

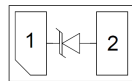
Description

The ESD9X5VU is a Uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The ESD9X5VU has an ultra-low capacitance with a typical value at 0.5 pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 15\text{kV}$ air and $\pm 8\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size, ultra-low capacitance and high ESD surge protection make ESD9X5VU an ideal choice to protect cell phone, digital video interfaces and other high

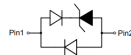
Features

- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.5pF typical
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
- IEC61000-4-5 (Lightning) 4.5A (8/20 μs)
- RoHS Compliant
- Lead Finish: NiPdAu

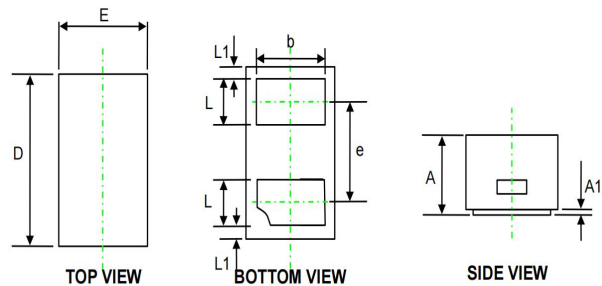
Circuit Diagram



Circuit Diagram



DFN1006



Symbol	Dimensions In Millimeters (mm)		
	Min.	Typ.	Max.
A	0.44	0.47	0.50
A1	0.00	0.03	0.05
D	0.95	1.00	1.08
E	0.55	0.60	0.68
b	0.40	0.50	0.60
e	-	0.65	-
L	0.20	0.25	0.30
L1	0.05 REF.		

Dimensions in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	80	W
Peak Pulse Current (8/20 μs)	IPP	4.5	A
ESD per IEC 61000-4-2 (Air)	VESD	± 20	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	TJ	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^\circ\text{C}$

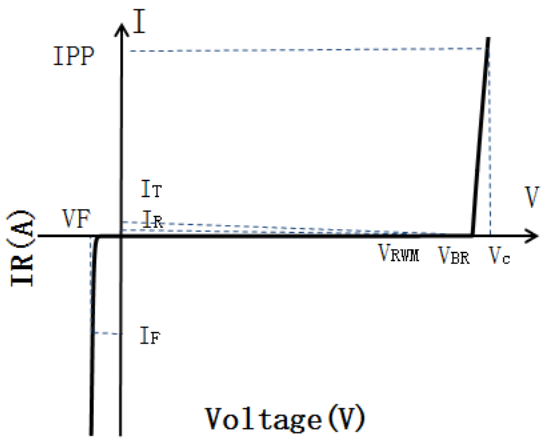
ESD9X5VU

Electrical Characteristics (T_A=25°C unless otherwise specified)

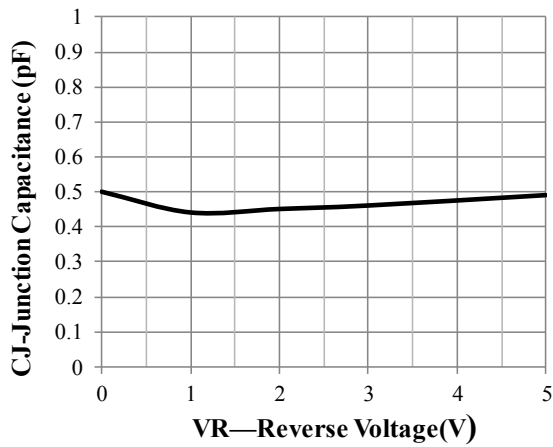
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				5.0	V
Breakdown Voltage	V _{BR}	I _T = 1mA	6.0	7.0	8.5	V
Reverse Leakage Current	I _R	V _{RWM} = 5.0V			0.2	μA
Clamping Voltage	V _C	I _{PP} = 1A (8 x 20μs pulse)			9.0	V
Clamping Voltage	V _C	I _{PP} = 4.5A (8 x 20μs pulse)			16	V
Junction Capacitance	C _J	V _R = 0V, f = 1MHz		0.5	0.6	pF

Portion Electronics Parameter

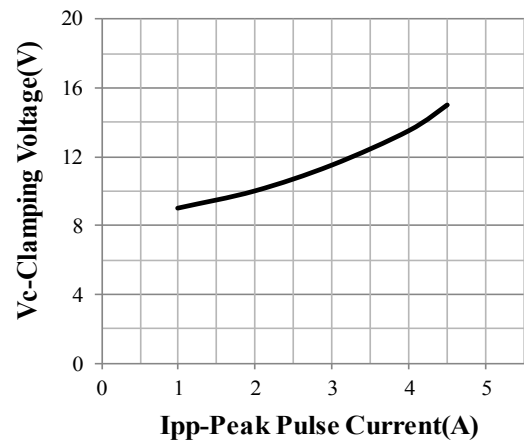
Symbol	Parameter
I _T	Test Current
I _{PP}	Maximum Reverse Peak Pulse Current
V _c	Clamping Voltage @I _c



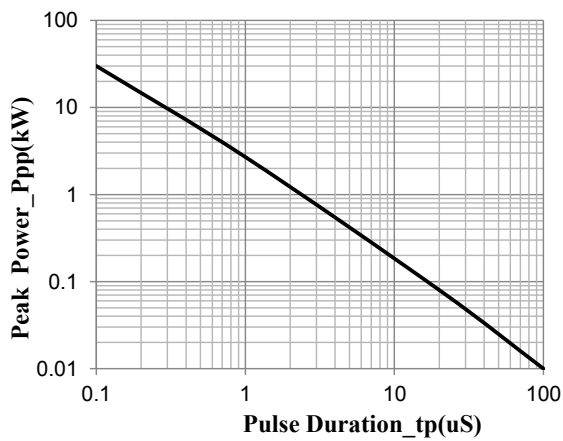
RATING AND CHARACTERISTIC CURVES (ESD9X5VU)



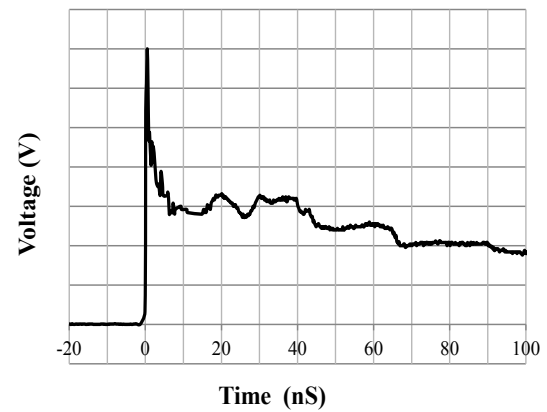
Junction Capacitance vs. Reverse Voltage



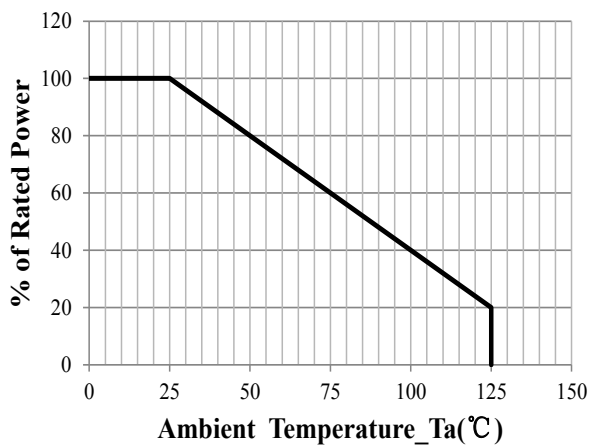
Clamping Voltage vs. Peak Pulse Current



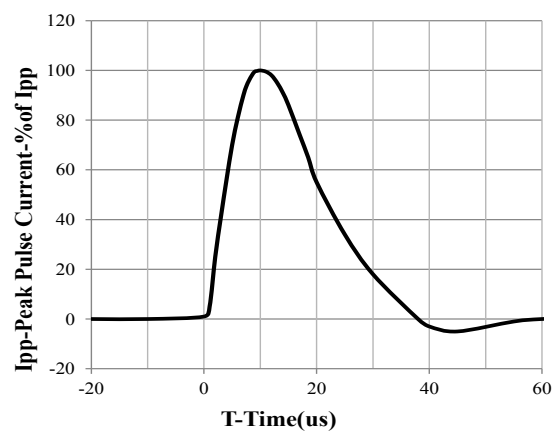
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve



8 X 20us Pulse Waveform