

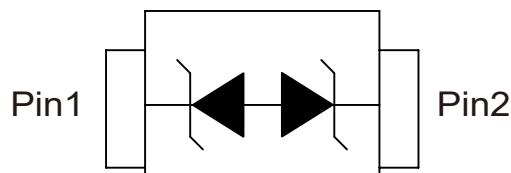
1. Description

The ESD9N12BA is a TVS (Transient Voltage Suppressor) designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and lightning.

3. Features

- Stand-off voltage: $\pm 12V$ Max.
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 30kV$ (contact discharge)
- IEC61000-4-5 (surge): 5.5A (8/20 μ s)
- Capacitance: $C_J=27pF$ typ.
- Ultra-low leakage current: $I_R=0.1nA$ typ.
- Low clamping voltage: $V_{CL}=20V$ typ. @ $I_{PP}=16A$ (TLP)
- Solid-state silicon technology

4. Pinning information





5. Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PK}	99	W
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	5.5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	kV
Junction temperature	T_J	125	°C
Operating temperature	T_{OP}	-40 to 85	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55 to 150	°C



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

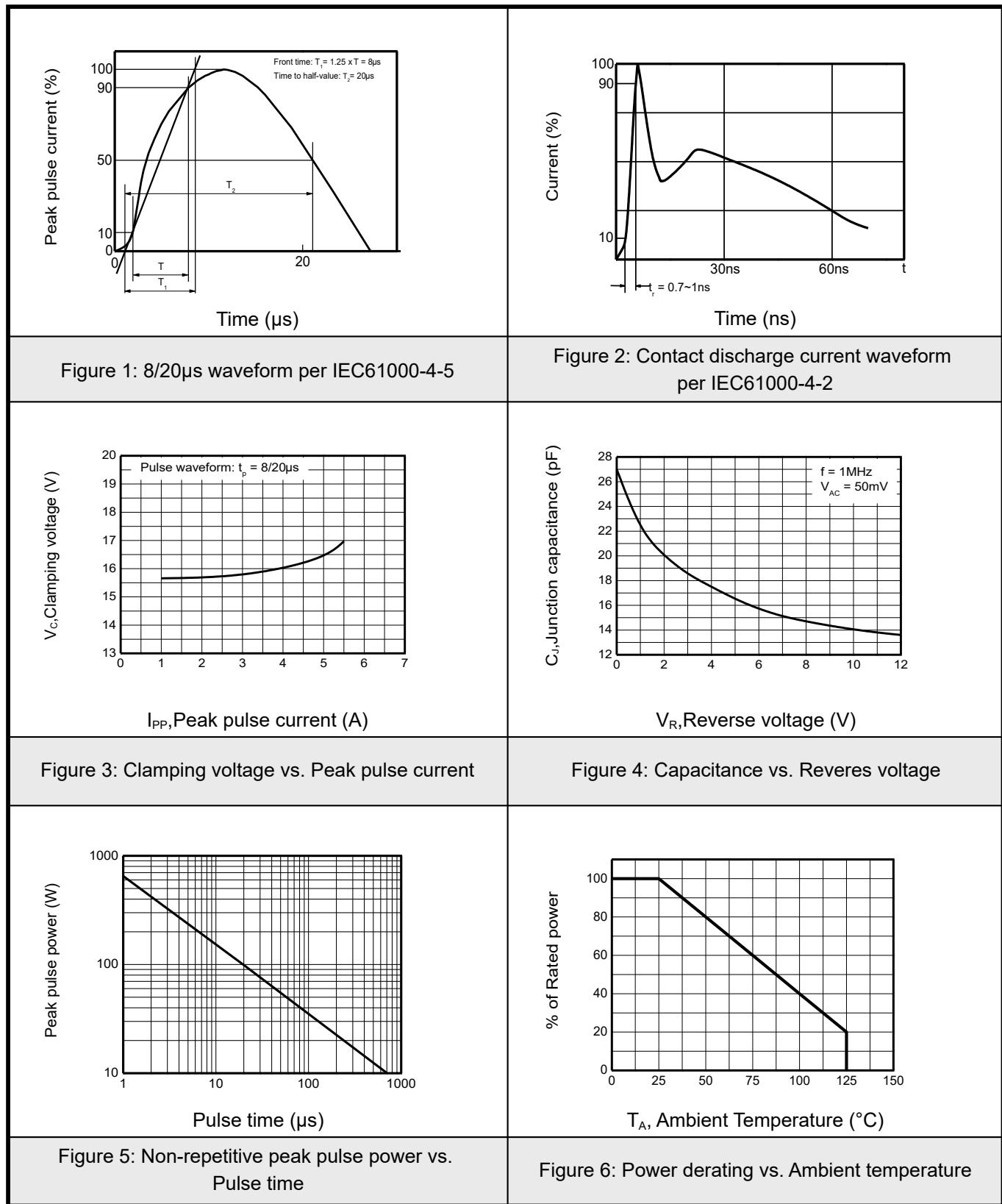
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse stand-off voltage	V_{RWM}				± 12	V
Reverse leakage current	I_R	$V_{RWM}=12\text{V}$		0.1	50	nA
Reverse breakdown voltage	V_{BR}	$I_{BR}=1\text{mA}$	13		16.5	V
Clamping voltage 1)	V_{CL}	$I_{PP}=16\text{A}$, $t_p=100\text{ns}$		20		V
Dynamic resistance 1)	R_{DYN}			0.35		Ω
Clamping voltage 2)	V_{CL}	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$			16	V
		$I_{PP}=5.5\text{A}$, $t_p=8/20\mu\text{s}$			18	V
Junction capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$		27	35	pF
		$V_R=12\text{ V}$, $f=1\text{MHz}$		14	20	pF

Notes:

- 1) TLP parameter: $Z_0=50\Omega$, $t_p=100\text{ns}$, $t_r=2\text{ns}$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.
- 2) Non-repetitive current pulse, according to IEC61000-4-5.



7.1 Typical characteristic





7.2 Typical characteristic

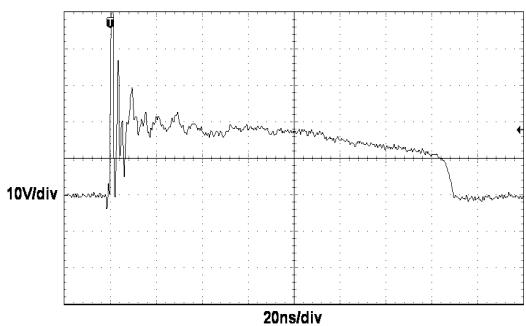


Figure 7: ESD clamping
(+8kV contact discharge per IEC61000-4-2)

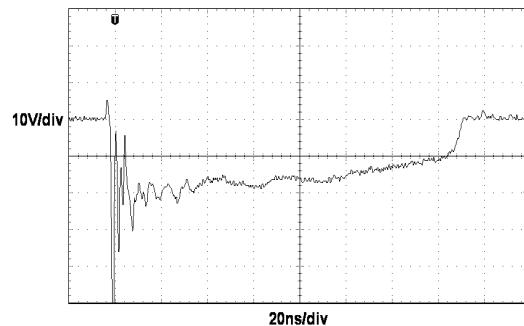


Figure 8: ESD clamping
(-8kV contact discharge per IEC61000-4-2)

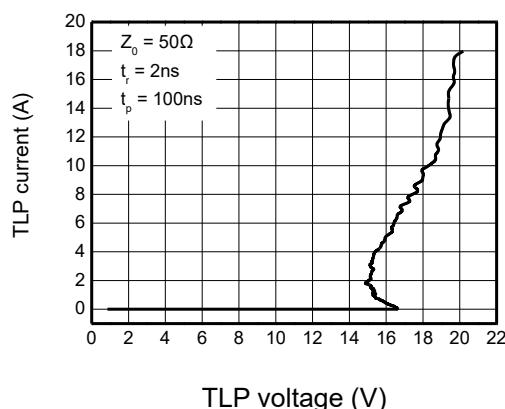
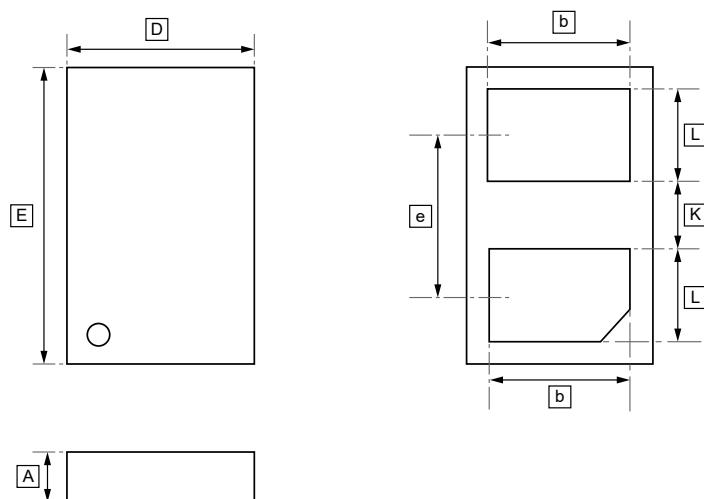


Figure 9: TLP Measurement



8.DFN1006-2 Package Outline Dimensions

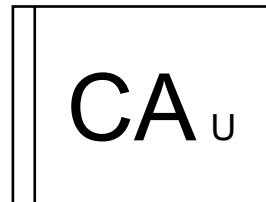


DIMENSIONS (mm are the original dimensions)

Symbol	A	b	D	e	E	L	K
Min	0.30	0.22	0.27	0.40	0.57	0.14	0.20
Max	0.35	0.26	0.33	BSC	0.63	0.18	0.25



9.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW ESD9N12BA	DFN1006-2	10000	Tape and reel



10.Disclaimer

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