Transient Voltage Suppressors Array for ESD Protection

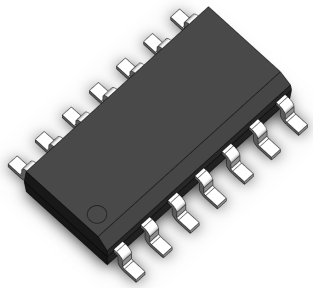
SMDAXXC-8 Series

Description

The SMDAxxC-8 series of transient voltage suppressors are designed to protect components which are connected to data and transmission lines from voltage surges caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

TVS diodes are characterized by their high surge capability, low operating and clamping voltages, and fast response time. This makes them ideal for use as board level protection of sensitive semiconductor components. The SMDAxxC-8 is designed to provide transient suppression on multiple data lines and I/O ports. The low profile SOP-14 design allows the user to protect up to eight data and I/O lines with one package. They are bidirectional device and may be used on lines where the normal operating voltage is above and below ground (i.e. -12V to +12V).

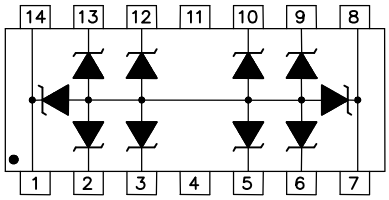
SOP-14



Feature

- 300 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects Eight Data Lines
- Working Voltage : 5V, 12V, 15V and 24V
- Monolithic Design
- RoHS Compliant
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact) - 5V, 12V, 15V
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact) -24V
- IEC61000-4-4 (EFT) 40A (5/50ηs)
- IEC61000-4-5 (Lightning) 12A (8/20μs)

Functional Diagram



Applications

- Microprocessor Based Equipment
- RS-232 and RS-422 Data Lines
- LAN/WAN Equipment
- Notebooks, Desktops and Servers
- Instrumentation
- Set Top Box
- Serial and Parallel Ports
- Peripherals

Mechanical Characteristics

- JEDEC SOP-14 Package
- Molding Compound Flammability Rating : UL 94V-0
- Weight 150.0 Milligrams (Approximate)
- Quantity Per Reel : 500pcs
- Reel Size : 7 inch
- Lead Finish : Lead Free

Mechanical Characteristics

Symbol	Parameter	Value	Units
P_{PP}	**Peak Pulse Power (tp=8/20μs waveform)**	300	W
T_L	**Lead Soldering Temperature**	260 (10sec)	ºC
T_{STG}	**Storage Temperature Range**	-55 to +150	ºC
T_J	**Operating Temperature Range**	-55 to +150	ºC
	IEC61000-4-4 (EFT)	40	A
	IEC61000-4-5 (Lightning)	12	A

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Electrical Characteristics (@ 25℃ Unless Otherwise Specified)

Part Number	Device Marking	V_{RWM} (V) (Max.)	V_B (V) (Min.)	I_T (mA)	V_C @5A (Max.)	V_C (Max.)	V_C (@A)	I_R (μA) (Max.)	C (pF) (Typ.)
SMDA05C-8	SMDA05C-8	5.0	6.0	1	9.8	19.0	30	20	350
SMDA12C-8	SMDA12C-8	12.0	13.3	1	19.0	29.2	20	1	120
SMDA15C-8	SMDA15C-8	15.0	16.7	1	24.0	31.1	18	1	75
SMDA24C-8	SMDA24C-8	24.0	26.7	1	43.0	45	13	1	50

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

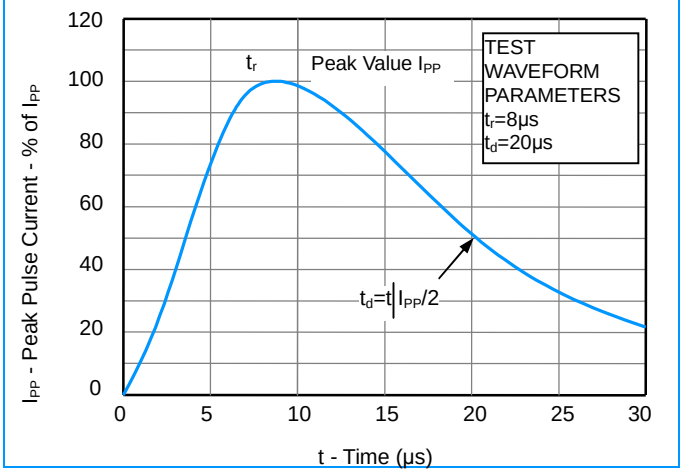


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

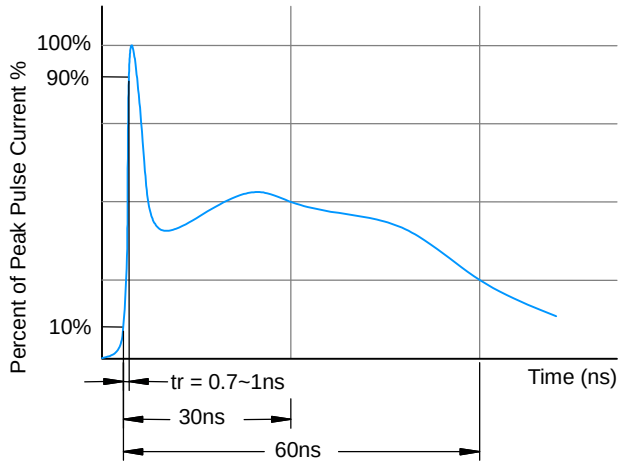
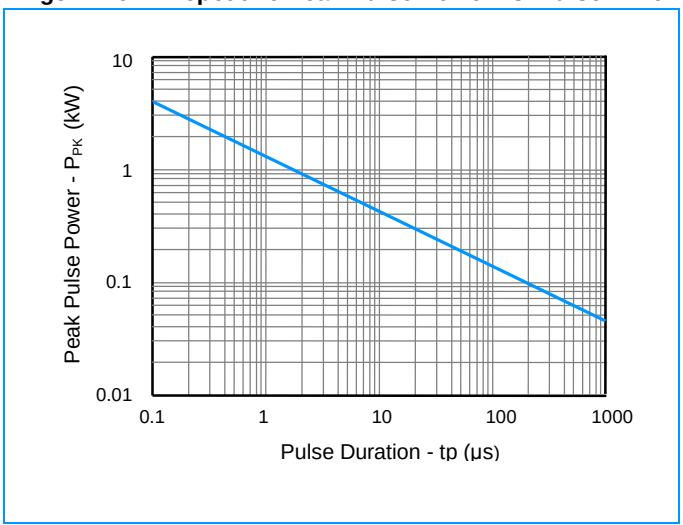


Fig3. Non - Repetitive Peak Pulse Power vs. Pulse Time



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Characteristic Curves

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

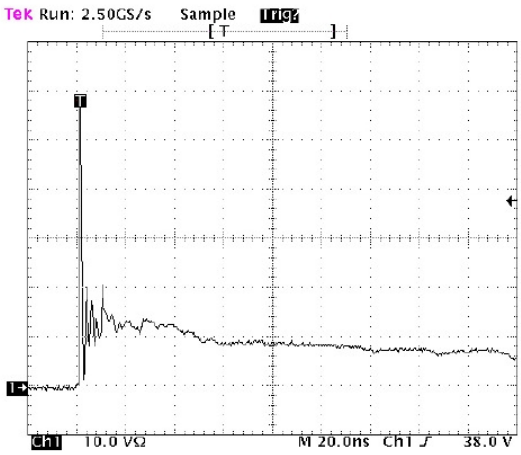
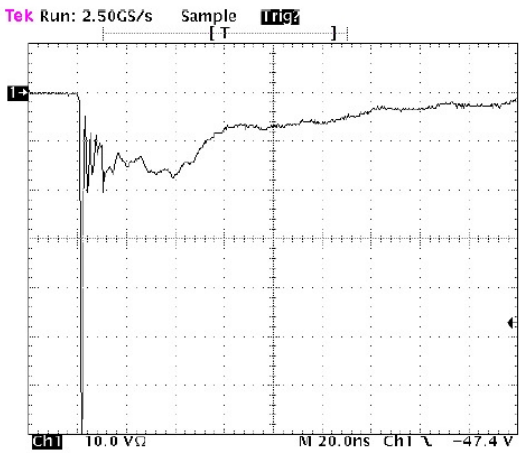
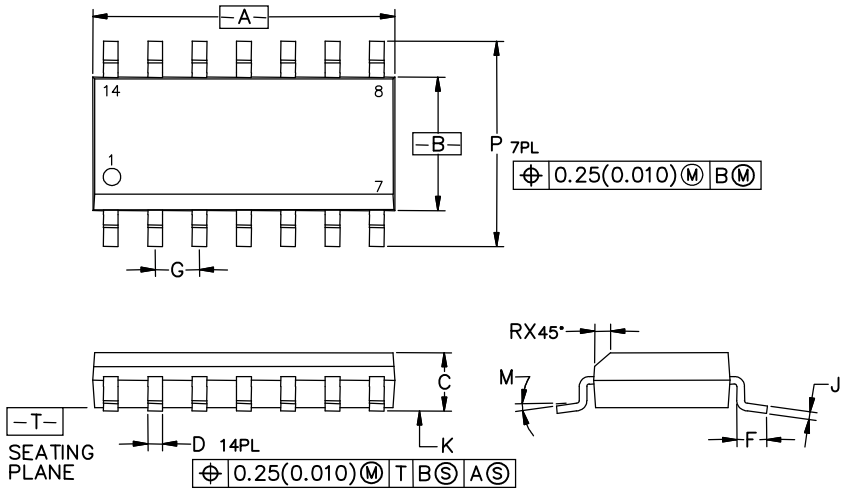


Fig5. ESD Clamping (-8KV Contac per IEC61000-4-2)

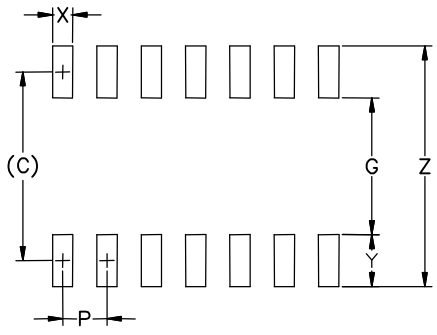


SOP-14 Package Outline & Dimensions



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	8.55	8.75	0.337	0.344
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.228	0.244
R	0.25	0.50	0.010	0.019

Soldering Footprint



Symbol	Inches	Millimeters
C	(0.205)	(5.20)
G	0.118	3.00
P	0.050	1.27
X	0.024	0.60
Y	0.087	2.20
Z	0.291	7.40