



Micro Commercial Components™

Micro Commercial Components  
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## SMAJ5918B THRU SMAJ5942B

### Features

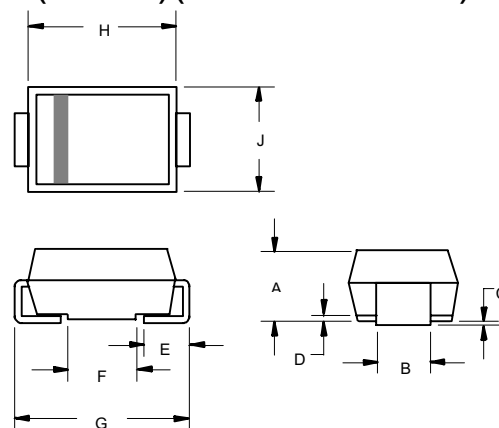
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
  - Low Zener Impedance
  - Low Regulation Factor
  - $V_Z$  – tolerance:  $\pm 5\%$
  - For Surface Mount Applications
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL rating 1

### Maximum Ratings

- Junction Temperature:  $150^{\circ}\text{C}$
- Storage Temperature:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- 1.5 Watt DC Power Dissipation ( $T_L \leq 75^{\circ}\text{C}$ )
- Thermal Resistance Junction to Lead:  $50^{\circ}\text{C/W}$
- Forward Voltage @ 200mA: 1.5 Volts

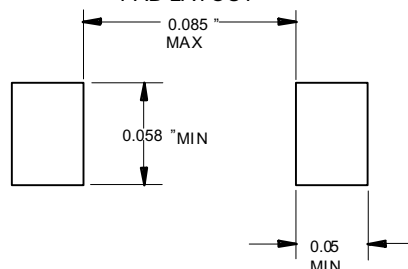
## 1.5 Watt Zener Diode 5.1 to 51 Volts

### DO-214AC (SMAJ)(LEAD FRAME)



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .079   | .096 | 2.00 | 2.44 |      |
| B          | .050   | .064 | 1.27 | 1.63 |      |
| C          | .002   | .008 | .05  | .20  |      |
| D          | ---    | .02  | ---  | .51  |      |
| E          | .030   | .060 | .76  | 1.52 |      |
| F          | .065   | .091 | 1.65 | 2.32 |      |
| G          | .189   | .220 | 4.80 | 5.59 |      |
| H          | .157   | .181 | 4.00 | 4.60 |      |
| J          | .090   | .115 | 2.25 | 2.92 |      |

#### SUGGESTED SOLDER PAD LAYOUT



Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

**ELECTRICAL CHARACTERISTICS @25°C**

| MCC<br>PART<br>NUMBER | ZENER<br>VOLTAGE<br>$V_Z$ (1) | TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM<br>DYNAMIC<br>IMPEDANCE<br>$Z_{ZT} @ I_{ZT}$ | KNEE<br>CURRENT<br>$I_{ZK}$ | KNEE<br>IMPEDANCE<br>$Z_{ZK}$ | MAXIMUM<br>REVERSE<br>CURRENT<br>$I_R$ | REVERSE<br>VOLTAGE<br>$V_R$ | DEVICE<br>MARKING |
|-----------------------|-------------------------------|-----------------------------|------------------------------------------------------|-----------------------------|-------------------------------|----------------------------------------|-----------------------------|-------------------|
|                       | VOLTS                         | mA                          | OHMS                                                 | mA                          | OHMS                          | $\mu A$                                | VOLTS                       |                   |
| SMAJ5918B             | 5.1                           | 73.5                        | 4.0                                                  | 1.0                         | 350                           | 2.5                                    | 2.0                         | 18B               |
| SMAJ5919B             | 5.6                           | 66.9                        | 2.0                                                  | 1.0                         | 250                           | 2.5                                    | 3.0                         | 19B               |
| SMAJ5920B             | 6.2                           | 60.5                        | 2.0                                                  | 1.0                         | 200                           | 2.5                                    | 4.0                         | 20B               |
| SMAJ5921B             | 6.8                           | 55.1                        | 2.5                                                  | 1.0                         | 200                           | 2.5                                    | 5.2                         | 21B               |
| SMAJ5922B             | 7.5                           | 50.0                        | 3.0                                                  | 0.5                         | 400                           | 2.5                                    | 6.0                         | 22B               |
| SMAJ5923B             | 8.2                           | 45.7                        | 3.5                                                  | 0.5                         | 400                           | 2.5                                    | 6.5                         | 23B               |
| SMAJ5924B             | 9.1                           | 41.2                        | 4.0                                                  | 0.5                         | 500                           | 2.5                                    | 7.0                         | 24B               |
| SMAJ5925B             | 10                            | 37.5                        | 4.5                                                  | 0.25                        | 500                           | 0.5                                    | 8.0                         | 25B               |
| SMAJ5926B             | 11                            | 34.1                        | 5.5                                                  | 0.25                        | 550                           | 0.5                                    | 8.4                         | 26B               |
| SMAJ5927B             | 12                            | 31.2                        | 6.5                                                  | 0.25                        | 550                           | 0.5                                    | 9.1                         | 27B               |
| SMAJ5928B             | 13                            | 28.8                        | 7.0                                                  | 0.25                        | 550                           | 0.5                                    | 9.9                         | 28B               |
| SMAJ5929B             | 15                            | 25.0                        | 9.0                                                  | 0.25                        | 600                           | 0.5                                    | 11.4                        | 29B               |
| SMAJ5930B             | 16                            | 23.4                        | 10.0                                                 | 0.25                        | 600                           | 0.5                                    | 12.2                        | 30B               |
| SMAJ5931B             | 18                            | 20.8                        | 12.0                                                 | 0.25                        | 650                           | 0.5                                    | 13.7                        | 31B               |
| SMAJ5932B             | 20                            | 18.7                        | 14.0                                                 | 0.25                        | 650                           | 0.5                                    | 15.2                        | 31B               |
| SMAJ5933B             | 22                            | 17.0                        | 17.5                                                 | 0.25                        | 650                           | 0.5                                    | 16.7                        | 33B               |
| SMAJ5934B             | 24                            | 15.6                        | 19.0                                                 | 0.25                        | 700                           | 0.5                                    | 18.2                        | 34B               |
| SMAJ5935B             | 27                            | 13.9                        | 23.0                                                 | 0.25                        | 700                           | 0.5                                    | 20.6                        | 35B               |
| SMAJ5936B             | 30                            | 12.5                        | 28.0                                                 | 0.25                        | 750                           | 0.5                                    | 22.8                        | 36B               |
| SMAJ5937B             | 33                            | 11.4                        | 33.0                                                 | 0.25                        | 800                           | 0.5                                    | 25.1                        | 37B               |
| SMAJ5938B             | 36                            | 10.4                        | 38.0                                                 | 0.25                        | 850                           | 0.5                                    | 27.4                        | 38B               |
| SMAJ5939B             | 39                            | 9.6                         | 45.0                                                 | 0.25                        | 900                           | 0.5                                    | 29.7                        | 39B               |
| SMAJ5940B             | 43                            | 8.7                         | 53.0                                                 | 0.25                        | 950                           | 0.5                                    | 32.7                        | 40B               |
| SMAJ5941B             | 47                            | 8.0                         | 67.0                                                 | 0.25                        | 1000                          | 0.5                                    | 35.8                        | 41B               |
| SMAJ5942B             | 51                            | 7.3                         | 70.0                                                 | 0.25                        | 1100                          | 0.5                                    | 38.8                        | 42B               |

1) Based on DC-measurement at thermal equilibrium while maintaining the lead temperature( $T_L$ ) at 30°C, 9.5mm(3/8") from the diode body.

### 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 @ $I_F$            |

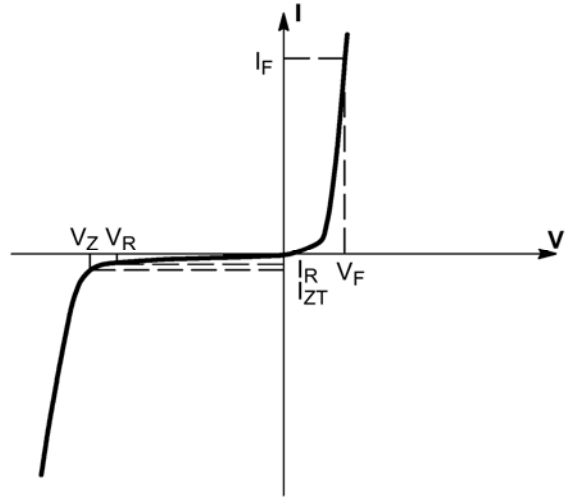


Figure 1. Zener voltage regulator

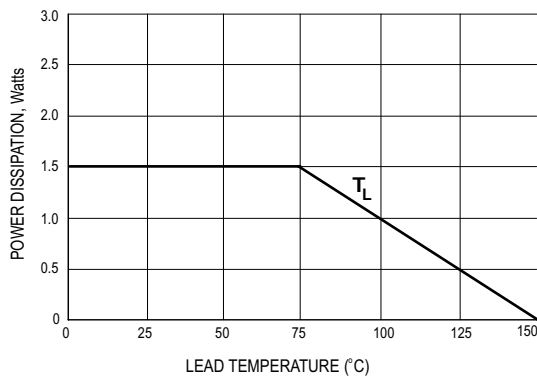


Figure 2. Steady state power derating

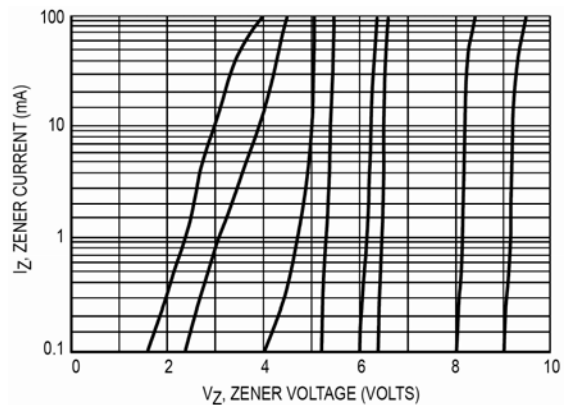
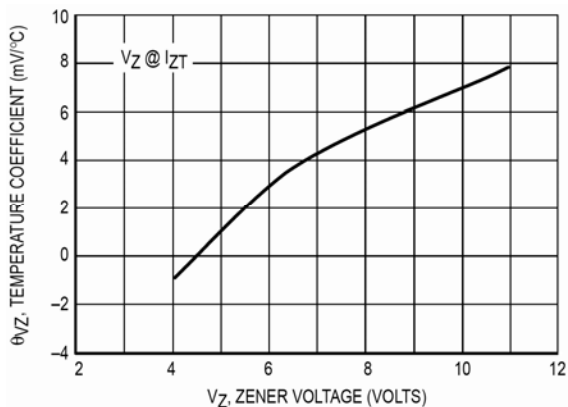
Figure 3.  $V_Z$  – 3.3 thru 10 volts

Figure 4. Zener voltage – 3.3 to 12 volts

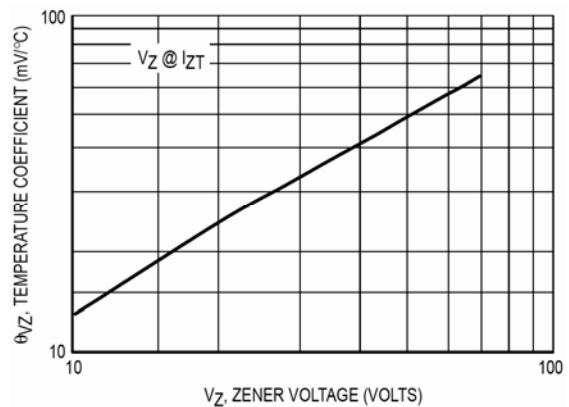


Figure 5. Zener voltage – 14 to 43 volts

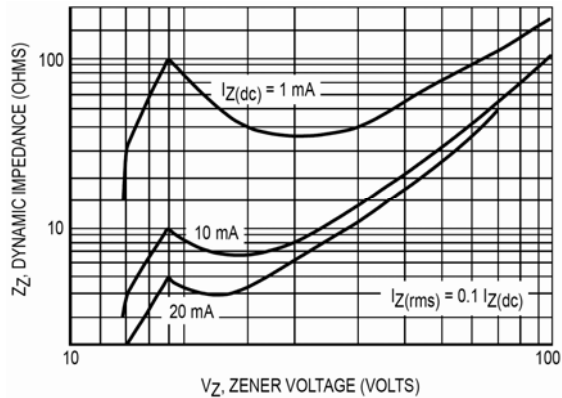


Figure 6. Effect of zener voltage

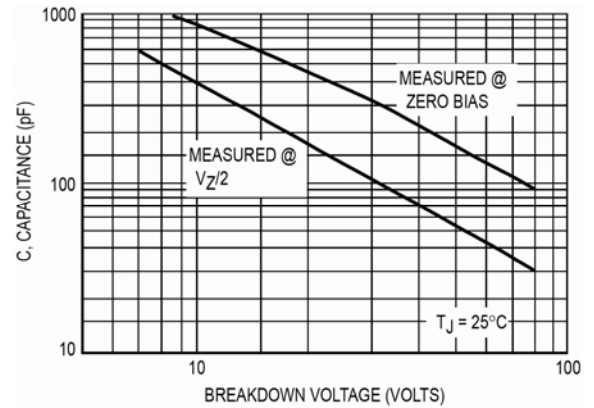


Figure 7. Capacitance curve

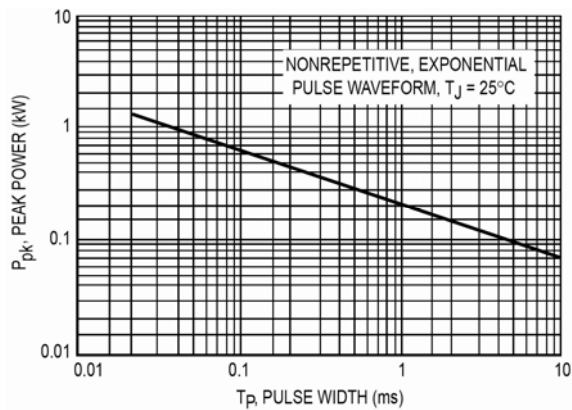


Figure 8. Typical pulse rating curve

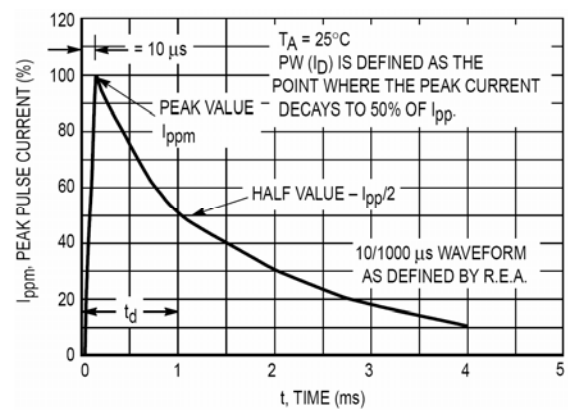


Figure 9. Pulse waveform

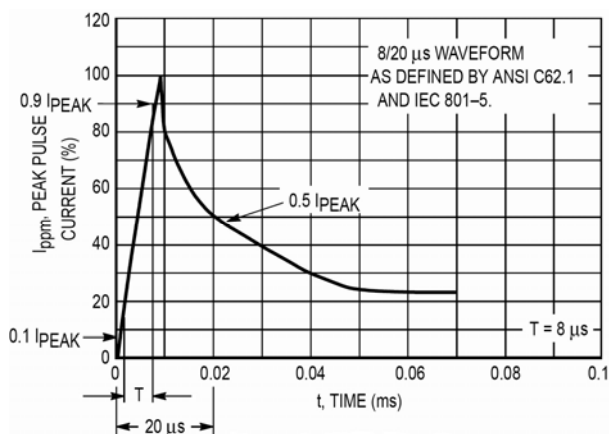


Figure 10. Pulse waveform

## Ordering Information

| Device           | Packing                |
|------------------|------------------------|
| (Part Number)-TP | Tape&Reel;7.5Kpcs/Reel |

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