

Description

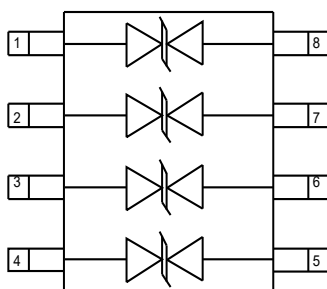
The SMDA12C series of transient voltage suppressors are designed to protect components which are connected to data and transmission lines from voltage surges caused by electrostatic discharge (ESD), electrical fast transients(EFT), and lightning. TVS diodes are characterized by their high surge capability, low operating and clamping voltages, and fast response time. This makes them ideal for use as board level protection of sensitive semiconductor components. The SMDA12C 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 five data and I/O lines with one package.

The SMDA12C TVS diode array will meet the surge requirements of IEC 61000-4-2(Formerly IEC 801-2), Level 4, "Human Body Model" for air and contact discharge.

Mechanical Characteristics

- ◆ JEDEC SO-8 package
- ◆ Molding compound flammability rating: UL 94V-0
- ◆ Marking: Part number
- ◆ Packaging: Tube or Tape and Reel per EIA 481

Dimensions and Pin Configuration



SO-8 (Top View)

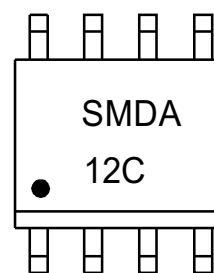
Features

- ◆ Transient protection for data lines to IEC 61000-4-2(ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- ◆ IEC 61000-4-4(EFT) 40A(5/50ns)
- ◆ IEC 61000-4-5(Lightning)11A(8/20 μs)
- ◆ Small SO-8 surface mount package
- ◆ Protects five I/O lines
- ◆ Working voltages: 12V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology

Applications

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

Marking Information



Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
SMDA12C	SMDA12C	2500/Tape & Reel	13 inch

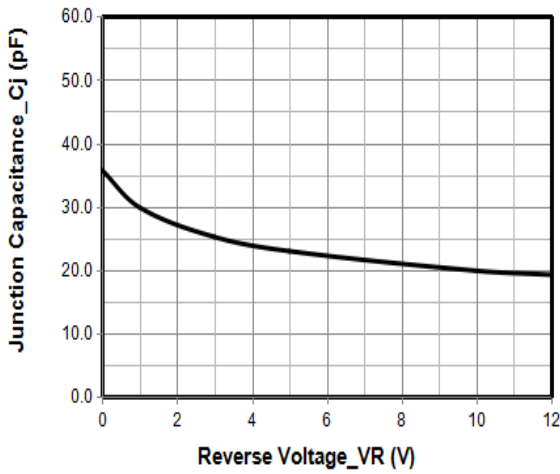
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	375	W
Peak Pulse Current (8/20 μs)	Ipp	15	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	± 30 ± 30	kV
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

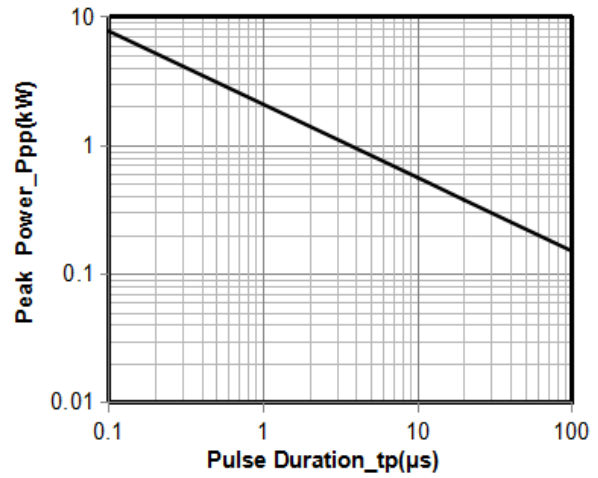
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Breakdown Voltage	VBR	13.3			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I _R			0.5	μA	VRWM = 12V
Clamping Voltage	VC			16	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	VC			25	V	I _{PP} = 15A (8 x 20 μs pulse)
Junction Capacitance	CJ		35		pF	VR = 0V, f = 1MHz

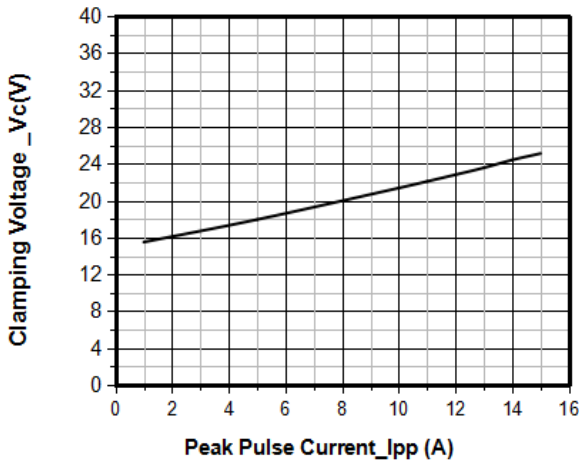
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



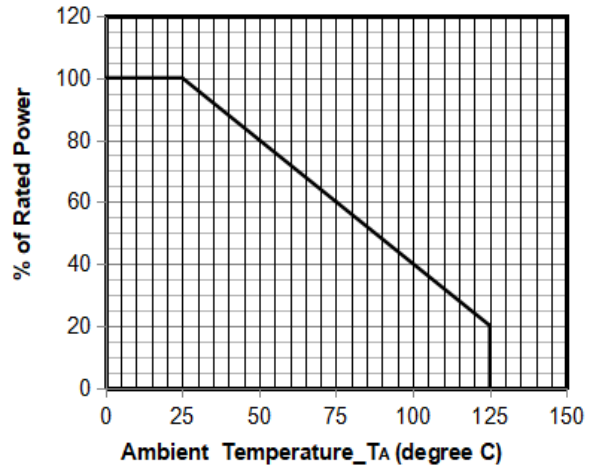
Junction Capacitance vs. Reverse Voltage



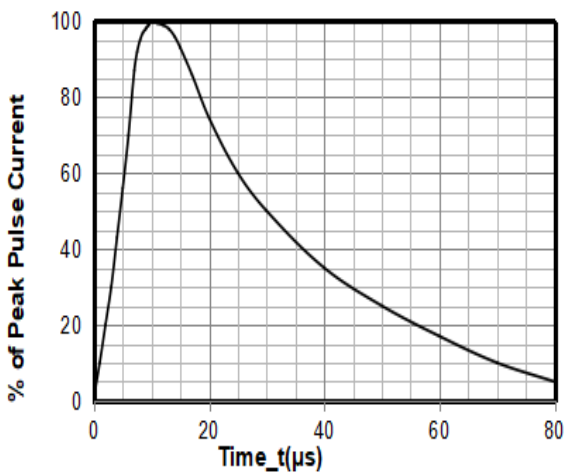
Peak Pulse Power vs. Pulse Time



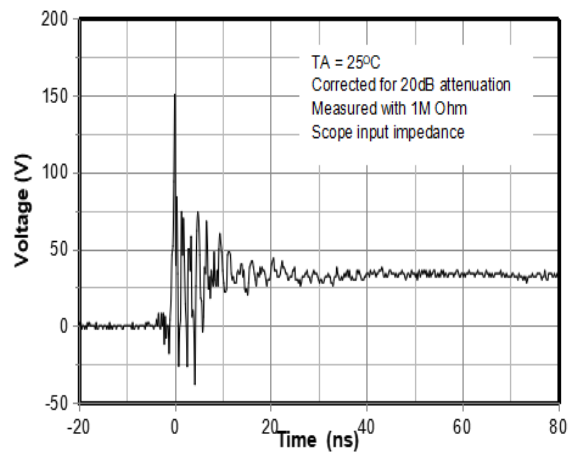
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve

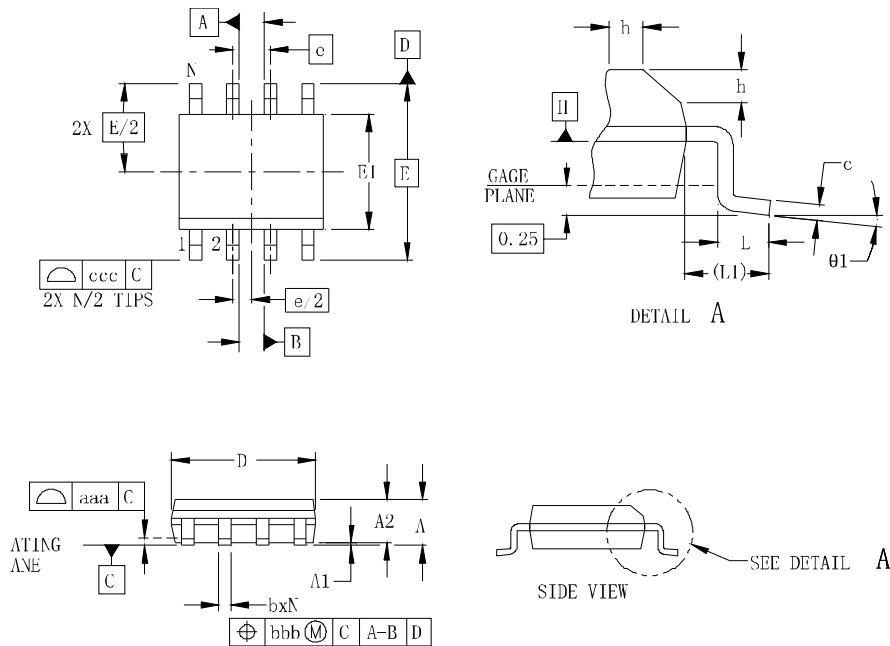


8 X 20μs Pulse Waveform



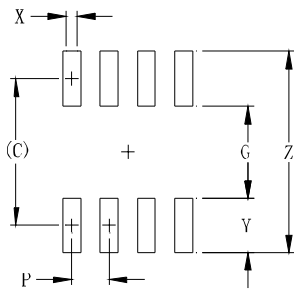
**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

SO-8 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.004		0.010
A2	1.25		1.65	0.049		0.065
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E1	3.80	3.90	4.00	0.150	0.154	0.157
E	6.00 BSC			0.236 BSC		
e	1.27 BSC			0.050 BSC		
h	0.25		0.50	0.010		0.020
L	0.40	0.72	1.04	0.016	0.028	0.041
L1	(1.04)			(0.041)		
N	8			8		
$\theta 1$	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(5.20)	0.205
G	3.00	0.118
P	1.27	0.050
X	0.60	0.024
Y	2.20	0.087
Z	7.40	0.291

Contact Information

Changzhou D-first Electronics CO.,Ltd.
 www.first-electronic.com
 Email: xhf@first-electronic.cn
 Phone: +86 (0519) 8817 1671