

**Microsemi Corp.**  
The diode experts

SANTA ANA, CA

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(714) 979-8220

ALSO AVAILABLE IN SURFACE MOUNT



**1N6103-1N6137**  
**1N6139-1N6173**  
**1N6103A-1N6137A**  
**1N6139A-1N6173A**

**FEATURES**

- HIGH SURGE CAPACITY PROVIDES TRANSIENT PROTECTION FOR MOST CRITICAL CIRCUITS.
- TRIPLE LAYER PASSIVATION.
- SUBMINIATURE.
- METALLURGICALLY BONDED.
- VOIDLESS HERMETICALLY SEALED GLASS PACKAGE
- DYNAMIC IMPEDANCE AND REVERSE LEAKAGE LOWEST AVAILABLE.
- JAN/S/TX/TXV TYPES AVAILABLE PER MIL-S-19500/516.

**MAXIMUM RATINGS**

Operating Temperature: -65°C to +175°C.  
Storage Temperature: -65°C to +200°C.  
Surge Power 500W & 1500W  
Power @ TL = 75°C (%) 3.0W 500W Type  
Power @ TL = 50°C (%) 5.0W 1500W Type

**ELECTRICAL CHARACTERISTICS**

SERIES TYPE	BREAKDOWN VOLTAGE V(BR) MIN.	TEST CURRENT I_T mAdc	WORKING PEAK VOLTAGE V_Wm Vdc	MAX LEAKAGE CURRENT I_D μAdc	MAX CLAMPING VOLTAGE V_C (MAX) V(pk)	MAX PEAK PULSE CURRENT I_P		MAX. TEMP. COEF. OF V(BR) %/°C		
						A(pk)	A(pk)			
500W	1500W	Vdc	mAdc	Vdc	μAdc	V(pk)	A(pk)	A(pk)	%/°C	
1N6103A	1N6139A	7.13	175	5.7	50	300	11.2	44.6	133.9	.06
1N6104A	1N6140A	7.79	150	6.2	10	100	12.1	41.3	124.0	.06
1N6105A	1N6141A	8.65	150	6.9	10	100	13.4	37.3	111.9	.06
1N6106A	1N6142A	9.50	125	7.6	10	100	14.5	34.5	103.4	.07
1N6107A	1N6143A	10.45	125	8.4	1	10	15.6	32.0	96.2	.07
1N6108A	1N6144A	11.40	100	9.1	1	10	16.9	29.6	88.8	.07
1N6109A	1N6145A	12.35	100	9.9	1	10	18.2	27.5	82.4	.08
1N6110A	1N6146A	14.25	75	11.4	1	10	21.0	23.8	71.4	.08
1N6111A	1N6147A	15.20	75	12.2	1	10	22.3	22.4	67.3	.08
1N6112A	1N6148A	17.10	65	13.7	1	10	25.1	19.9	59.8	.085
1N6113A	1N6149A	19.0	65	15.2	1	5	27.7	18.0	54.2	.085
1N6114A	1N6150A	20.9	50	16.7	1	5	30.5	16.4	49.2	.085
1N6115A	1N6151A	22.8	50	18.2	1	5	33.3	15.0	45.0	.09
1N6116A	1N6152A	25.7	50	20.6	1	5	37.4	13.4	40.1	.09
1N6117A	1N6153A	28.5	40	22.8	1	5	41.6	12.0	36.0	.09
1N6118A	1N6154A	31.4	40	25.1	1	5	45.7	10.9	32.8	.095
1N6119A	1N6155A	34.2	30	27.4	1	5	49.9	10.0	30.1	.095
1N6120A	1N6156A	37.1	30	29.7	1	5	53.6	9.3	28.0	.095
1N6121A	1N6157A	40.9	30	32.7	1	5	59.1	8.5	25.4	.095
1N6122A	1N6158A	44.7	25	35.8	1	5	64.6	7.7	23.2	.095
1N6123A	1N6159A	48.5	25	38.8	1	5	70.1	7.1	21.4	.095
1N6124A	1N6160A	53.2	20	42.6	1	5	77.0	6.5	19.5	.095
1N6125A	1N6161A	58.9	20	47.1	1	5	85.3	5.9	17.6	.100
1N6126A	1N6162A	64.6	20	51.7	1	5	97.1	5.1	15.4	.100
1N6127A	1N6163A	71.3	20	56.0	1	5	103.1	4.8	14.5	.100
1N6128A	1N6164A	77.9	15	62.2	1	5	112.8	4.4	13.3	.100
1N6129A	1N6165A	86.5	15	69.2	1	5	125.1	4.0	12.0	.100
1N6130A	1N6166A	95.0	12	76.0	1	5	137.6	3.6	10.9	.100
1N6131A	1N6167A	104.5	12	86.6	1	5	151.3	3.3	9.9	.100
1N6132A	1N6168A	114.0	10	91.2	1	5	165.1	3.0	9.1	.100
1N6133A	1N6169A	123.5	10	98.8	1	5	178.8	2.8	8.4	.105
1N6134A	1N6170A	142.5	8	114.0	1	5	206.3	2.4	7.3	.105
1N6135A	1N6171A	152.0	8	121.6	1	5	218.4	2.3	6.9	.105
1N6136A	1N6172A	171.0	5	136.8	1	5	245.7	2.0	6.1	.110
1N6137A	1N6173A	190.0	5	152.0	1	5	273.0	1.8	5.5	.110
Note 4		1	1	1	2	3	1	2	3	1

NOTES: 1. Applies to both 500W and 1500W series. 2. Applies to only 500W series. 3. Applies to only 1500W series. 4. Non --A part has 5% higher max surge voltage, 5% lower V(BR) min., I<sub>SM</sub>.

**BIDIRECTIONAL TRANSIENT SUPPRESSORS**

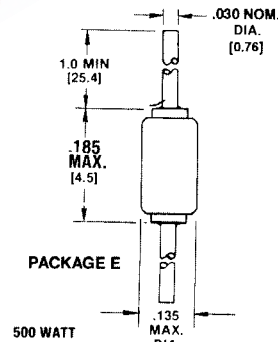


FIGURE 1 (NOTE 2)

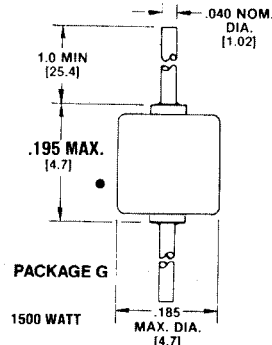


FIGURE 1A (NOTE 3)

**MECHANICAL CHARACTERISTICS**

Case: Hermetically sealed glass case.  
Lead Material: Tinned copper or silver clad copper.  
Marking: Body painted, alpha numeric.  
Polarity: No marking with 4-13 bi directional devices.

# 1N6103-1N6137, 1N6139-1N6173, 1N6103A-1N6137A, 1N6139A-1N6173A

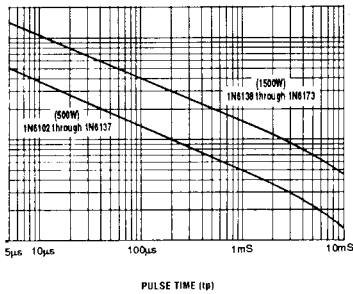


FIGURE 2  
PEAK SURGE POWER vs. PULSE TIME

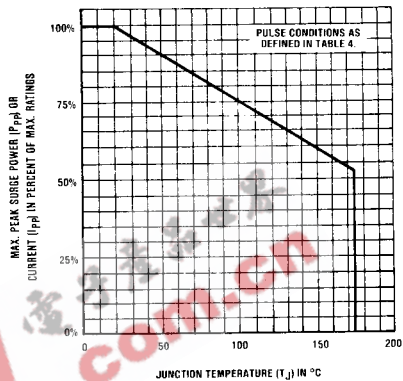


FIGURE 3  
PULSE DERATING CURVE

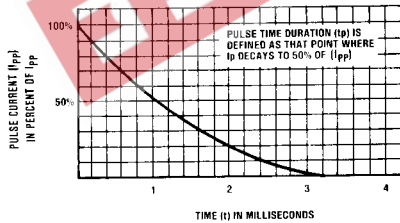


FIGURE 4  
PULSE WAVE FORM

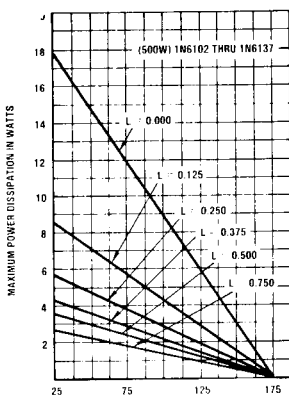


FIGURE 5  
MAXIMUM POWER vs. LEAD TEMPERATURE

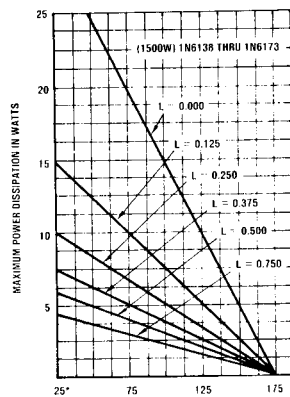


FIGURE 6  
STEADY STATE DERATING CURVE  
FOR FREE AIR MOUNTING

Maximum lead temperature in °C ( $T_L$ ) at point "L" from body  
(for maximum operating junction temperature with equal two-lead conditions).