TEL: 805-498-2111 FAX: 805-498-3804

DESCRIPTION

The SMDA 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 induced 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 SMDA series is designed to provide transient suppression on multiple data lines and I/O ports. The low profile SO-8 design allows the user to protect up to four data and I/O lines with one package. The SMDA series is suitable protection for sensitive TTL and CMOS ICs such as microprocessors, I/O transceivers, ASICs, transducers, and CMOS memory.

The SMDA series TVS diode arrays will meet the surge requirements of IEC 1000-4-2 (Formerly IEC 801-2), Level 4, "Human Body Model" for air and contact discharge.

APPLICATIONS:

- RS-232, RS-423 data lines
- Cellular phone terminals
- Audio/Video inputs
- Portable electronics
- Networks

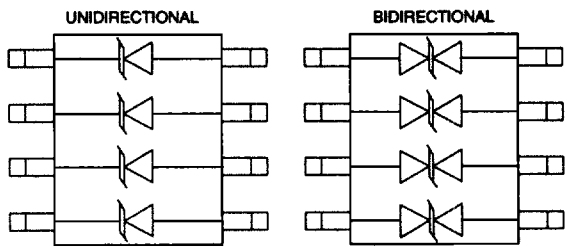
FEATURES:

- 300 watts Peak Pulse Power (tp = 8 x 20 µs)
- Transient protection for data, signal, and Vcc bus to **IEC 1000-4-2 (ESD) & IEC 1000-4-4 (EFT)**
- Protects up to four bidirectional or four unidirectional lines
- **ESD** protection >15kV
- Low Leakage Current

MECHANICAL CHARACTERISTICS:

- JEDEC MS-012AA small outline package
- Solder temperature : 265°C for 10 seconds
- Readily solderable terminals
- Pin #1 marked with dot on body
- Marking : Logo, part number, and date code
- Packaging : Tube or 12mm tape per EIA 481-1

SCHEMATIC



MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNIT
Peak Pulse Power (tp = 8 x 20 µs)	Ppk	300	Watts
Operating Temperature	Tj	-55 to +150	°C
Storage Temperature	Tstg	-55 to +150	°C

ELECTRICAL CHARACTERISTICS @ 25°C

Part Number	Reverse Stand-off Voltage	Min V_{BR} @ 1mA	Max. Clamping Voltage @ 1A	Max. Clamping Voltage @ 5A	Leakage Current @ V_{RWM}	Capacitance @ 0V, 1MHz
"C" suffix: Bidirectional	V_{RWM} Volts	V_{BR}(min) Volts	Vc Volts	Vc Volts	I_R µA	Cj pf
SMDA05	5	6	9.8	11	20	400
SMDA05C	5	6	9.8	11	20	350
SMDA12	12	13.3	19	24	1	150
SMDA12C	12	13.3	19	24	1	120
SMDA15	15	16.7	24	30	1	100
SMDA15C	15	16.7	24	30	1	75
SMDA24	24	26.7	43	55	1	60
SMDA24C	24	26.7	43	55	1	50
SMDA36	36	40	60	65	1	45

Note : Clamping voltage values are based upon an industry standard 8 x 20µs peak pulse current (Ipp) waveform.

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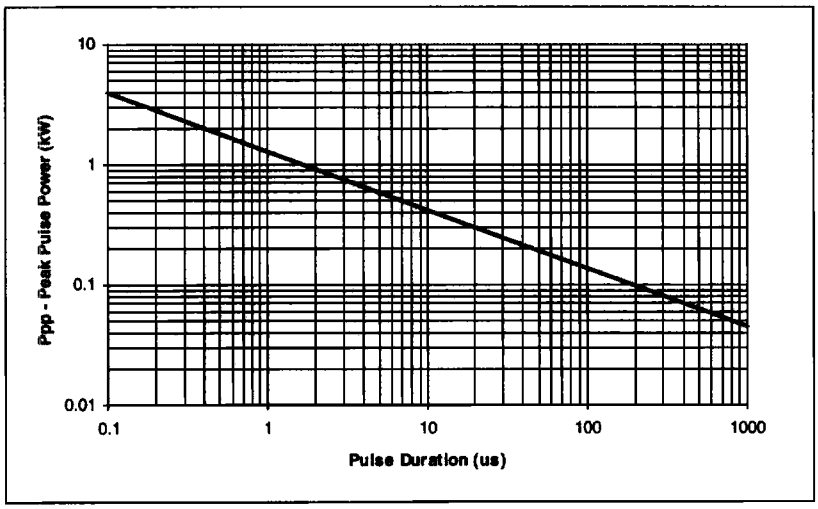
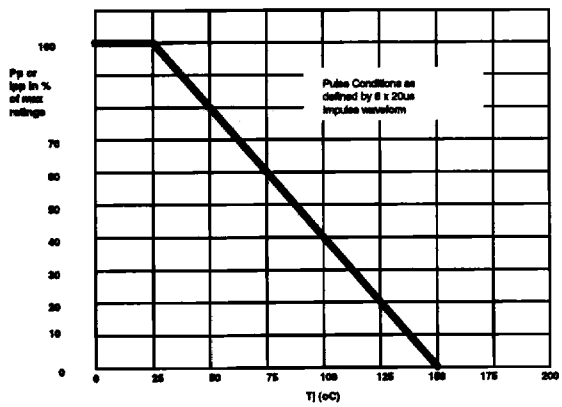
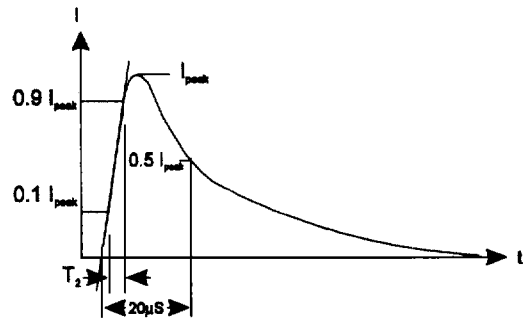
PEAK PULSE POWER vs. PULSE TIME



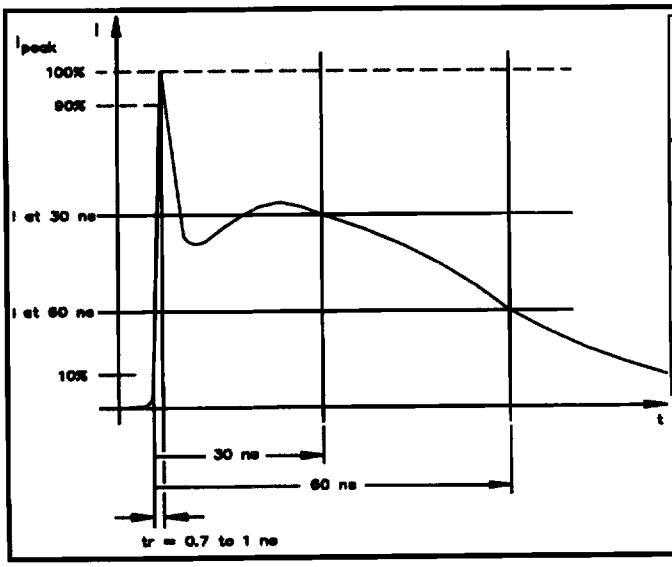
PULSE DERATING CURVE



8x20µs IMPULSE WAVEFORM



T_2 x 1.25 = 8µS



LEVEL	First Peak Current of Discharge (±10%) (A)	Peak Current (±30%) at 30ns (A)	Peak Current (±30%) at 60ns (A)	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	7.5	4	2	2	2
2	15	8	4	4	4
3	22.5	12	6	6	8
4	30	16	8	8	15

IEC 1000-4-2 ESD WAVEFORM & DISCHARGE PARAMETERS

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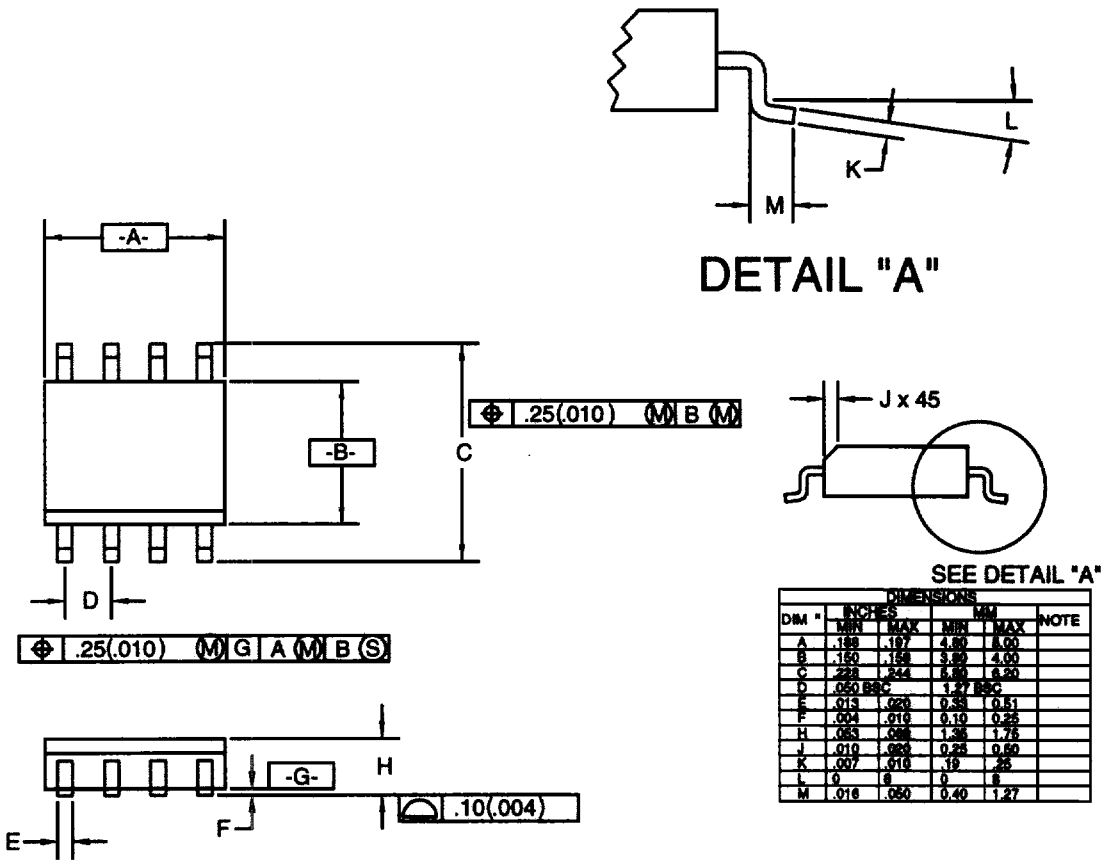
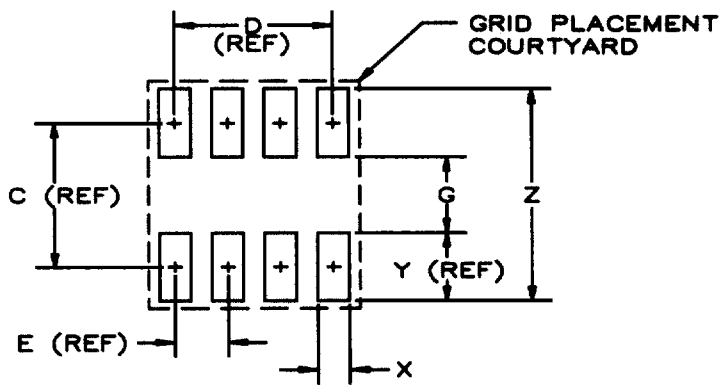
MECHANICAL OUTLINE - SO-8



DIM "	DIMENSIONS INCHES MIN	INCHES MAX	MM MIN	MM MAX	NOTE
A	.189	.197	4.80	5.00	
B	.150	.158	3.80	4.00	
C	.228	.244	5.80	6.20	
D	.050 BSC		1.27 BSC		
E	.013	.020	0.33	0.51	
F	.004	.010	0.10	0.25	
H	.053	.069	1.35	1.75	
J	.010	.020	0.25	0.50	
K	.007	.010	.19	.25	
L	0	8	0	8	
M	.016	.050	0.40	1.27	

LAND PATTERN - SO-8

DIM"	DIMENSIONS INCHES MIN	INCHES MAX	MM MIN	MM MAX	NOTE
C	–	.19	–	5.00	–
D	–	.15	–	3.81	–
E	–	.05	–	1.27	–
G	.10	.11	2.60	2.80	–
X	.02	.03	.60	.80	–
Y	–	.09	–	2.40	–
Z	–	.29	7.20	7.40	–



Note 1 : Grid placement courtyard is 12 x 16 elements (6mm x 8mm) in accordance with the international grid detailed in IEC Publication 97.

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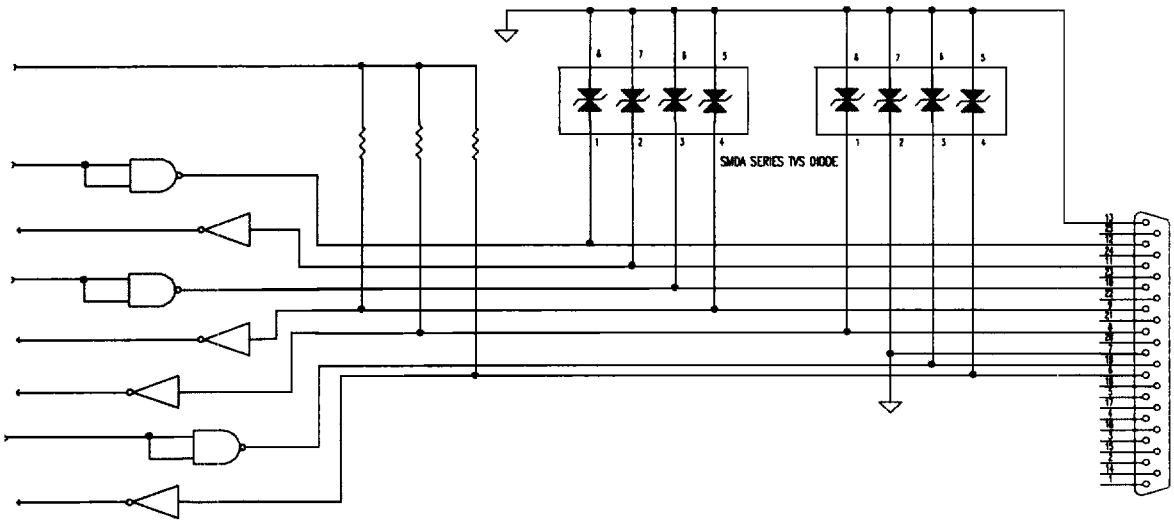
TYPICAL APPLICATIONS

RS-232 PROTECTION



MICROPROCESSOR PROTECTION