

## Features

- Low Profile Package
- Ideal for Automated Placement
- Fully Automotive Qualified to AEC-Q101
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings(@ 25°C Unless Otherwise Specified)

| Parameter                                                 | Symbol    | Rating  | Unit |
|-----------------------------------------------------------|-----------|---------|------|
| DC Power Dissipation at $T_L = 75^\circ\text{C}$          | $P_D$     | 1.5     | W    |
| Maximum Instantaneous Forward Voltage@ $I_F=200\text{mA}$ | $V_F$     | 1.5     | V    |
| Operating Junction Temperature Range                      | $T_J$     | -55~175 | °C   |
| Storage Temperature Range                                 | $T_{stg}$ | -55~175 | °C   |

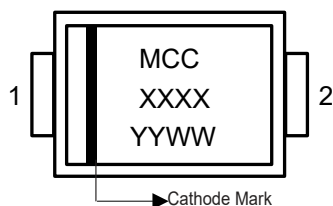
## Thermal Characteristics(@ 25°C Unless Otherwise Specified)

| Parameter                                      | Symbol          | Rating | Unit |
|------------------------------------------------|-----------------|--------|------|
| Typical Thermal Resistance Junction to Lead    | $R_{\theta JL}$ | 66     | °C/W |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 120    | °C/W |
| Typical Thermal Resistance Junction to Case    | $R_{\theta JC}$ | 30     | °C/W |

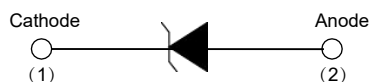
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.4" x 0.4" (10 mm x 10 mm) copper pad areas

## Simplified outline

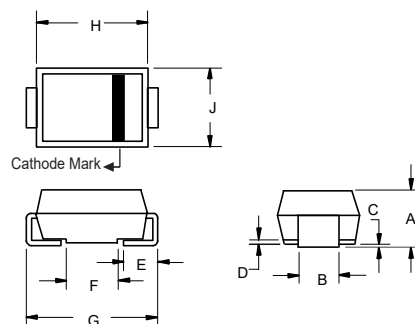


## Graphic symbol



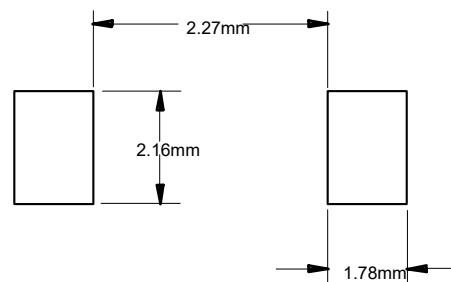
# 1.5 Watt Zener Diode 6.8V to 200 Volts

## SMA (DO-214AC) LEAD FRAME



| DIM | INCHES |       | MM    |       | NOTE |
|-----|--------|-------|-------|-------|------|
|     | MIN    | MAX   | MIN   | MAX   |      |
| A   | 0.075  | 0.096 | 1.90  | 2.44  |      |
| B   | 0.050  | 0.064 | 1.27  | 1.63  |      |
| C   | 0.002  | 0.008 | 0.051 | 0.203 |      |
| D   | ---    | 0.020 | ---   | 0.51  |      |
| E   | 0.030  | 0.060 | 0.76  | 1.52  |      |
| F   | 0.065  | 0.091 | 1.65  | 2.32  |      |
| G   | 0.189  | 0.220 | 4.80  | 5.59  |      |
| H   | 0.157  | 0.187 | 4.00  | 4.75  |      |
| J   | 0.090  | 0.115 | 2.25  | 2.92  |      |

## SUGGESTED SOLDER PAD LAYOUT



XXXX = Marking code YYWW = Date Code

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Part Number | Nominal Zener Voltage |        |        | Test Current | Maximum Dynamic Impedance Resistance |            |            | Maximum Reverse leakage Current |       | Maximum DC Zener Current | Marking Code |
|-------------|-----------------------|--------|--------|--------------|--------------------------------------|------------|------------|---------------------------------|-------|--------------------------|--------------|
|             | VZ@IZT                |        |        |              | IZT                                  | ZZT at IZT | ZZK at IZK | IZK                             | IR    |                          |              |
|             | Min(V)                | Nom(V) | Max(V) | mA           | Ω                                    | Ω          | mA         | μA                              | V     | mA                       |              |
| SMAJ5921BQ  | 6.46                  | 6.8    | 7.14   | 55.1         | 2.5                                  | 200        | 1.00       | 10.0                            | 5.2   | 221.0                    | 21B          |
| SMAJ5922BQ  | 7.13                  | 7.5    | 7.88   | 50.0         | 3.0                                  | 400        | 0.50       | 10.0                            | 6.0   | 200.0                    | 22B          |
| SMAJ5923BQ  | 7.79                  | 8.2    | 8.61   | 45.7         | 3.5                                  | 400        | 0.50       | 10.0                            | 6.5   | 183.0                    | 23B          |
| SMAJ5924BQ  | 8.65                  | 9.1    | 9.56   | 41.2         | 4.0                                  | 500        | 0.50       | 10.0                            | 7.0   | 165.0                    | 24B          |
| SMAJ5925BQ  | 9.50                  | 10.0   | 10.50  | 37.5         | 4.5                                  | 500        | 0.25       | 10.0                            | 8.0   | 150.0                    | 25B          |
| SMAJ5926BQ  | 10.45                 | 11.0   | 11.55  | 34.1         | 5.5                                  | 550        | 0.25       | 0.5                             | 8.4   | 136.0                    | 26B          |
| SMAJ5927BQ  | 11.40                 | 12.0   | 12.60  | 31.2         | 6.5                                  | 550        | 0.25       | 0.5                             | 9.1   | 125.0                    | 27B          |
| SMAJ5928BQ  | 12.35                 | 13.0   | 13.65  | 28.8         | 7.0                                  | 550        | 0.25       | 0.5                             | 9.9   | 115.0                    | 28B          |
| SMAJ5929BQ  | 14.25                 | 15.0   | 15.75  | 25.0         | 9.0                                  | 600        | 0.25       | 0.5                             | 11.4  | 100.0                    | 29B          |
| SMAJ5930BQ  | 15.20                 | 16.0   | 16.80  | 23.4         | 10.0                                 | 600        | 0.25       | 0.5                             | 12.2  | 94.0                     | 30B          |
| SMAJ5931BQ  | 17.10                 | 18.0   | 18.90  | 20.8         | 12.0                                 | 650        | 0.25       | 0.5                             | 13.7  | 83.0                     | 31B          |
| SMAJ5932BQ  | 19.00                 | 20.0   | 21.00  | 18.7         | 14.0                                 | 650        | 0.25       | 0.5                             | 15.2  | 75.0                     | 32B          |
| SMAJ5933BQ  | 20.90                 | 22.0   | 23.10  | 17.0         | 17.5                                 | 650        | 0.25       | 0.5                             | 16.7  | 68.0                     | 33B          |
| SMAJ5934BQ  | 22.80                 | 24.0   | 25.20  | 15.6         | 19.0                                 | 700        | 0.25       | 0.5                             | 18.2  | 63.0                     | 34B          |
| SMAJ5935BQ  | 25.65                 | 27.0   | 28.35  | 13.9         | 23.0                                 | 700        | 0.25       | 0.5                             | 20.6  | 56.0                     | 35B          |
| SMAJ5936BQ  | 28.50                 | 30.0   | 31.50  | 12.5         | 26.0                                 | 750        | 0.25       | 0.5                             | 22.8  | 50.0                     | 36B          |
| SMAJ5937BQ  | 31.35                 | 33.0   | 34.65  | 11.4         | 33.0                                 | 800        | 0.25       | 0.5                             | 25.1  | 45.0                     | 37B          |
| SMAJ5938BQ  | 34.20                 | 36.0   | 37.80  | 10.4         | 38.0                                 | 850        | 0.25       | 0.5                             | 27.4  | 42.0                     | 38B          |
| SMAJ5939BQ  | 37.05                 | 39.0   | 40.95  | 9.6          | 45.0                                 | 900        | 0.25       | 0.5                             | 29.7  | 38.0                     | 39B          |
| SMAJ5940BQ  | 40.85                 | 43.0   | 45.15  | 8.7          | 53.0                                 | 950        | 0.25       | 0.5                             | 32.7  | 35.0                     | 40B          |
| SMAJ5941BQ  | 44.65                 | 47.0   | 49.35  | 8.0          | 67.0                                 | 1000       | 0.25       | 0.5                             | 35.8  | 32.0                     | 41B          |
| SMAJ5942BQ  | 48.45                 | 51.0   | 53.55  | 7.3          | 70.0                                 | 1100       | 0.25       | 0.5                             | 38.8  | 29.0                     | 42B          |
| SMAJ5943BQ  | 53.20                 | 56.0   | 58.80  | 6.7          | 86.0                                 | 1300       | 0.25       | 0.5                             | 42.6  | 27.0                     | 43B          |
| SMAJ5944BQ  | 58.90                 | 62.0   | 65.10  | 6.0          | 100.0                                | 1500       | 0.25       | 0.5                             | 47.1  | 24.0                     | 44B          |
| SMAJ5945BQ  | 64.60                 | 68.0   | 71.40  | 5.5          | 120.0                                | 1700       | 0.25       | 0.5                             | 51.7  | 22.0                     | 45B          |
| SMAJ5946BQ  | 71.25                 | 75.0   | 78.75  | 5.0          | 140.0                                | 2000       | 0.25       | 0.5                             | 56.0  | 20.0                     | 46B          |
| SMAJ5947BQ  | 77.90                 | 82.0   | 86.10  | 4.6          | 160.0                                | 2500       | 0.25       | 0.5                             | 62.2  | 18.0                     | 47B          |
| SMAJ5948BQ  | 86.45                 | 91.0   | 95.55  | 4.1          | 200.0                                | 3000       | 0.25       | 0.5                             | 69.2  | 16.0                     | 48B          |
| SMAJ5949BQ  | 95.00                 | 100.0  | 105.00 | 3.7          | 250.0                                | 3100       | 0.25       | 0.5                             | 76.0  | 15.0                     | 49B          |
| SMAJ5950BQ  | 104.50                | 110.0  | 115.50 | 3.4          | 300.0                                | 4000       | 0.25       | 0.5                             | 83.6  | 14.0                     | 50B          |
| SMAJ5951BQ  | 114.00                | 120.0  | 126.00 | 3.1          | 380.0                                | 4500       | 0.25       | 0.5                             | 91.2  | 13.0                     | 51B          |
| SMAJ5952BQ  | 123.50                | 130.0  | 136.50 | 2.9          | 450.0                                | 5000       | 0.25       | 0.5                             | 98.8  | 12.0                     | 52B          |
| SMAJ5953BQ  | 142.50                | 150.0  | 157.50 | 2.5          | 600.0                                | 6000       | 0.25       | 0.5                             | 114.0 | 10.0                     | 53B          |
| SMAJ5954BQ  | 152.00                | 160.0  | 168.00 | 2.3          | 700.0                                | 6500       | 0.25       | 0.5                             | 121.6 | 9.4                      | 54B          |
| SMAJ5955BQ  | 171.00                | 180.0  | 189.00 | 2.1          | 900.0                                | 7000       | 0.25       | 0.5                             | 136.8 | 8.3                      | 55B          |
| SMAJ5956BQ  | 190.00                | 200.0  | 210.00 | 1.9          | 1200.0                               | 8000       | 0.25       | 0.5                             | 152.0 | 7.5                      | 56B          |

## Curve Characteristics

Fig. 1 - Power Derating Curve

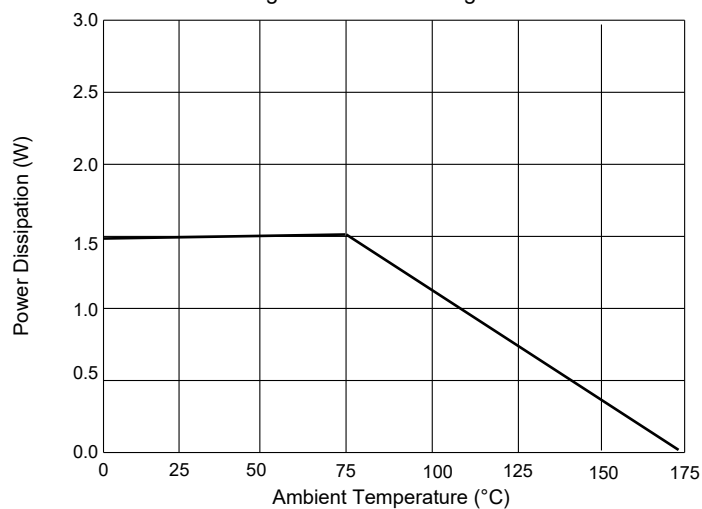


Fig. 2 - Typical Forward Characteristics

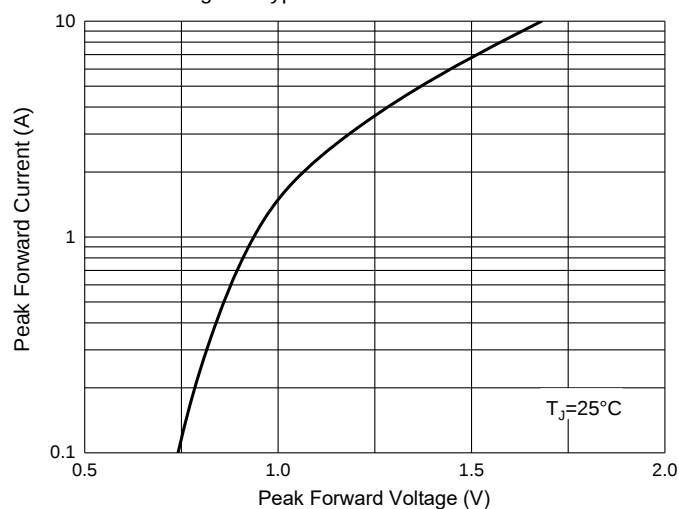


Fig. 3 - Pulse Waveform

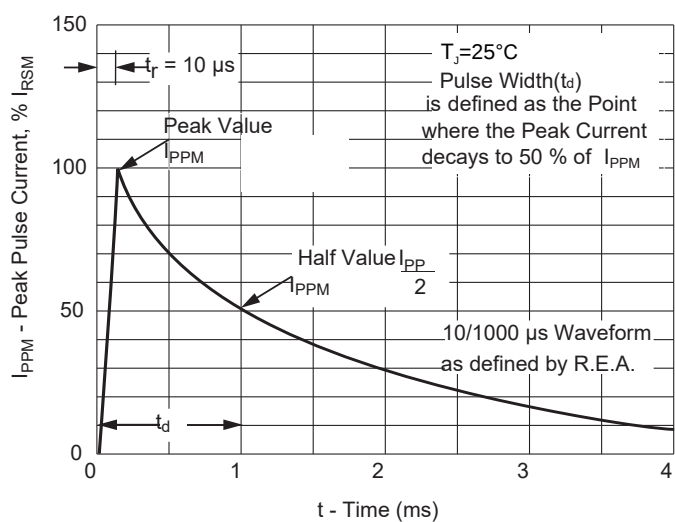
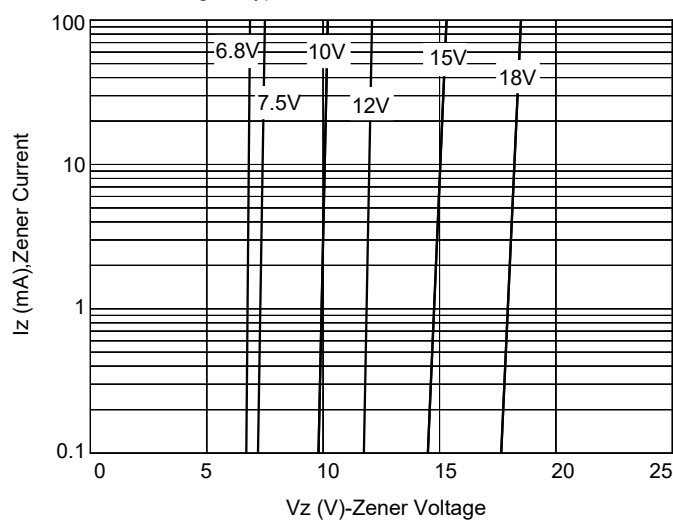


Fig. 4 - Typical Zener Breakdown Characteristics



## Ordering Information

| Device         | Packing                |
|----------------|------------------------|
| Part Number-TP | Tape&Reel:7.5Kpcs/Reel |

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| <a href="#"><u>SMAJ5956BQ-TP</u></a> | <a href="#"><u>SMAJ5931BQ-TP</u></a> | <a href="#"><u>SMAJ5938BQ-TP</u></a> | <a href="#"><u>SMAJ5926BQ-TP</u></a> | <a href="#"><u>SMAJ5947BQ-TP</u></a> | <a href="#"><u>SMAJ5954BQ-TP</u></a> |