

## DESCRIPTION

The 1N61xx series of transient voltage suppressors are designed to protect military and commercial electronic equipment from overvoltages caused by lightning, ESD, EFT, inductive load switching, and EMP. These devices are constructed using two p-n junction TVS diodes in a back-to-back configuration, hermetically sealed in a voidless glass package. The hermetically sealed package provides high reliability in harsh environmental conditions. TVS diodes are further characterized by their high surge capability, low operating and clamping voltages, and a theoretically instantaneous response time. This makes them ideal for use as board level protection for sensitive semiconductor components.

## FEATURES:

- 1500 Watts Peak Pulse Power (tp = 10/1000µs)
- Voidless hermetically sealed glass package
- Metallurgically bonded
- High surge capacity
- Military & Industrial applications
- Available in **JAN**, **JTX**, **JTXV** and **JANS** versions per MIL-S-19500/516

## MECHANICAL CHARACTERISTICS:

- Hermetically sealed glass package
- Tinned copper leads
- Marking : P/N, date code, logo

## MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNIT
Peak Pulse Power (tp = 10 x 1000µs)	Ppk	1500	Watts
Operating Temperature	Tj	-65 to +175	°C
Storage Temperature	Tstg	-65 to +175	°C
Steady-State Power Dissipation @ TL = 75°C (3/8")	PD	5	Watts

## ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise specified)

DEVICE TYPE	REVERSE STAND-OFF VOLTAGE V <sub>RWM</sub>	REVERSE LEAKAGE CURRENT I <sub>R</sub>	MINIMUM BREAKDOWN VOLTAGE V <sub>BR</sub> @ I <sub>T</sub>	TEST CURRENT I <sub>T</sub>	MAXIMUM CLAMPING VOLTAGE V <sub>C</sub> @ I <sub>PP</sub>	PEAK PULSE CURRENT I <sub>PP</sub> tp = 1mS	TEMPERATURE COEFFICIENT OF V <sub>BR</sub> αVz	MAXIMUM REVERSE LEAKAGE CURRENT (I <sub>R2</sub> ) TA=+150°C
	(V)	(µA)	(V)	(mA)	(V)	(A)	% / °C	(A)
1N6138A	5.2	500	6.46	175	10.5	142.8	0.05	12000
1N6139A	5.7	300	7.13	175	11.2	133.9	0.06	3000
1N6140A	6.2	100	7.79	150	12.1	124.0	0.06	2000
1N6141A	6.9	100	8.65	150	13.4	111.9	0.06	1200
1N6142A	7.6	100	9.50	125	14.5	103.4	0.07	800
1N6143A	8.4	20	10.45	125	15.6	96.2	0.07	800
1N6144A	9.1	20	11.40	100	16.9	88.8	0.07	600
1N6145A	9.9	20	12.35	100	18.2	82.4	0.08	600
1N6146A	11.4	20	14.25	75	21.0	71.4	0.08	400
1N6147A	12.2	20	15.20	75	22.3	67.3	0.08	400
1N6148A	13.7	10	17.10	65	25.1	59.8	0.085	400
1N6149A	15.2	5	19.0	65	27.7	54.2	0.085	400
1N6150A	16.7	5	20.9	50	30.5	49.2	0.085	400
1N6151A	18.2	5	22.8	50	33.3	45.0	0.09	400
1N6152A	20.6	5	25.7	50	37.4	40.1	0.09	400
1N6153A	22.8	5	28.5	40	41.6	36.0	0.09	400
1N6154A	25.1	5	31.4	40	45.7	32.8	0.095	400
1N6155A	27.4	5	34.2	30	49.9	30.1	0.095	400
1N6156A	29.7	5	37.1	30	53.6	28.0	0.095	400
1N6157A	32.7	5	40.9	30	59.1	25.4	0.095	400
1N6158A	35.8	5	44.7	25	64.6	23.2	0.095	400
1N6159A	38.8	5	48.5	25	70.1	21.4	0.095	400
1N6160A	42.6	5	53.2	20	77.0	19.5	0.095	400
1N6161A	47.1	5	58.9	20	85.3	17.6	0.100	400
1N6162A	51.7	5	64.6	20	97.1	15.4	0.100	400
1N6163A	56.0	5	71.3	20	103.1	14.5	0.100	400
1N6164A	62.2	5	77.9	15	112.8	13.3	0.100	400
1N6165A	69.2	5	86.5	15	125.1	12.0	0.100	400
1N6166A	76.0	5	95.0	12	137.6	10.9	0.100	400
1N6167A	83.6	5	104.5	12	151.3	9.9	0.100	400
1N6168A	91.2	5	114.0	10	165.1	9.1	0.100	400
1N6169A	98.8	5	123.5	10	178.8	8.4	0.105	400
1N6170A	114.0	5	142.5	8	206.3	7.3	0.105	400
1N6171A	121.6	5	152.0	8	218.4	6.9	0.105	400
1N6172A	136.8	5	171.0	5	245.7	6.1	0.110	400
1N6173A	152.0	5	190.0	5	273.0	5.5	0.110	400

1. Non-A Part has 5% higher clamping voltage, 5% lower minimum breakdown voltage, and 5% lower peak pulse current.

### PEAK PULSE POWER vs. PULSE TIME



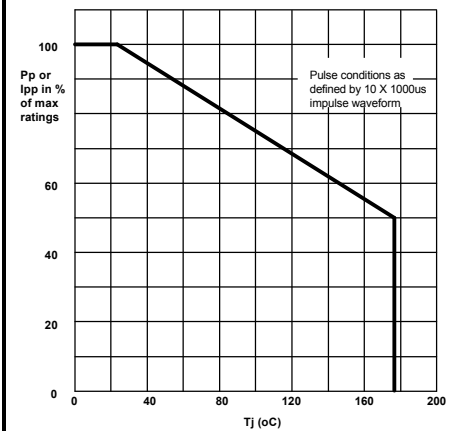
### 10x1000μs IMPULSE WAVEFORM



### STEADY STATE DERATING CHARACTERISTICS FOR FREE AIR MOUNTING



### PULSE DERATING CURVE



### MECHANICAL OUTLINE



DIM <sup>N</sup>	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.135	0.185	3.40	4.70	
B	0.900	1.300	22.86	33.02	
C	0.140	0.195	3.5	4.95	2
D	0.036	0.042	0.91	1.07	

- NOTES:
- Controlling dimension is inches.
  - Includes uncontrolled area of device leads.

### SCHEMATIC



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