

Silicon Planar Zener Diodes

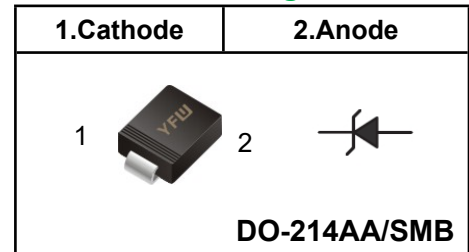
**FEATURES**

- ◆ Total power dissipation: Max. 3 W.
- ◆ Wide zener reverse voltage range 3.3V to 200V.
- ◆ plastic package suitable for surface mounted design.
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives

**MECHANICAL DATA**

- ◆ Case: DO-214AA/SMB
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.95g / 0.003oz

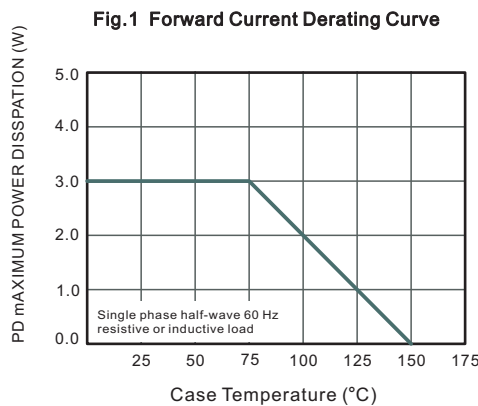
**Pinning**



**Absolute Maximum Ratings And Characteristics (Ta = 25 °C)**

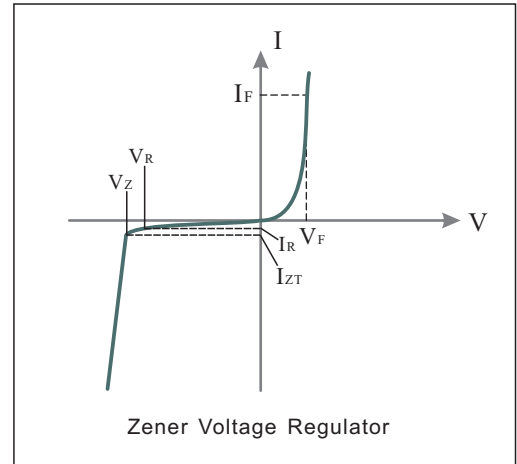
| Parameter   | Symbol                  | Value      | Unit         |
|---|-------------------------|------------|--------------|
| DC power dissipation at TL=75°C, measure at zero lead length (Note 1) derate above 75°C | <b>P<sub>D</sub></b>    | 3.0        | <b>W</b>     |
|   |                         | 40         | <b>mW/°C</b> |
| Maximum Steady State Power Dissipation @ TA=25°C Derate above 25°C                      | <b>P<sub>D</sub></b>    | 550        | <b>mW</b>    |
|   |                         | 4.4        | <b>mW/°C</b> |
| Junction to ambient thermal resistance  | <b>R<sub>thJA</sub></b> | 226        | <b>°C/W</b>  |
| Junction to lead thermal resistance   | <b>R<sub>thJL</sub></b> | 25         | <b>°C/W</b>  |
| Junction Temperature Range  | <b>T<sub>J</sub></b>    | 55 ~ +150  | <b>°C</b>    |
| Storage Temperature Range   | <b>T<sub>STG</sub></b>  | -55 ~ +150 | <b>°C</b>    |

**Note:** 1. Mounted on Cu-Pad size 5mm x 5mm on PCB.



ELECTRICAL CHARACTERISTICS  
( $T_L = 30^\circ\text{C}$  unless otherwise noted,  
 $V_F = 1.5\text{ V Max. @ } I_F = 200\text{ mA(DC)}$  for all types)

| 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 @ $V_R$    |
| $V_R$    | Reverse Voltage                    |
| $I_F$    | Forward Current                    |
| $V_F$    | Forward Voltage @ $I_F$            |
| $I_{ZM}$ | Maximum DC Zener Current           |



Notes On Page 3:

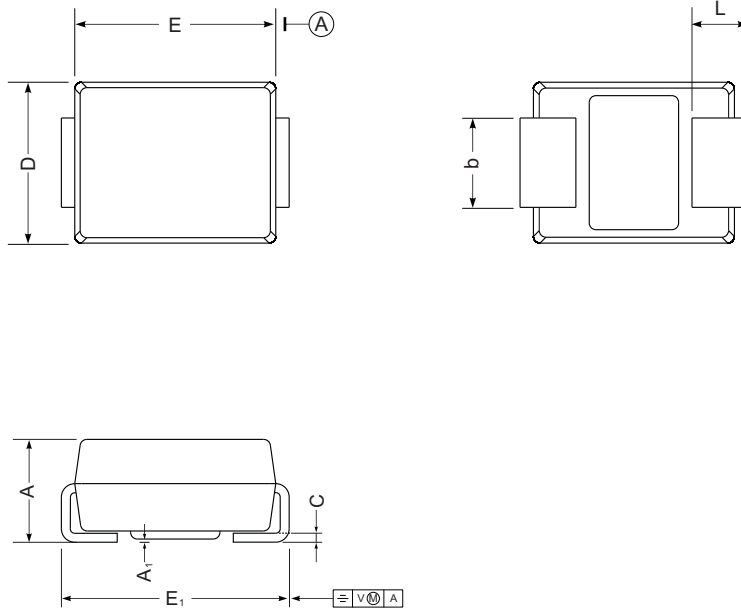
1. Tolerance and type number designation the type numbers listed indicate a tolerance of 5%
2. Zener voltage ( $V_Z$ ) measurement  
Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature  $25^\circ\text{C}$
3. Zener impedance ( $Z_Z$ ) derivation :  $Z_{ZT}$  and  $Z_{ZK}$  are measured by dividing the AC voltage drop across the device by the AC current applied.  
The specified limits are for  $I_Z(\text{AC}) = 0.1 I_Z(\text{DC})$  with the AC frequency = 60 Hz

Characteristics at Ta = 25°C (Devices listed in bold, italic are ON Semiconductor Preferred devices.)  
 (TL = 30°C unless otherwise noted, VF = 1.5 V Max. @ IF = 200 mA(DC) for all types)

| Type      | Marking | Nominal Zener Voltage <sup>(3)</sup> |                        |         |                 | Zener Impedance <sup>(4)</sup>    |                                   |                                 | Leakage Current |       | Maximum DC Zener Current |
|-----------|---------|--------------------------------------|------------------------|---------|-----------------|-----------------------------------|-----------------------------------|---------------------------------|-----------------|-------|--------------------------|
|           |         | V <sub>Z</sub>                       |                        |         | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |                 |       |                          |
|           |         | Min (V)                              | Nom (V) <sup>(2)</sup> | Max (V) | (mA)            | (Ω)                               | (Ω)                               | (mA)                            | (μA)            | (V)   |                          |
| 1SMB5913B | 913B    | 3.13                                 | 3.3                    | 3.47    | 113.6           | 10                                | 500                               | 1                               | 100             | 1     | 454                      |
| 1SMB5914B | 914B    | 3.42                                 | 3.6                    | 3.78    | 104.2           | 9                                 | 500                               | 1                               | 75              | 1     | 416                      |
| 1SMB5915B | 915B    | 3.70                                 | 3.9                    | 4.10    | 96.1            | 7.5                               | 500                               | 1                               | 25              | 1     | 384                      |
| 1SMB5916B | 916B    | 4.08                                 | 4.3                    | 4.52    | 87.2            | 6                                 | 500                               | 1                               | 5               | 1     | 348                      |
| 1SMB5917B | 917B    | 4.46                                 | 4.7                    | 4.94    | 79.8            | 5                                 | 500                               | 1                               | 5               | 1.5   | 319                      |
| 1SMB5918B | 918B    | 4.84                                 | 5.1                    | 5.36    | 73.5            | 4                                 | 350                               | 1                               | 5               | 2     | 294                      |
| 1SMB5919B | 919B    | 5.32                                 | 5.6                    | 5.88    | 66.9            | 2                                 | 250                               | 1                               | 5               | 3     | 267                      |
| 1SMB5920B | 920B    | 5.89                                 | 6.2                    | 6.51    | 60.5            | 2                                 | 200                               | 1                               | 5               | 4     | 241                      |
| 1SMB5921B | 921B    | 6.46                                 | 6.8                    | 7.14    | 55.1            | 2.5                               | 200                               | 1                               | 5               | 5.2   | 220                      |
| 1SMB5922B | 922B    | 7.12                                 | 7.5                    | 7.88    | 50              | 3                                 | 400                               | 0.5                             | 5               | 6     | 200                      |
| 1SMB5923B | 923B    | 7.79                                 | 8.2                    | 8.61    | 45.7            | 3.5                               | 400                               | 0.5                             | 5               | 6.5   | 182                      |
| 1SMB5924B | 924B    | 8.64                                 | 9.1                    | 9.56    | 41.2            | 4                                 | 500                               | 0.5                             | 5               | 7     | 164                      |
| 1SMB5925B | 925B    | 9.5                                  | 10                     | 10.5    | 37.5            | 4.5                               | 500                               | 0.25                            | 5               | 8     | 150                      |
| 1SMB5926B | 926B    | 10.45                                | 11                     | 11.55   | 34.1            | 5.5                               | 550                               | 0.25                            | 1               | 8.4   | 136                      |
| 1SMB5927B | 927B    | 11.4                                 | 12                     | 12.6    | 31.2            | 6.5                               | 550                               | 0.25                            | 1               | 9.1   | 125                      |
| 1SMB5928B | 928B    | 12.35                                | 13                     | 13.65   | 28.8            | 7                                 | 550                               | 0.25                            | 1               | 9.9   | 115                      |
| 1SMB5929B | 929B    | 14.25                                | 15                     | 15.75   | 25              | 9                                 | 600                               | 0.25                            | 1               | 11.4  | 100                      |
| 1SMB5930B | 930B    | 15.2                                 | 16                     | 16.8    | 23.4            | 10                                | 600                               | 0.25                            | 1               | 12.2  | 93                       |
| 1SMB5931B | 931B    | 17.1                                 | 18                     | 18.9    | 20.8            | 12                                | 650                               | 0.25                            | 1               | 13.7  | 83                       |
| 1SMB5932B | 932B    | 19                                   | 20                     | 21      | 18.7            | 14                                | 650                               | 0.25                            | 1               | 15.2  | 75                       |
| 1SMB5933B | 933B    | 20.9                                 | 22                     | 23.1    | 17              | 17.5                              | 650                               | 0.25                            | 1               | 16.7  | 68                       |
| 1SMB5934B | 934B    | 22.8                                 | 24                     | 25.2    | 15.6            | 19                                | 700                               | 0.25                            | 1               | 18.2  | 62                       |
| 1SMB5935B | 935B    | 25.65                                | 27                     | 28.35   | 13.9            | 23                                | 700                               | 0.25                            | 1               | 20.6  | 55                       |
| 1SMB5936B | 936B    | 28.5                                 | 30                     | 31.5    | 12.5            | 28                                | 750                               | 0.25                            | 1               | 22.8  | 50                       |
| 1SMB5937B | 937B    | 31.35                                | 33                     | 34.65   | 11.4            | 33                                | 800                               | 0.25                            | 1               | 25.1  | 45                       |
| 1SMB5938B | 938B    | 34.2                                 | 36                     | 37.8    | 10.4            | 38                                | 850                               | 0.25                            | 1               | 27.4  | 41                       |
| 1SMB5939B | 939B    | 37.05                                | 39                     | 40.95   | 9.6             | 45                                | 900                               | 0.25                            | 1               | 29.7  | 38                       |
| 1SMB5940B | 940B    | 40.85                                | 43                     | 45.15   | 8.7             | 53                                | 950                               | 0.25                            | 1               | 32.7  | 34                       |
| 1SMB5941B | 941B    | 44.65                                | 47                     | 49.35   | 8               | 67                                | 1000                              | 0.25                            | 1               | 35.8  | 31                       |
| 1SMB5942B | 942B    | 48.45                                | 51                     | 53.55   | 7.3             | 70                                | 1100                              | 0.25                            | 1               | 38.8  | 29                       |
| 1SMB5943B | 943B    | 53.2                                 | 56                     | 58.8    | 6.7             | 86                                | 1300                              | 0.25                            | 1               | 42.6  | 26                       |
| 1SMB5944B | 944B    | 58.9                                 | 62                     | 65.1    | 6               | 100                               | 1500                              | 0.25                            | 1               | 47.1  | 24                       |
| 1SMB5945B | 945B    | 64.6                                 | 68                     | 71.4    | 5.5             | 120                               | 1700                              | 0.25                            | 1               | 51.7  | 22                       |
| 1SMB5946B | 946B    | 71.25                                | 75                     | 78.75   | 5               | 140                               | 2000                              | 0.25                            | 1               | 56    | 20                       |
| 1SMB5947B | 947B    | 77.9                                 | 82                     | 86.1    | 4.6             | 160                               | 2500                              | 0.25                            | 1               | 62.2  | 18                       |
| 1SMB5948B | 948B    | 86.45                                | 91                     | 95.55   | 4.1             | 200                               | 3000                              | 0.25                            | 1               | 69.2  | 16                       |
| 1SMB5949B | 949B    | 95                                   | 100                    | 105     | 3.7             | 250                               | 3100                              | 0.25                            | 1               | 76    | 15                       |
| 1SMB5950B | 950B    | 104.5                                | 110                    | 115.5   | 3.4             | 300                               | 4000                              | 0.25                            | 1               | 83.6  | 13                       |
| 1SMB5951B | 951B    | 114                                  | 120                    | 126     | 3.1             | 380                               | 4500                              | 0.25                            | 1               | 91.2  | 12                       |
| 1SMB5952B | 952B    | 123.5                                | 130                    | 136.5   | 2.9             | 450                               | 5000                              | 0.25                            | 1               | 98.8  | 11                       |
| 1SMB5953B | 953B    | 142.5                                | 150                    | 157.5   | 2.5             | 600                               | 6000                              | 0.25                            | 1               | 114   | 10                       |
| 1SMB5954B | 954B    | 152                                  | 160                    | 168     | 2.3             | 700                               | 6500                              | 0.25                            | 1               | 121.6 | 9                        |
| 1SMB5955B | 955B    | 171                                  | 180                    | 189     | 2.1             | 900                               | 7000                              | 0.25                            | 1               | 136.8 | 8                        |
| 1SMB5956B | 956B    | 190                                  | 200                    | 210     | 1.9             | 1200                              | 8000                              | 0.25                            | 1               | 152   | 7                        |

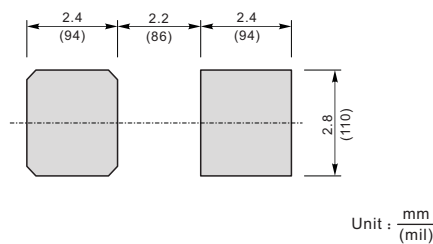
**Package Outline DO-214AA SMB**

Plastic surface mounted package; 2 leads



| UNIT |     | A    | E    | D    | E <sub>1</sub> | A <sub>1</sub> | L   | C     | b   |
|------|-----|------|------|------|----------------|----------------|-----|-------|-----|
| mm   | max | 2.44 | 4.70 | 3.94 | 5.59           | 0.20           | 1.5 | 0.305 | 2.2 |
|      | min | 2.13 | 4.06 | 3.3  | 5.08           | 0.05           | 0.8 | 0.152 | 1.9 |
| mil  | max | 96   | 185  | 155  | 220            | 7.9            | 59  | 12    | 87  |
|      | min | 84   | 160  | 130  | 200            | 2.0            | 32  | 6     | 75  |

**The recommended mounting pad size**



**Summary of Packing Options**

| Package      | Packing Description | Packing Quantity | Industry Standard |
|--------------|---------------------|------------------|-------------------|
| DO-214AA SMB | Tape/Reel, 13" reel | 3000             | EIA-481-1         |

单击下面可查看定价，库存，交付和生命周期等信息

[>>YFW\(佑风微\)](#)