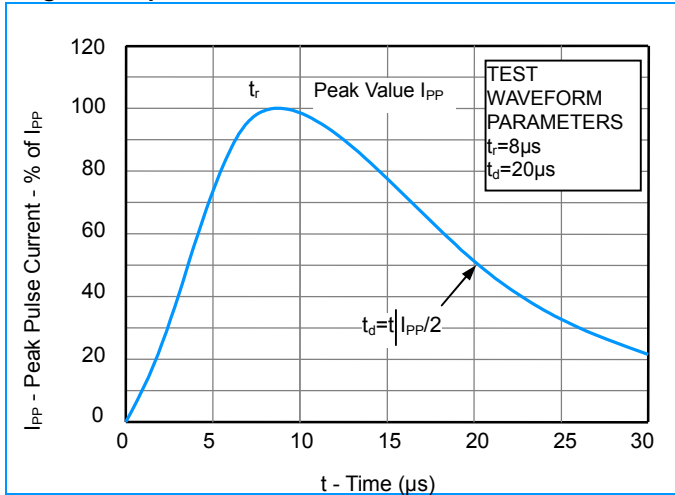


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

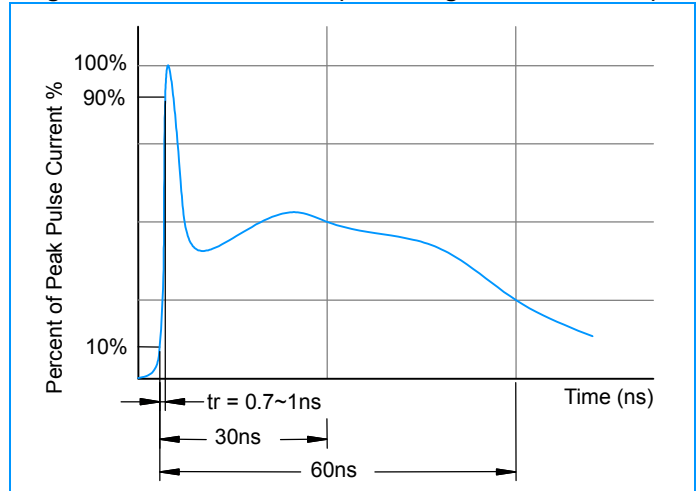


Fig3. ESD Clamping (+8KV Contac per IEC61000-4-2)

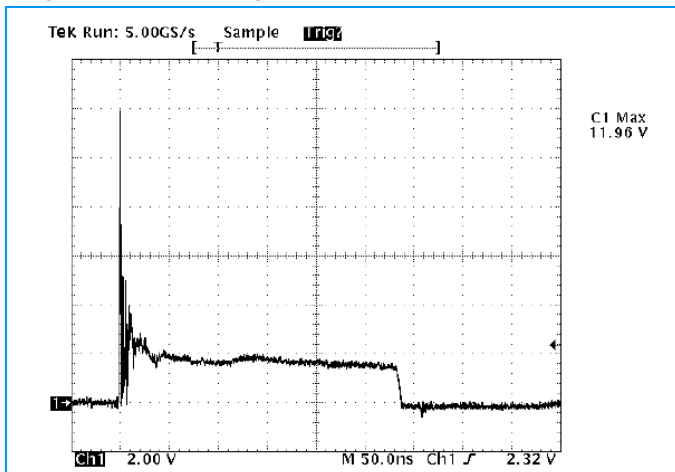


Fig4. ESD Clamping (-8KV Contac per IEC61000-4-2)

