



Micro Commercial Components



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**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**

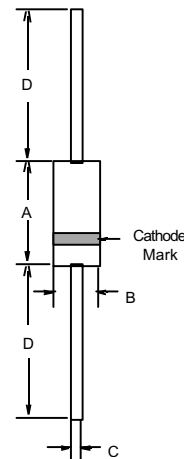
Maximum Ratings & Thermal Characteristics

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 ⁽²⁾ | 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 | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|----------|
| | INCHES | | MM | | |
| | 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 |

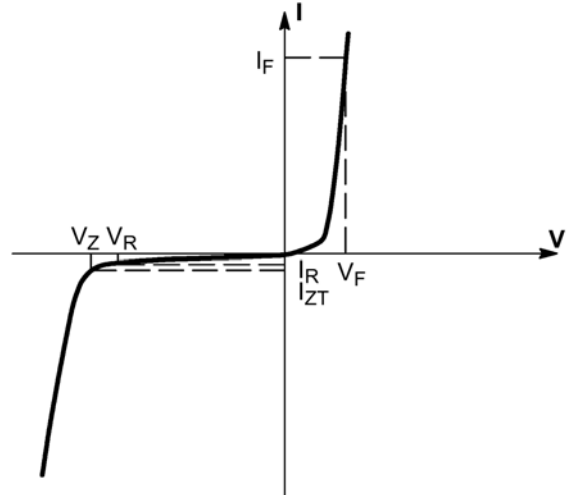


Figure 1. Zener voltage regulator

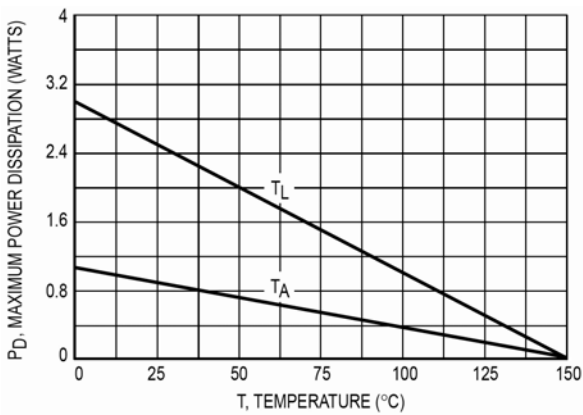


Figure 2. Steady state power derating

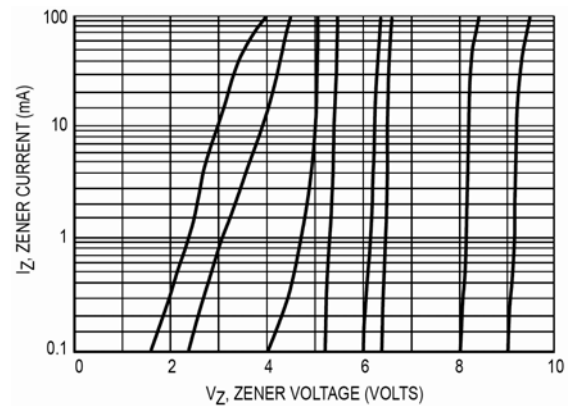


Figure 3. $V_Z - 3.3$ thru 10 volts

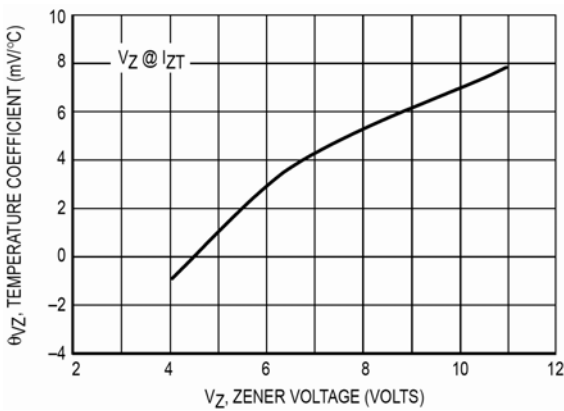


Figure 4. Zener voltage - 3.3 to 12 volts

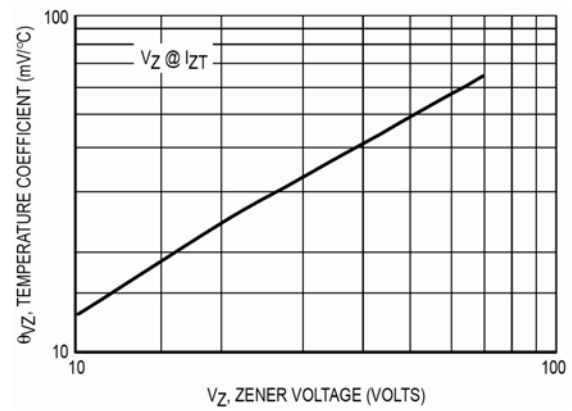


Figure 5. Zener voltage - 14 to 43 volts

1N5913BP THRU 1N5956BP

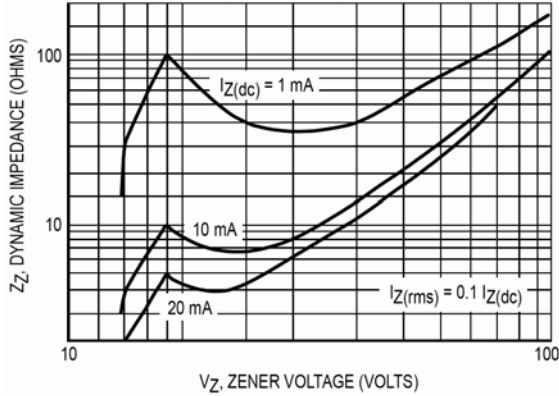


Figure 6. Effect of zener voltage

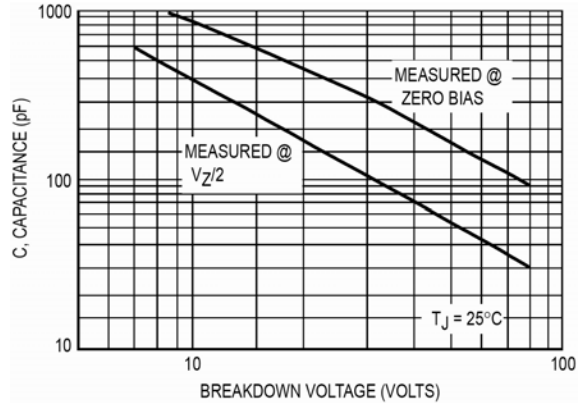


Figure 7. Capacitance curve

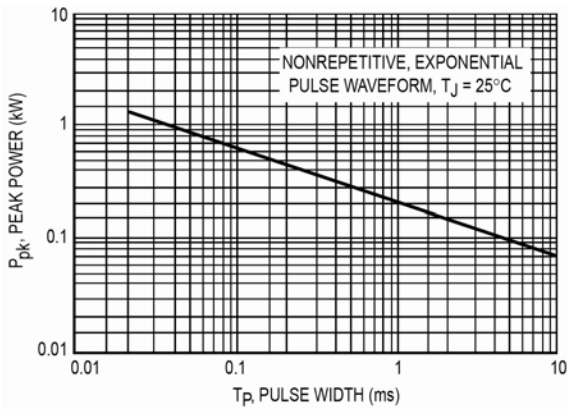


Figure 8. Typical pulse rating curve

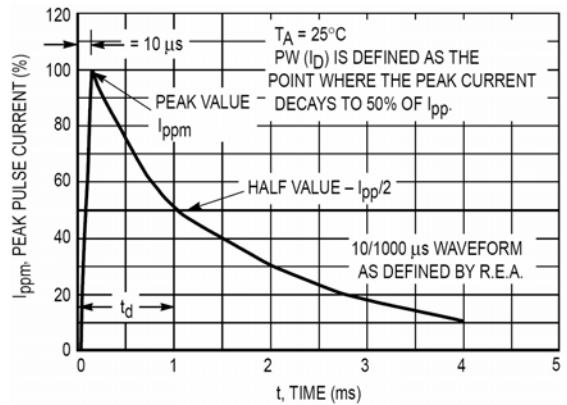


Figure 9. Pulse waveform

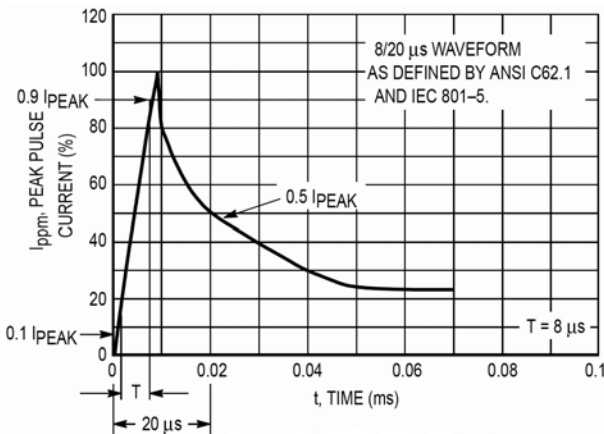


Figure 10. Pulse waveform



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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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