



Micro Commercial Components



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20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

**1N5913BP  
THRU  
1N5956BP**

### Features

- Glass Passivated Junction
- Low Profile Package
- Low Inductance
- Built-in Strain Relief
- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant (Note1)("P" Suffix designates Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking : 1N5913B~1N5956B type number and Cathode Band

**1.5 Watt  
Zener Diode  
3.3to 200 Volts**

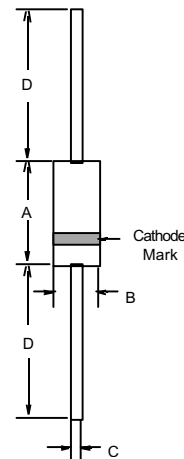
### Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Forward Voltage at $I_F=200mA$	$V_F$	1.5	V
Power Dissipation at $T_L = 75^\circ C$	$P_{tot}$	1.5 <sup>(2)</sup>	W
Pwak forward Surge Current 8.3ms single half sine/square wave	$I_{FSM}$	10	Amps
Junction Temperature	$T_j$	-55 ~ +175	°C
Storage Temperature Range	$T_{STG}$	-55 ~ +175	°C

Note1: High Temperature Solder Exemption Applied, see EU Directive Annex 7.  
2. 0.375" lead length from body.

DO-41



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.160	0.205	4.10	5.20	
B	0.080	0.107	2.00	2.70	Diameter
C	0.028	0.034	0.71	0.86	Diameter
D	1.000	-----	25.40	-----	

**ELECTRICAL CHARACTERISTICS @25°C**

MCC PART NUMBER	ZENER VOLTAGE VZ	TEST CURRENT IZT	MAXIMUM DYNAMIC IMPEDANCE ZZT @IZT	KNEE CURRENT IZK	KNEE IMPEDANCE ZZK	MAXIMUM REVERSE CURRENT IR	REVERSE VOLTAGE VR
	VOLTS	mA	OHMS	mA	OHMS	µA	VOLTS
1N5913BP	3.3	113.6	10	1	500	100	1
1N5914BP	3.6	104.2	9	1	500	75	1
1N5915BP	3.9	96.1	7.5	1	500	25	1
1N5916BP	4.3	87.2	6	1	500	5	1
1N5917BP	4.7	79.8	5	1	500	5	1.5
1N5918BP	5.1	73.5	4	1	350	5	2
1N5919BP	5.6	66.9	2	1	250	5	3
1N5920BP	6.2	60.5	2	1	200	5	4
1N5921BP	6.8	55.1	2.5	1	200	5	5.2
1N5922BP	7.5	50	3	0.5	400	5	6
1N5923BP	8.2	45.7	3.5	0.5	400	5	6.5
1N5924BP	9.1	41.2	4	0.5	500	5	7
1N5925BP	10	37.5	4.5	0.25	500	5	8
1N5926BP	11	34.1	5.5	0.25	550	1	8.4
1N5927BP	12	31.2	6.5	0.25	550	1	9.1
1N5928BP	13	28.8	7	0.25	550	1	9.9
1N5929BP	15	25	9	0.25	600	1	11.4
1N5930BP	16	23.4	10	0.25	600	1	12.2
1N5931BP	18	20.8	12	0.25	650	1	13.7
1N5932BP	20	18.7	14	0.25	650	1	15.2
1N5933BP	22	17	17.5	0.25	650	1	16.7
1N5934BP	24	15.6	19	0.25	700	1	18.2
1N5935BP	27	13.9	23	0.25	700	1	20.6
1N5936BP	30	12.5	28	0.25	750	1	22.8
1N5937BP	33	11.4	33	0.25	800	1	25.1
1N5938BP	36	10.4	38	0.25	850	1	27.4
1N5939BP	39	9.6	45	0.25	900	1	29.7
1N5940BP	43	8.7	53	0.25	950	1	32.7
1N5941BP	47	8	67	0.25	1000	1	35.8
1N5942BP	51	7.3	70	0.25	1100	1	38.8
1N5943BP	56	6.7	86	0.25	1300	1	42.6
1N5944BP	62	6	100	0.25	1500	1	47.1
1N5945BP	68	5.5	120	0.25	1700	1	51.7
1N5946BP	75	5	140	0.25	2000	1	56
1N5947BP	82	4.6	160	0.25	2500	1	62.2
1N5948BP	91	4.1	200	0.25	3000	1	69.2
1N5949BP	100	3.7	250	0.25	3100	1	76
1N5950BP	110	3.4	300	0.25	4000	1	83.6
1N5951BP	120	3.1	380	0.25	4500	1	91.2
1N5952BP	130	2.9	450	0.25	5000	1	98.8
1N5953BP	150	2.5	600	0.25	6000	1	114
1N5954BP	160	2.3	700	0.25	6500	1	121.6
1N5955BP	180	2.1	900	0.25	7000	1	136.8
1N5956BP	200	1.9	1200	0.25	8000	1	152

\* TOLERANCE AND VOLTAGE DESIGNATION Tolerance designation - The type numbers listed indicate a tolerance of +/-5%

**Characteristics** ( $T_j=25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter
$V_Z$	Reverse zener voltage @ $I_{ZT}$
$I_{ZT}$	Reverse current
$Z_{ZT}$	Maximum zener impedance @ $I_{ZT}$
$I_{ZK}$	Reverse current
$Z_{ZK}$	Maximum zener impedance @ $I_{ZK}$
$I_R$	Reverse leakage current @ $V_R$
$V_R$	Breakdown voltage
$I_F$	Forward current
$V_F$	Forward voltage @ $I_F$

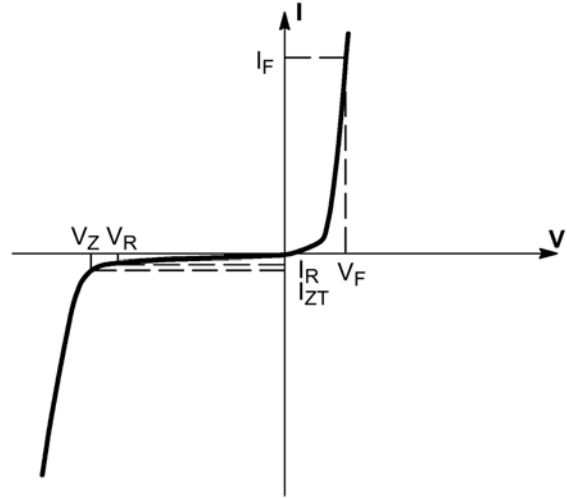


Figure 1. Zener voltage regulator

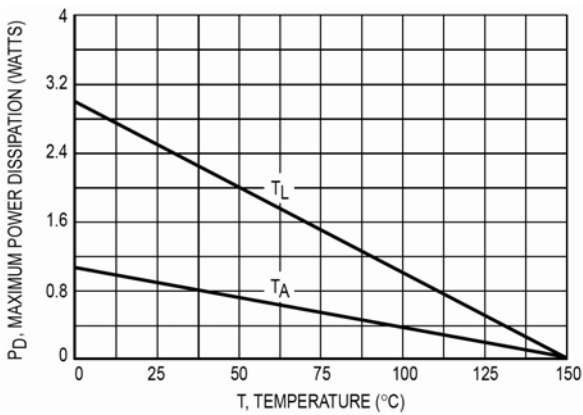


Figure 2. Steady state power derating

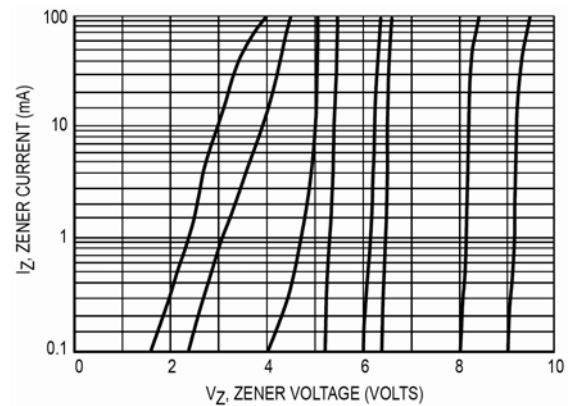


Figure 3.  $V_Z - 3.3$  thru 10 volts

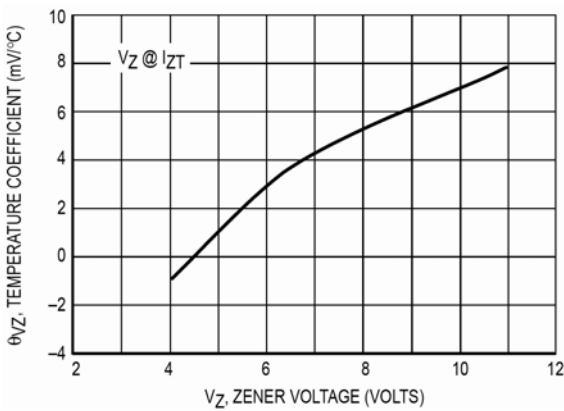


Figure 4. Zener voltage - 3.3 to 12 volts

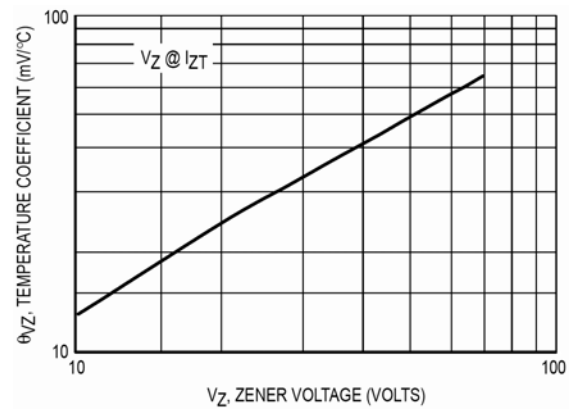


Figure 5. Zener voltage - 14 to 43 volts

1N5913BP THRU 1N5956BP

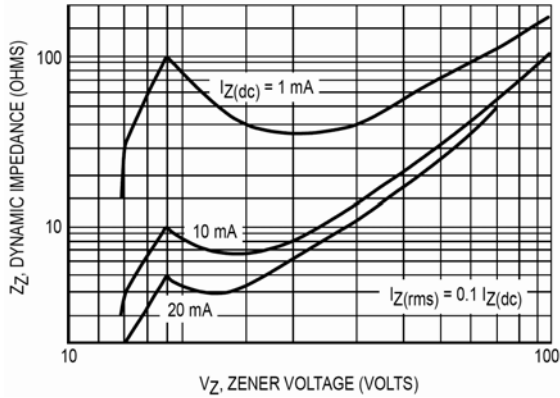


Figure 6. Effect of zener voltage

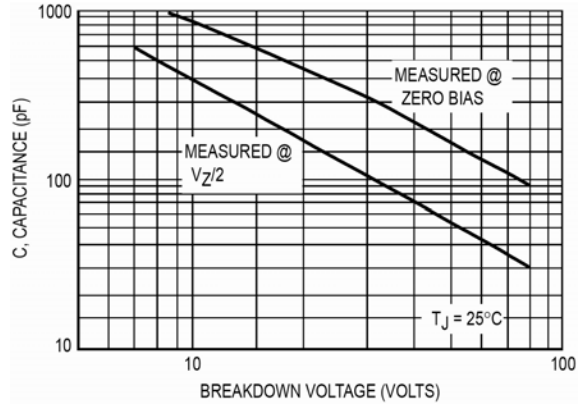


Figure 7. Capacitance curve

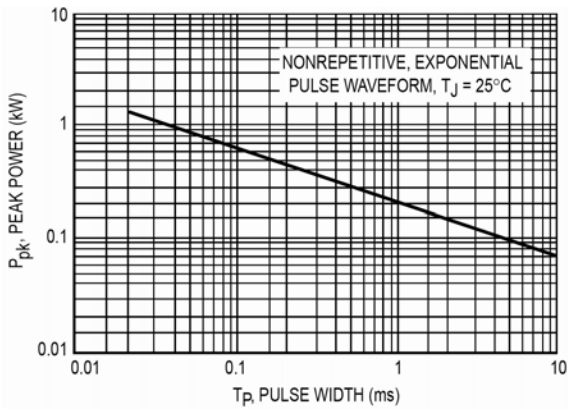


Figure 8. Typical pulse rating curve

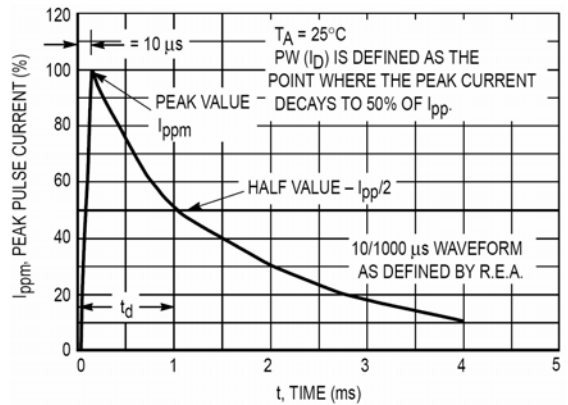


Figure 9. Pulse waveform

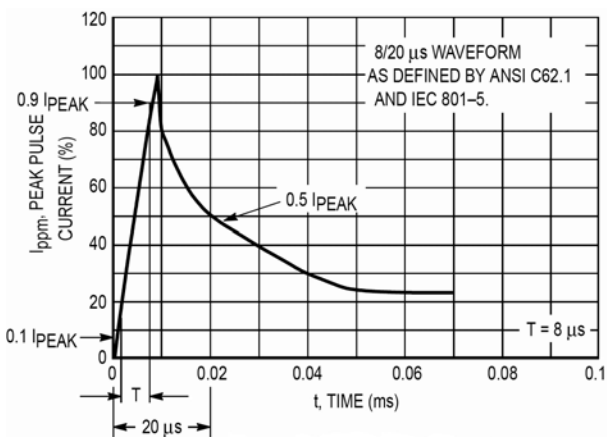


Figure 10. Pulse waveform



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### Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel
Part Number-AP	Ammo Packing: 5Kpcs/Ammo Box
Part Number-BP	Bulk: 50Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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