

DESCRIPTION

The JSE0501AP1 is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. It has been specifically designed to protect sensitive components which are connected to data and transmission lines from over voltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

APPLICATIONS

- ◇ High Speed Line :USB1.0/2.0/3.0/3.1, VGA, DVI.SDI.
- ◇ High Definition Multi-Media Interface (HDMI1.3/1.4/2.0) .
- ◇ Serial and Parallel Ports.
- ◇ Notebooks, Desktops, Servers.
- ◇ Peripherals.
- ◇ Cellular handsets and accessories.
- ◇ Portable instrumentation.

FEATURES

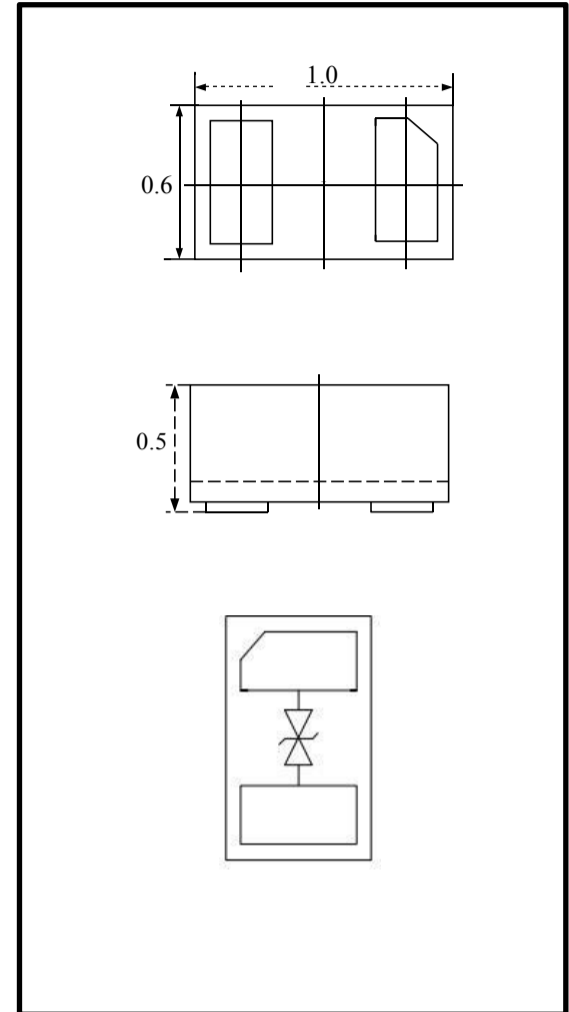
- ◇ Ultra small package: 1.0x0.6x0.5mm.
- ◇ Protects one data or power line.
- ◇ Ultra low leakage: nA level.
- ◇ Working voltage: 5V.
- ◇ Low clamping voltage.
- ◇ 2-pin leadless package.
- ◇ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns).
- ◇ RoHS Compliant.

ORDERING INFORMATION

- ◇ Device: JSE0501AP1.
- ◇ Package: DFN1006-2.
- ◇ Packing: Tape & Reel.
- ◇ Quantity per reel: 10,000pcs .
- ◇ Reel Size : 7 inch.

MACHANICAL DATA

- ◇ Package: DFN1006-2 (1.0x0.6x0.5mm).
- ◇ Case Material: "Green" Molding Compound.
- ◇ Moisture Sensitivity: Level 3 per J-STD-020.
- ◇ Terminal Connections: See Diagram Below.
- ◇ Marking Information: See Below.

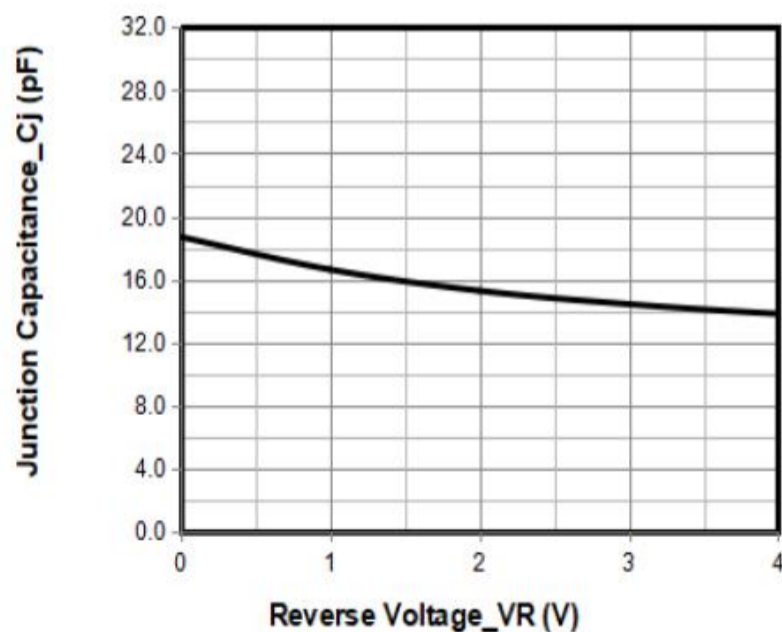
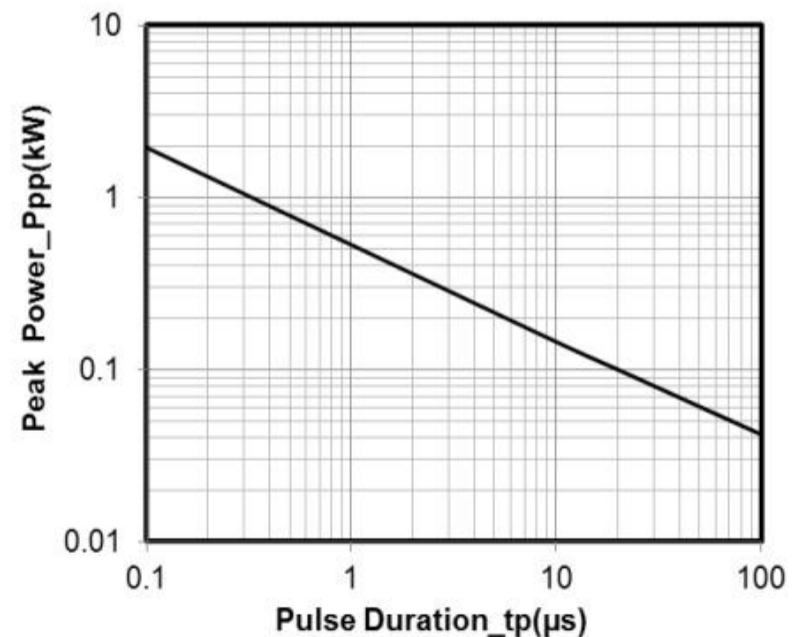


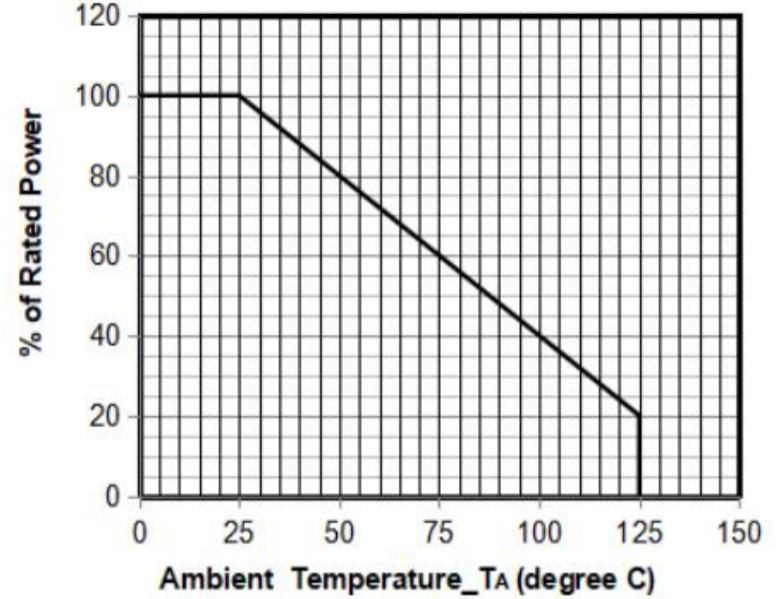
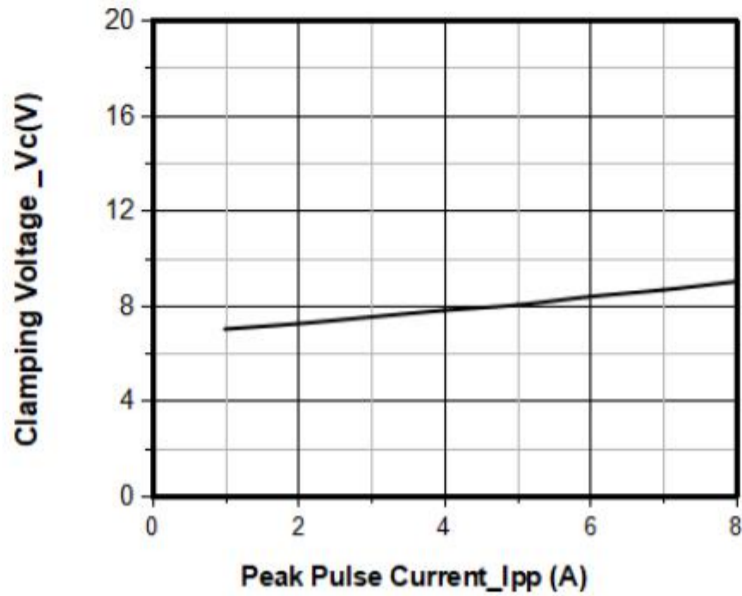
DEVICE CHARACTERISTICS

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μ s)	Ppp	100	W
Peak Pulse Current (8/20 μ s)	IPP	7	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}$ C
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}$ C

ELECTRICAL CHARACTERISTICS (TA=25 $^{\circ}$ C)

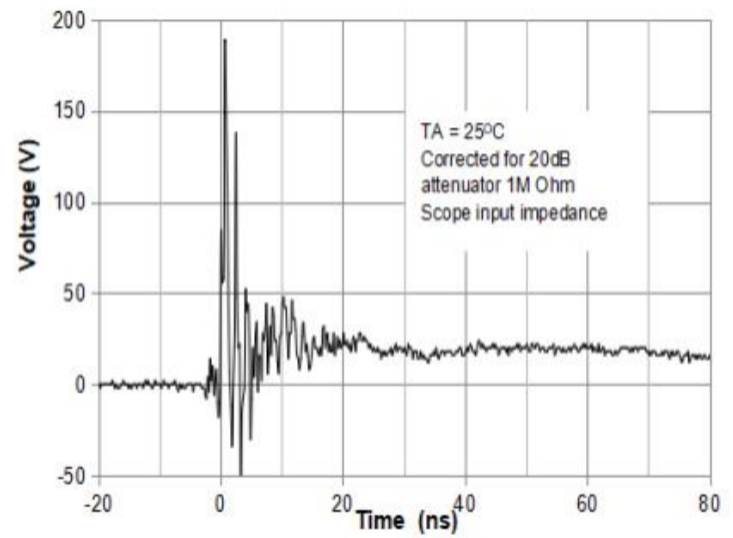
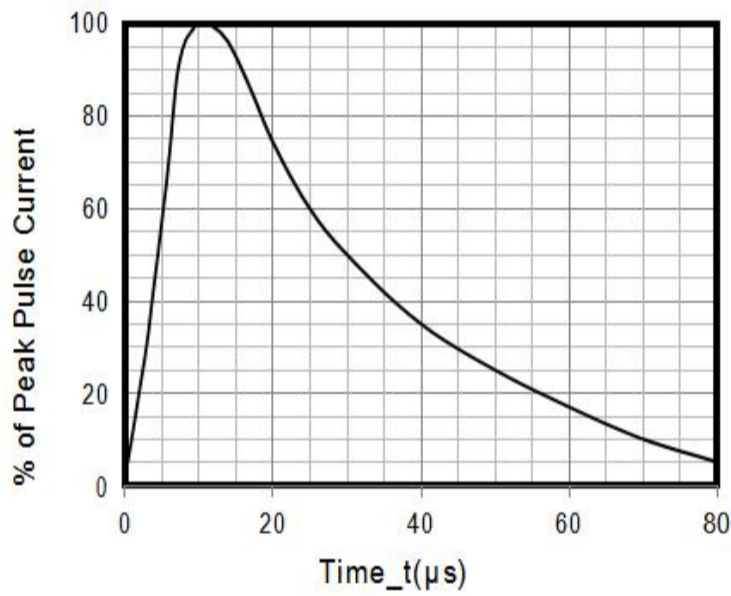
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6		8	V	IT = 1mA
Reverse Leakage Current	IR			0.2	μ A	VRWM = 5V
Clamping Voltage	VC			9.8	V	IPP = 1A
Clamping Voltage	VC			15	V	IPP = 7A
Junction Capacitance	CJ		10		pF	VR = 0V, f = 1MHz

ELECTRICAL PERFORMANCE CHARACTERISTICS (TA=25 $^{\circ}$ C)

Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20\mu s$)

Power Derating Curve

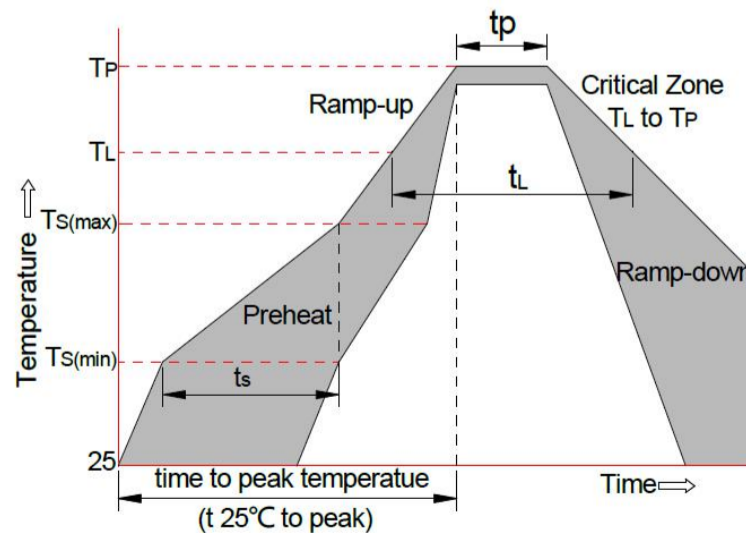


8 X 20µs Pulse Waveform

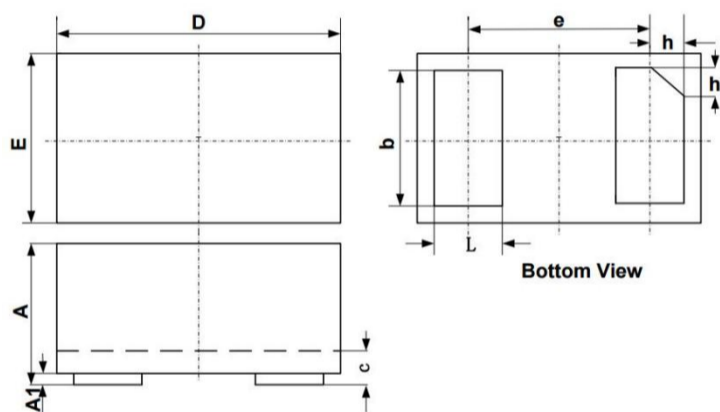
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

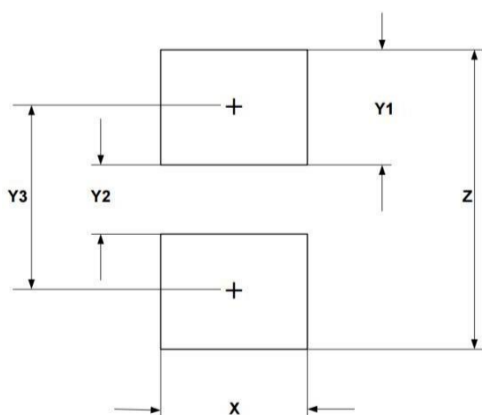
SOLDERING PARAMETERS



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min (T_s (min))	+150°C
	-Temperature Max (T_s (max))	+200°C
	-Time (Min to Max) (ts)	60-180 secs
Average ramp up rate(Liquid us Temp (T_L) to peak)		3°C/sec. Max
T_s (max) to T_L -Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature (T_L) (Liquid us)	+217°C
	-Temperature (t _L)	60-150 secs
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (tp)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
xTime 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

DFN1006-2 PACKAGE OUTLINE DIMENSIONS


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
h	0.07	0.12	0.17	0.003	0.005	0.007

SUGGESTED LAND PATTERN


SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

Website: <http://www.jksemi.com> For additional information, please contact your local Sales Representative.

©Copyright 2016, jksemi