

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

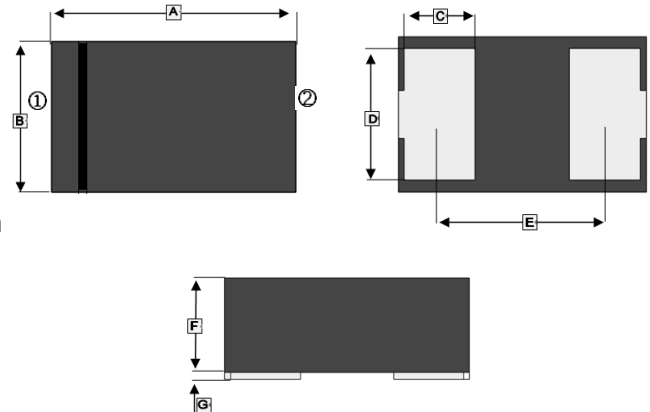
DESCRIPTION

The SBESD5301N is an ultra-low capacitance TVS (Transient Voltage Suppressor) designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

The SBESD5301N incorporates one pair of ultra- low capacitance steering diodes plus a TVS diode.

The SBESD5301N may be used to provide ESD protection up to $\pm 25\text{kV}$ (contact discharge) according to IEC61000-4-2, and withstand peak pulse current up to 5.5A (8/20 μs) according to IEC61000-4-5. The SBESD5301N is available in DFN1006-2L package.

DFN1006-2L



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	0.95	1.05	E	0.65 TYP.	
B	0.55	0.65	F	0.3	0.4
C	0.2	0.3	G	0.00	0.05
D	0.45	0.55			

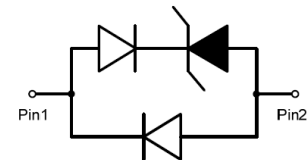
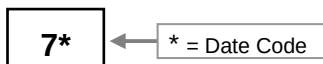
APPLICATIONS

- Mobile phone
- PAD
- Notebook
- LCD TV
- Other electronics equipments

FEATURES

- Ultra-low clamping voltage
- Low leakage current
- Small package

MARKING



Circuit diagram

PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN1006-2L	5K	7 inch

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Rating		Symbol	Value	Unit
IEC 61000-4-2 (ESD)	Air contact		± 25	kV
	Contact discharge		± 25	
Peak pulse power ($t_p=8/20\mu\text{s}$)		P_{PK}	82	W
Peak pulse current ($t_p=8/20\mu\text{s}$)		I_{PP}	5.5	A
Storage temperature range		T_J, T_{STG}	125, -55 ~ 150	$^\circ\text{C}$
Lead temperature		T_L	260	$^\circ\text{C}$

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

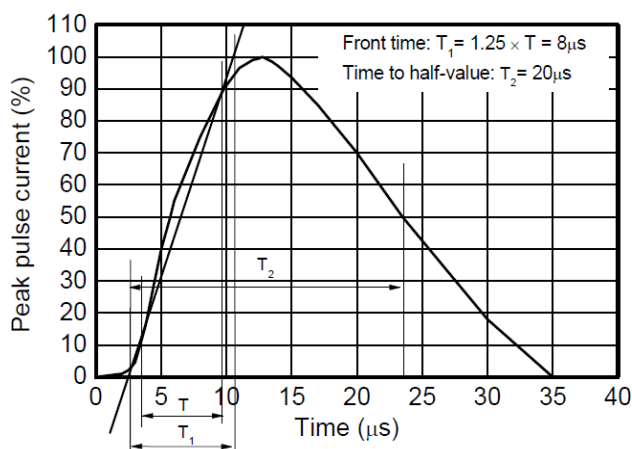
Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Reveres maximum working voltage	V_{RWM}		-	-	5	V
Reveres leakage current	I_R	$V_{RWM}=5\text{V}$	-	0.1	100	nA
Reveres breakdown voltage	V_{BR}	$I_T=1\text{mA}$	7	8	9	V
Forward voltage	V_F	$I_T=10\text{mA}$	0.6	0.9	1.2	V
Clamping voltage ¹	V_{CL}	$I_{PP}=16\text{A}$, $t_p=100\text{ns}$	-	18	-	V
Dynamic resistance ¹	R_{DYN}		-	0.57	-	Ω
Clamping Voltage ²	V_C	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$	-	-	10	V
		$I_{PP}=5.5\text{A}$, $t_p=8/20\mu\text{s}$	-	-	15	V
Junction capacitance	C_J	$f=1\text{MHz}$, $V_R=0$	-	0.4	0.55	pF

Note:

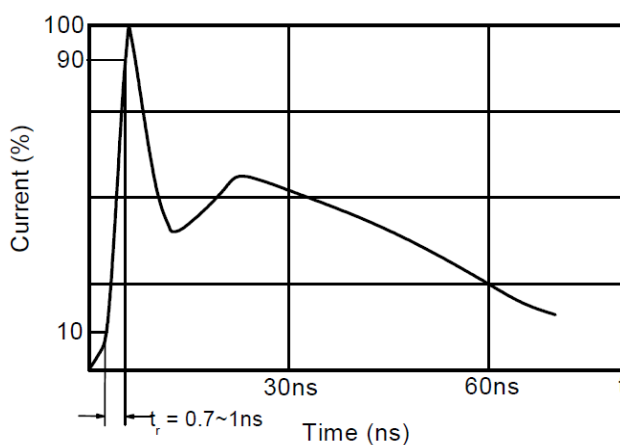
1. TLP parameter: $Z_0 = 50\ \Omega$, $t_p = 100\text{ns}$, $t_r = 2\text{ns}$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

2. According to IEC61000-4-5.

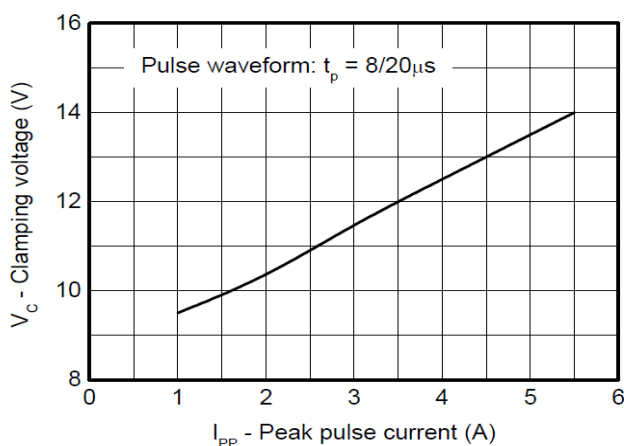
RATINGS AND CHARACTERISTICS CURVES



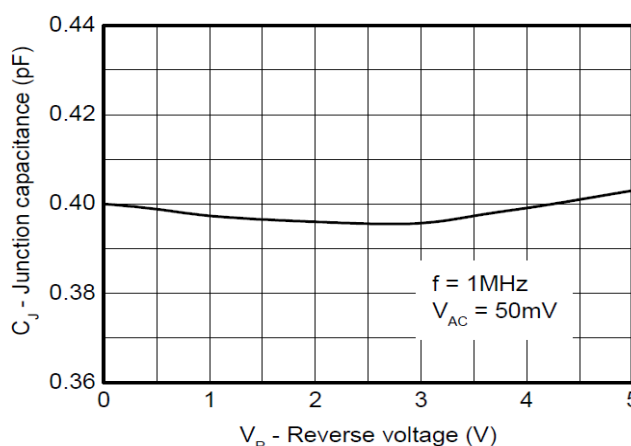
8/20 μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

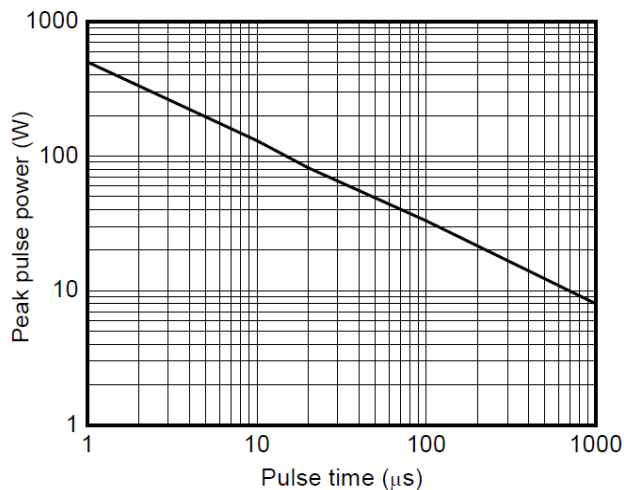


Clamping voltage vs. Peak pulse current

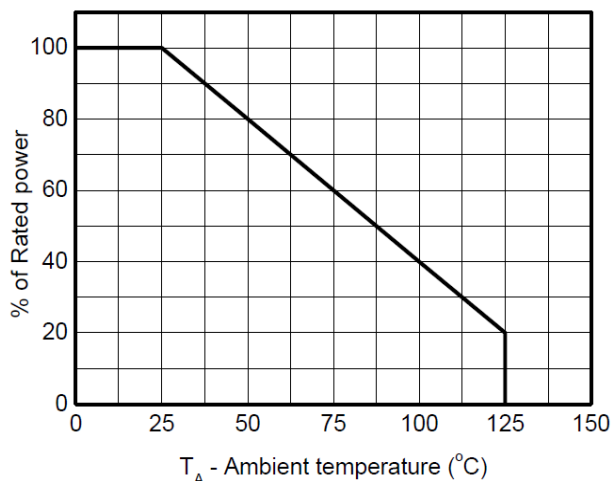


Capacitance vs. Reverses voltage

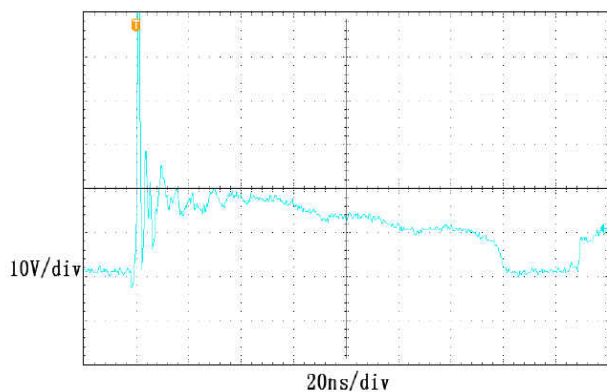
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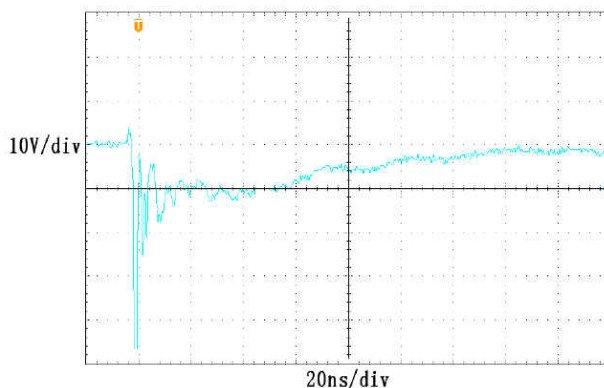
Non-repetitive peak pulse power vs. Pulse time



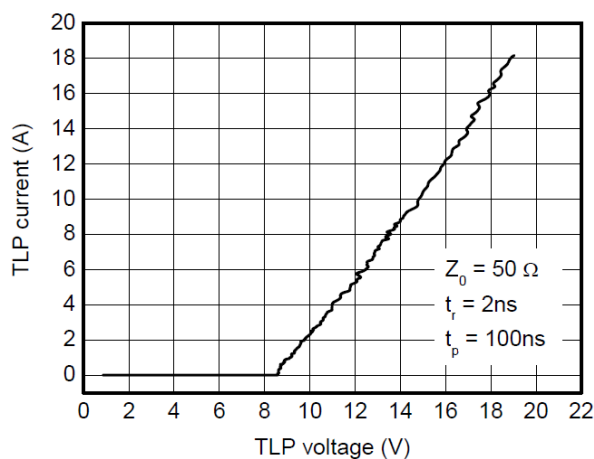
Power derating vs. Ambient temperature



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



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



TLP Measurement