

ESD9X5VA
1-Line Uni-directional Transient Voltage Suppressors
[Http://www.sh-willsemi.com](http://www.sh-willsemi.com)
Descriptions

The ESD9X5VA is a transient voltage suppressors (TVS) which provide a very high level protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD). It is designed to replace multilayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

The ESD9X5VA was past ESD transient voltage up to $\pm 15\text{kV}$ (contact) according to IEC61000-4-2 and withstand peak current up to 3A for 8/20us pulse according to IEC61000-4-5.

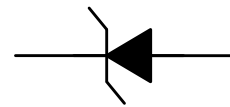
The ESD9X5VA is available in FBP-02C package. Standard products are Pb-free and Halogen-free.

Features

- Working voltage : 5V
- Peak power (tp=8/20us) : 39W
- ESD protection
 - IEC61000-4-2 (Contact) : $\pm 15\text{kV}$
 - IEC61000-4-2 (Air) : $\pm 15\text{kV}$
- Low leakage current
- Small package

Applications

- Mobile phone
- PAD
- Notebook
- STB
- LCD TV
- Digital camera
- Other electronics equipments


FBP-02C

Pin configuration (Top view)

FBP-02C

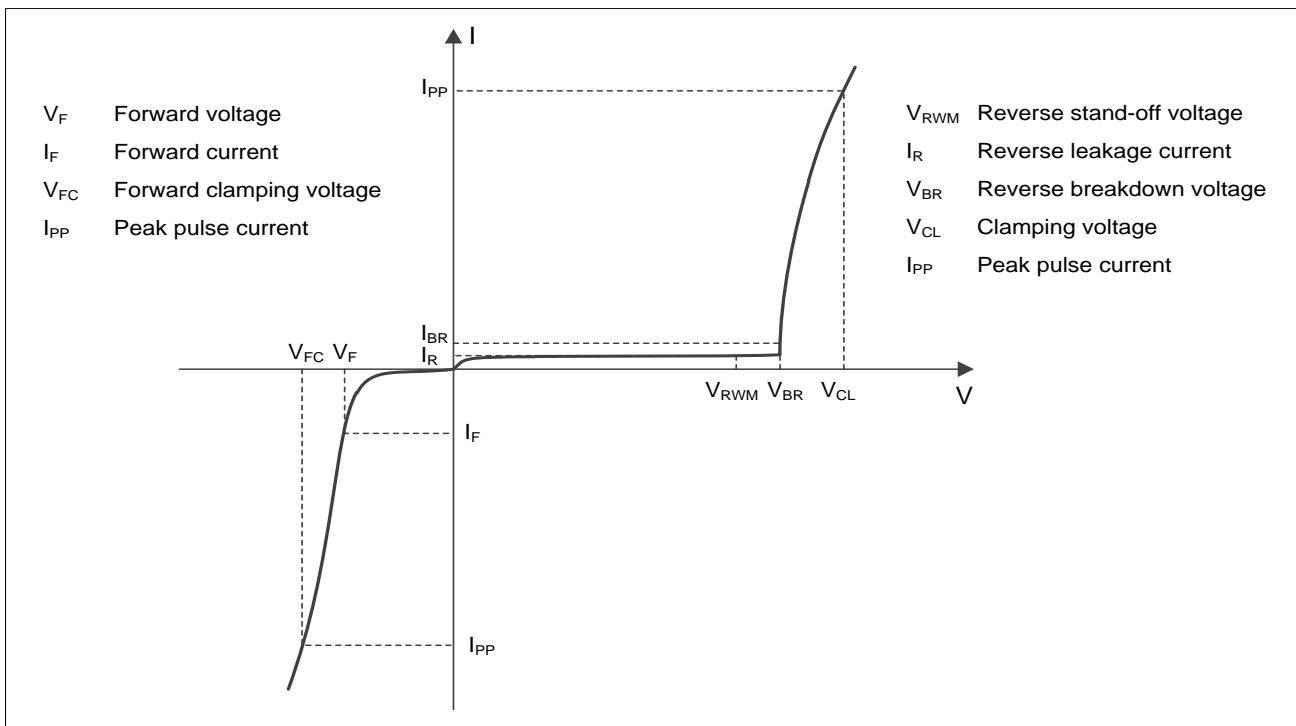
* = Month (A~Z)
M = Device code
Marking

Order information

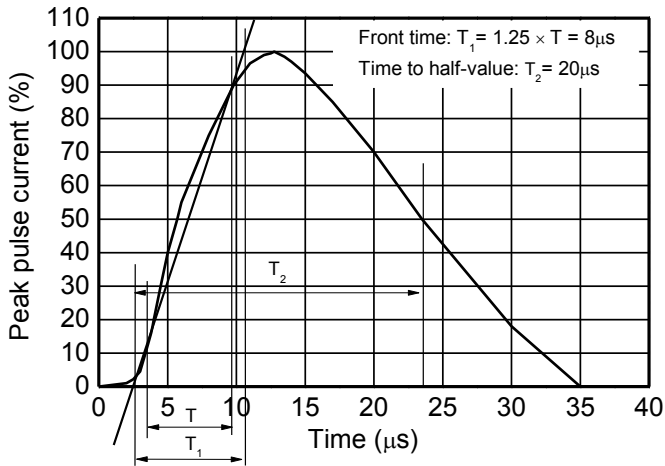
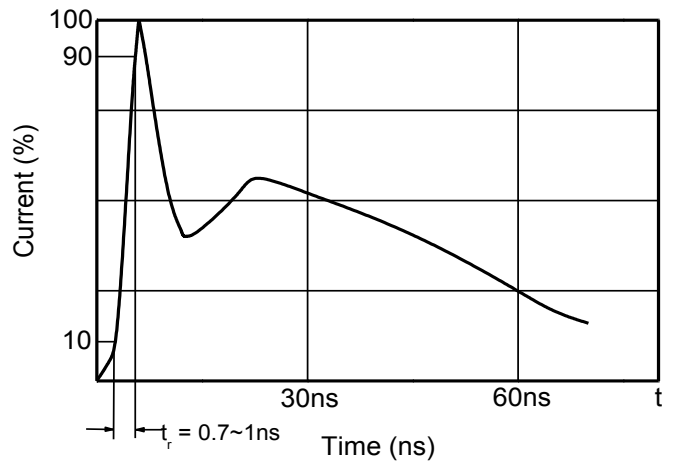
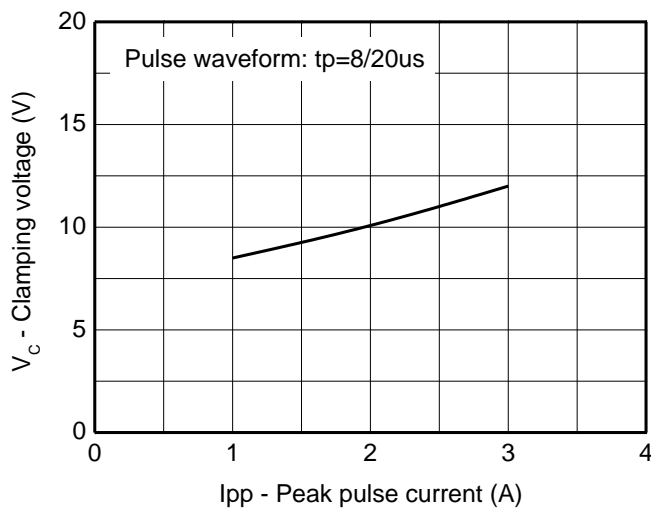
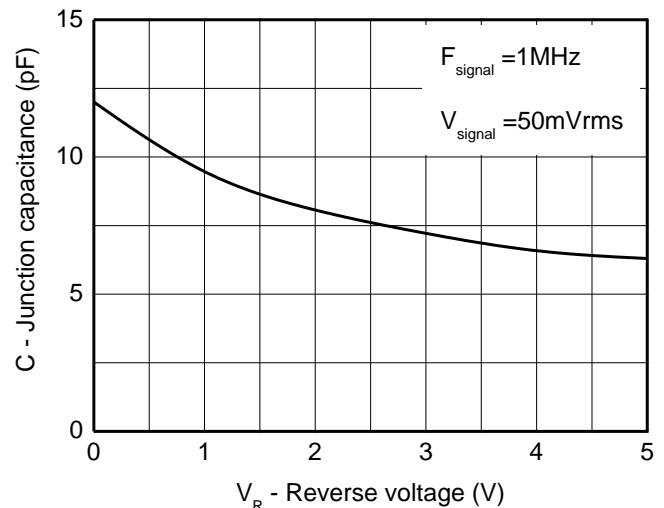
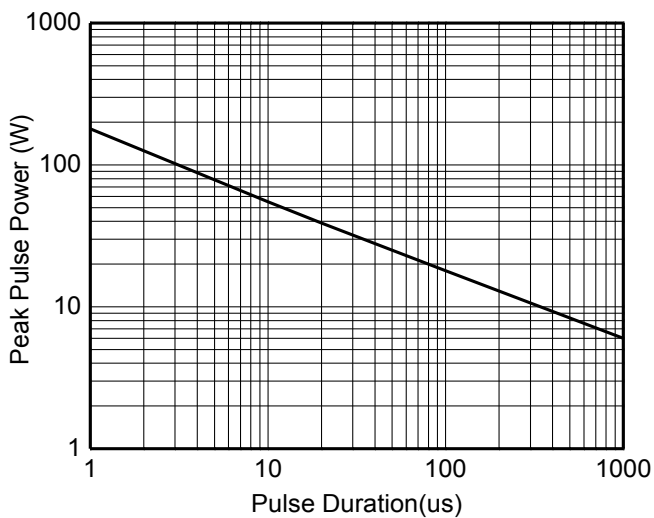
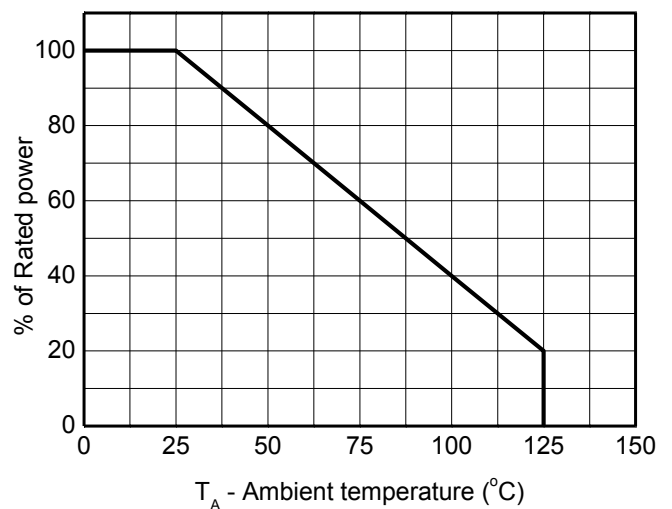
Device	Package	Shipping
ESD9X5VA-2/TR	FBP-02C	10000/Tape&Reel

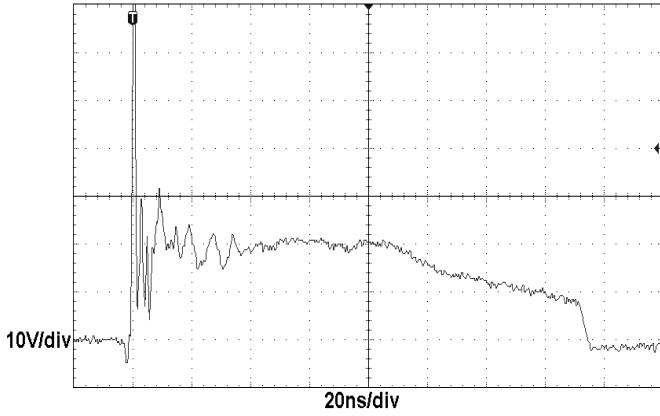
Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse power (tp=8/20us)	Ppk	39	W
Peak pulse current (tp=8/20us)	Ipp	3	A
ESD voltage IEC61000-4-2 (Contact)	V _{ESD}	±15	kV
ESD voltage IEC61000-4-2 (Air)		±15	
Junction temperature	T _J	125	°C
Operating temperature	T _{OP}	-40~85	°C
Lead temperature	T _L	260	°C
Storage temperature	T _{STG}	-55~150	°C

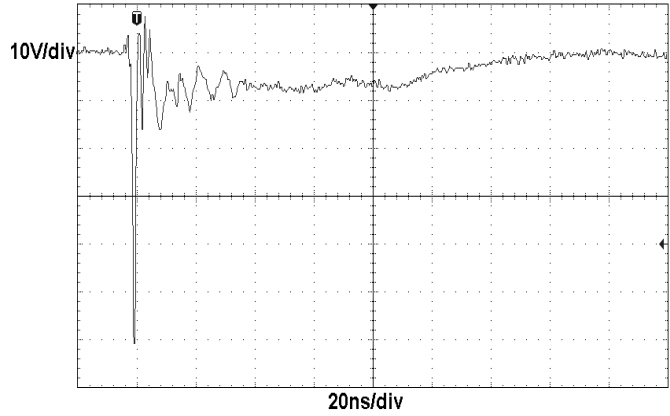
Electronics characteristics (Ta=25 °C, unless otherwise noted)

Electronics characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V _{RWM}				5	V
Reverse leakage current	I _R	V _{RWM} =5V			50	nA
Reverse breakdown voltage	V _{BR}	I _T =1mA	6.2	6.8	7.6	V
Forward voltage	V _F	I _F =10mA	0.55	0.9	1.25	V
Clamping voltage	V _{CL}	I _{pp} =1A tp=8/20us			9.5	V
		I _{pp} =3A tp=8/20us			13	V
Junction capacitance	C _J	f=1MHz, V _R =0V		12	16	pF

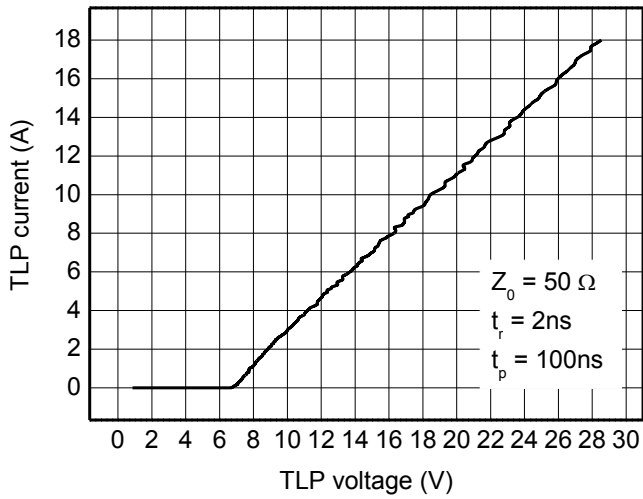
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

8/20 μs waveform per IEC61000-4-5

Contact discharge current waveform per IEC61000-4-2

Clamping voltage vs. Peak pulse current

Capacitance vs. Reverses voltage

Non-repetitive peak pulse power vs. Pulse time

Power derating vs. Ambient temperature



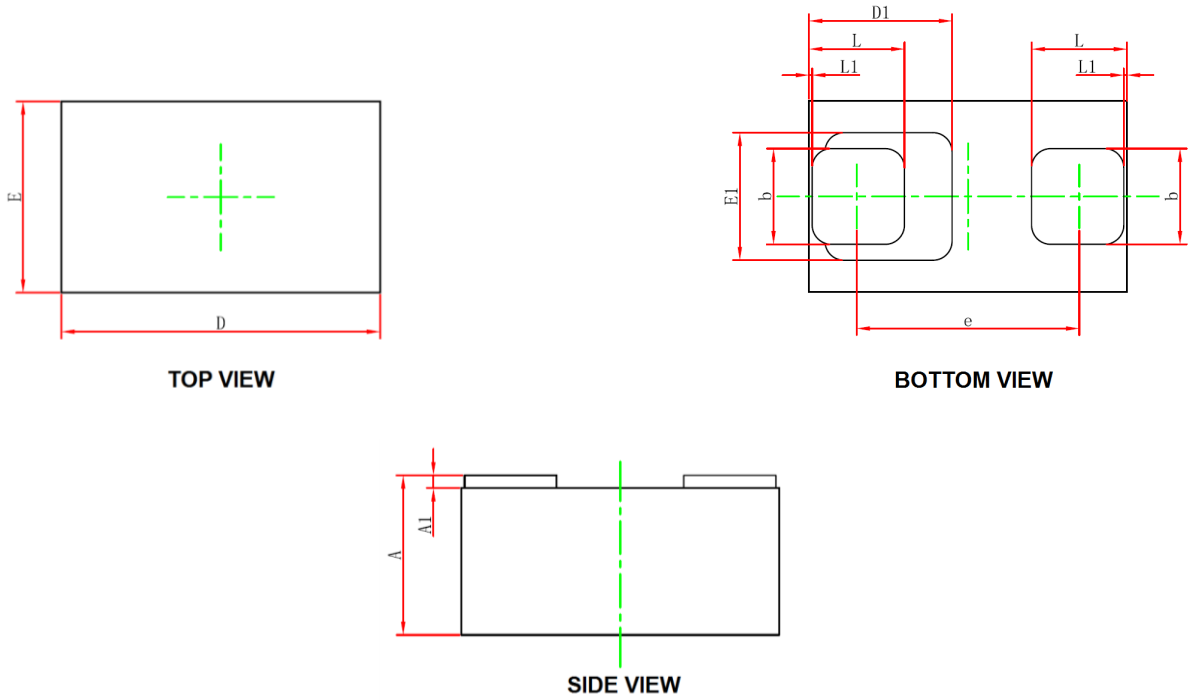
ESD clamping
 (+8kV contact discharge per IEC61000-4-2)



ESD clamping
 (-8kV contact discharge per IEC61000-4-2)



TLP Measurement

Package outline dimensions
FBP-02C


Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.450	0.500	0.550
A1	0.010	-	0.090
D	0.950	1.000	1.050
E	0.550	0.600	0.650
D1	0.450 Ref.		
E1	0.400 Ref.		
b	0.250	0.300	0.350
e	0.600	0.675	0.750
L	0.320	0.385	0.450
L1	0.250	0.300	0.350
L2	0.010 Ref.		

Recommend PCB Layout (Unit: mm)
