

Silicon Planar Zener Diodes

**FEATURES**

- ♦ Total power dissipation: Max. 1.5 W.
- ♦ Wide zener reverse voltage range 3.3V to 240V.
- ♦ Small plastic package suitable for surface mounted design.
- ♦ Lead free in comply with EU RoHS 2011/65/EU directives

**MECHANICAL DATA**

- ♦ Case: DO-214AC/SMA
- ♦ Terminals: Solderable per MIL-STD-750, Method 2026
- ♦ Approx. Weight: 0.07g / 0.002oz

**Pinning**

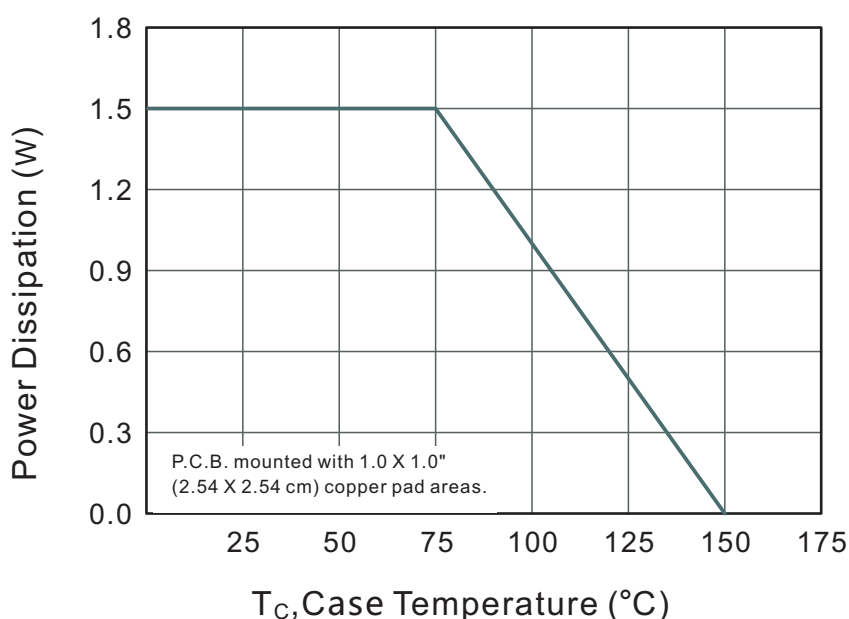
| 1.Cathode                                                                           | 2.Anode |
|-------------------------------------------------------------------------------------|---------|
|  |         |
| DO-214AC/SMA                                                                        |         |

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

| Parameter                      | Symbol         | Value      | Unit |
|--------------------------------|----------------|------------|------|
| Power Dissipation at TL=75°C   | P <sub>D</sub> | 1.5        | W    |
| Forward Voltage at IF = 200 mA | V <sub>F</sub> | 1.5        | V    |
| Junction Temperature Range     | T <sub>J</sub> | 55 ~ +150  | °C   |
| Storage Temperature Range      | T <sub>s</sub> | -55 ~ +150 | °C   |

(1) Thermal resistance from junction to ambient at P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads.

**Fig.1 Maximum Continuous Power Derating**



Characteristics at  $T_a = 25^\circ\text{C}$

| Type<br>(note1) | Marking<br>(note1) | Zener Voltage Range (note2) |         |         |             | Dynamic<br>Impedance    | Reverse Current       |          | Admissible<br>Zener Current |
|-----------------|--------------------|-----------------------------|---------|---------|-------------|-------------------------|-----------------------|----------|-----------------------------|
|                 |                    | $V_{ZT}$ (at $I_{ZT}$ )     |         |         | at $I_{ZT}$ | $Z_{ZT}$ (at $I_{ZT}$ ) | $I_R$                 | at $V_R$ |                             |
|                 |                    | Min (V)                     | Nom (V) | Max (V) | (mA)        | Max ( $\Omega$ )        | Max ( $\mu\text{A}$ ) | (V)      | $I_{ZM}$ (mA)               |
| 1SMA5913B       | 913B               | 3.13                        | 3.3     | 3.47    | 113.6       | 10                      | 100                   | 1        | 454                         |
| 1SMA5914B       | 914B               | 3.42                        | 3.6     | 3.78    | 104.2       | 9.0                     | 75                    | 1        | 416                         |
| 1SMA5915B       | 915B               | 3.70                        | 3.9     | 4.10    | 96.1        | 7.5                     | 25                    | 1        | 384                         |
| 1SMA5916B       | 916B               | 4.08                        | 4.3     | 4.52    | 87.2        | 6.0                     | 5                     | 1        | 348                         |
| 1SMA5917B       | 917B               | 4.46                        | 4.7     | 4.94    | 79.8        | 5.0                     | 5                     | 1.5      | 319                         |
| 1SMA5918B       | 918B               | 4.84                        | 5.1     | 5.36    | 73.5        | 4.0                     | 5                     | 2        | 294                         |
| 1SMA5919B       | 919B               | 5.32                        | 5.6     | 5.88    | 66.9        | 2.0                     | 5                     | 3        | 267                         |
| 1SMA5920B       | 920B               | 5.89                        | 6.2     | 6.51    | 60.5        | 2.0                     | 5                     | 4        | 241                         |
| 1SMA5921B       | 921B               | 6.46                        | 6.8     | 7.14    | 55          | 2.5                     | 5                     | 5.2      | 220                         |
| 1SMA5922B       | 922B               | 7.12                        | 7.5     | 7.88    | 50          | 3.0                     | 5                     | 6        | 200                         |
| 1SMA5923B       | 923B               | 7.79                        | 8.2     | 8.61    | 45.7        | 3.5                     | 5                     | 6.5      | 182                         |
| 1SMA5924B       | 924B               | 8.60                        | 9.1     | 9.56    | 41.2        | 4.0                     | 5                     | 7        | 164                         |
| 1SMA5925B       | 925B               | 9.50                        | 10      | 10.5    | 37.5        | 4.5                     | 5                     | 8        | 150                         |
| 1SMA5926B       | 926B               | 10.4                        | 11      | 11.6    | 34          | 5.5                     | 1                     | 8.4      | 136                         |
| 1SMA5927B       | 927B               | 11.4                        | 12      | 12.6    | 31.2        | 6.5                     | 1                     | 9        | 125                         |
| 1SMA5928B       | 928B               | 12.35                       | 13      | 14.1    | 28.8        | 7.0                     | 1                     | 9.9      | 115                         |
| 1SMA5929B       | 929B               | 13.8                        | 15      | 15.8    | 25          | 9.0                     | 1                     | 11.4     | 100                         |
| 1SMA5930B       | 930B               | 15.2                        | 16      | 16.8    | 23.4        | 10                      | 1                     | 12.2     | 93                          |
| 1SMA5931B       | 931B               | 16.8                        | 18      | 19.2    | 21          | 12                      | 1                     | 13.7     | 83                          |
| 1SMA5932B       | 932B               | 19.0                        | 20      | 21.2    | 19          | 14                      | 1                     | 15.2     | 75                          |
| 1SMA5933B       | 933B               | 20.8                        | 22      | 23.3    | 17          | 18                      | 1                     | 16.7     | 68                          |
| 1SMA5934B       | 934B               | 22.8                        | 24      | 25.2    | 16          | 19                      | 1                     | 18.2     | 62                          |
| 1SMA5935B       | 935B               | 25.3                        | 27      | 28.9    | 14          | 23                      | 1                     | 20.6     | 55                          |
| 1SMA5936B       | 936B               | 28.2                        | 30      | 32.0    | 12.5        | 26                      | 1                     | 23       | 50                          |
| 1SMA5937B       | 937B               | 31.3                        | 33      | 34.9    | 11.4        | 33                      | 1                     | 25       | 45                          |
| 1SMA5938B       | 938B               | 34.2                        | 36      | 37.9    | 10.4        | 38                      | 1                     | 27       | 41                          |
| 1SMA5939B       | 939B               | 37.2                        | 39      | 41.5    | 9.6         | 45                      | 1                     | 30       | 38                          |
| 1SMA5940B       | 940B               | 40.9                        | 43      | 45.6    | 8.7         | 53                      | 1                     | 33       | 34                          |
| 1SMA5941B       | 941B               | 44.9                        | 47      | 49.8    | 8.0         | 67                      | 1                     | 36       | 31                          |
| 1SMA5942B       | 942B               | 48.6                        | 51      | 54.0    | 7.3         | 70                      | 1                     | 39       | 29                          |
| 1SMA5943B       | 943B               | 53.6                        | 56      | 58.8    | 6.7         | 86                      | 1                     | 42       | 26                          |
| 1SMA5944B       | 944B               | 58.9                        | 62      | 65.6    | 6.0         | 100                     | 1                     | 47       | 24                          |
| 1SMA5945B       | 945B               | 64.6                        | 68      | 71.7    | 5.5         | 120                     | 1                     | 52       | 22                          |
| 1SMA5946B       | 946B               | 71.2                        | 75      | 78.8    | 5.0         | 140                     | 1                     | 57       | 20                          |
| 1SMA5947B       | 947B               | 77.9                        | 82      | 87.0    | 4.6         | 160                     | 1                     | 62       | 18                          |
| 1SMA5948B       | 948B               | 86.0                        | 91      | 96.0    | 4.1         | 200                     | 1                     | 69       | 16                          |
| 1SMA5949B       | 949B               | 95.0                        | 100     | 105     | 3.7         | 250                     | 1                     | 76       | 15                          |
| 1SMA5950B       | 950B               | 104                         | 110     | 116     | 3.4         | 300                     | 1                     | 84       | 13                          |
| 1SMA5951B       | 951B               | 114                         | 120     | 127     | 3.1         | 380                     | 1                     | 91       | 12                          |
| 1SMA5952B       | 952B               | 125                         | 130     | 142     | 2.9         | 450                     | 1                     | 100      | 11                          |
| 1SMA5953B       | 953B               | 140                         | 150     | 157     | 2.5         | 600                     | 1                     | 114      | 10                          |
| 1SMA5954B       | 954B               | 152                         | 160     | 168     | 2.3         | 700                     | 1                     | 121.6    | 9.0                         |
| 1SMA5955B       | 955B               | 168                         | 180     | 189     | 2.1         | 900                     | 1                     | 136.8    | 8.0                         |
| 1SMA5956B       | 956B               | 189                         | 200     | 211     | 1.9         | 1200                    | 1                     | 152      | 7.0                         |
| 1SMA5957B       | 957B               | 228                         | 240     | 252     | 1.5         | 1600                    | 1                     | 182.4    | 6.0                         |

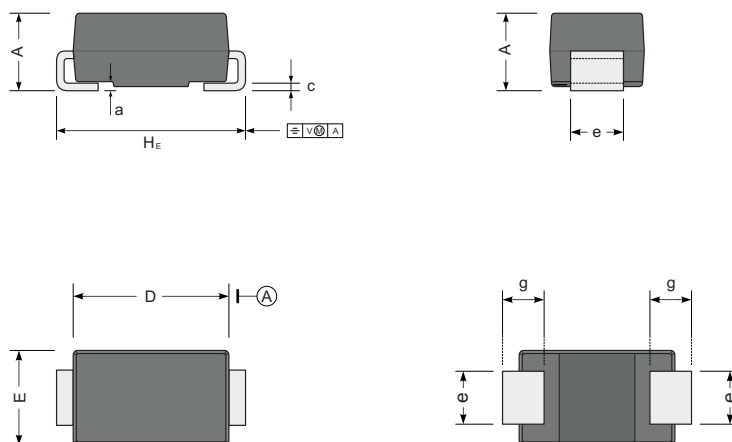
(1) Suffix "A" indicates  $\pm 10\%$  tolerance, Suffix "B" indicates  $\pm 5\%$  tolerance

(2)  $V_{ZT}$  is tested with pulses (20 ms)

## Package Outline

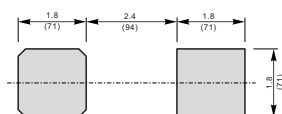
## DO-214AC SMA

Plastic surface mounted package; 2 leads



| UNIT |     | A    | D   | E    | H <sub>E</sub> | c    | e   | g   | a   |
|------|-----|------|-----|------|----------------|------|-----|-----|-----|
| mm   | max | 2.42 | 4.5 | 2.80 | 5.2            | 0.31 | 1.6 | 1.5 | 0.3 |
|      | min | 1.98 | 4.0 | 2.54 | 4.7            | 0.15 | 1.3 | 0.9 |     |
| mil  | max | 96   | 181 | 110  | 205            | 12   | 63  | 59  | 12  |
|      | min | 78   | 157 | 100  | 185            | 6    | 51  | 35  |     |

## The recommended mounting pad size



Unit :  $\frac{\text{mm}}{(\text{mil})}$

## Summary of Packing Options

| Package      | Packing Description | Packing Quantity | Industry Standard |
|--------------|---------------------|------------------|-------------------|
| DO-214AC SMA | Tape/Reel, 11" reel | 5000             | EIA-481-1         |
|              | Tape/Reel, 7" reel  | 2000             | EIA-481-1         |

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