

# 1SMA5914-AU ~ 1SMA5945-AU Series

## SILICON ZENER DIODE

**Voltage**

**3.6~68 V**

**Power**

**1.5 W**

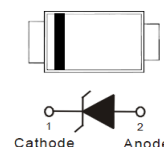
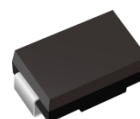
### Features

- Silicon planar Zener diode
- Low profile surface-mount package
- Low leakage current
- Excellent stability
- High temperature soldering: 260 °C/10 seconds at terminals
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard
- AEC-Q101 qualified

### Mechanical Data

- Case: SMA, plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Approx. Weight: 0.0024 ounces, 0.068 grams

**SMA**



## Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER                                                                 | SYMBOL                            | LIMIT       | UNITS |
|---------------------------------------------------------------------------|-----------------------------------|-------------|-------|
| Peak Pulse Power Dissipation on T <sub>L</sub> = 75 °C Derate above 75 °C | P <sub>D</sub> <sup>(1)</sup>     | 1.5         | W     |
| Typical Thermal Resistance                                                | R <sub>θJA</sub> <sup>(2)</sup>   | 150         | °C/W  |
| Operating Junction and Storage Temperature Range                          | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C    |



# 1SMA5914-AU ~ 1SMA5945-AU Series

## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part<br>Number | Nominal Zener Voltage           |           |           |       | Nominal Zener Impedance          |       |                                  |      | Max.<br>Reverse<br>Leakage<br>Current |      | Marking<br>Code |
|----------------|---------------------------------|-----------|-----------|-------|----------------------------------|-------|----------------------------------|------|---------------------------------------|------|-----------------|
|                | 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>        |      |                 |
|                | Nom.<br>V                       | Min.<br>V | Max.<br>V | mA    | Ω                                | mA    | Ω                                | mA   | uA                                    | V    |                 |
| 1SMA5914-AU    | 3.6                             | 3.42      | 3.78      | 104.2 | 9                                | 104.2 | 500                              | 1    | 75                                    | 1    | 914A            |
| 1SMA5915-AU    | 3.9                             | 3.71      | 4.10      | 96.1  | 8                                | 96.1  | 500                              | 1    | 25                                    | 1    | 915A            |
| 1SMA5916-AU    | 4.3                             | 4.09      | 4.52      | 87.2  | 6                                | 87.2  | 500                              | 1    | 5                                     | 1    | 916A            |
| 1SMA5917-AU    | 4.7                             | 4.47      | 4.94      | 79.8  | 5                                | 79.8  | 500                              | 1    | 5                                     | 1.5  | 917A            |
| 1SMA5918-AU    | 5.1                             | 4.85      | 5.36      | 73.5  | 4                                | 73.5  | 350                              | 1    | 5                                     | 2    | 918A            |
| 1SMA5919-AU    | 5.6                             | 5.32      | 5.88      | 66.9  | 2                                | 66.9  | 250                              | 1    | 5                                     | 3    | 919A            |
| 1SMA5920-AU    | 6.2                             | 5.89      | 6.51      | 60.5  | 2                                | 60.5  | 200                              | 1    | 5                                     | 4    | 920A            |
| 1SMA5921-AU    | 6.8                             | 6.46      | 7.14      | 55.1  | 3                                | 55.1  | 200                              | 1    | 5                                     | 5.2  | 921A            |
| 1SMA5922-AU    | 7.5                             | 7.13      | 7.88      | 50    | 3                                | 50    | 400                              | 0.5  | 5                                     | 6    | 922A            |
| 1SMA5923-AU    | 8.2                             | 7.79      | 8.61      | 45.7  | 4                                | 45.7  | 400                              | 0.5  | 5                                     | 6.5  | 923A            |
| 1SMA5924-AU    | 9.1                             | 8.65      | 9.56      | 41.2  | 4                                | 41.2  | 500                              | 0.5  | 5                                     | 7    | 924A            |
| 1SMA5925-AU    | 10                              | 9.5       | 10.5      | 37.5  | 5                                | 37.5  | 500                              | 0.25 | 5                                     | 8    | 925A            |
| 1SMA5926-AU    | 11                              | 10.45     | 11.55     | 34.1  | 6                                | 34.1  | 550                              | 0.25 | 1                                     | 8.4  | 926A            |
| 1SMA5927-AU    | 12                              | 11.4      | 12.6      | 31.2  | 7                                | 31.2  | 550                              | 0.25 | 1                                     | 9.1  | 927A            |
| 1SMA5928-AU    | 13                              | 12.35     | 13.65     | 28.8  | 7                                | 28.8  | 550                              | 0.25 | 1                                     | 9.9  | 928A            |
| 1SMA5929-AU    | 15                              | 14.25     | 15.75     | 25    | 9                                | 25    | 600                              | 0.25 | 1                                     | 11.4 | 929A            |
| 1SMA5930-AU    | 16                              | 15.2      | 16.8      | 23.4  | 10                               | 23.4  | 600                              | 0.25 | 1                                     | 12.2 | 930A            |
| 1SMA5931-AU    | 18                              | 17.1      | 18.9      | 20.8  | 12                               | 20.8  | 650                              | 0.25 | 1                                     | 13.7 | 931A            |
| 1SMA5932-AU    | 20                              | 19        | 21        | 18.7  | 14                               | 18.7  | 650                              | 0.25 | 1                                     | 15.2 | 932A            |
| 1SMA5933-AU    | 22                              | 20.9      | 23.1      | 17    | 18                               | 17    | 650                              | 0.25 | 1                                     | 16.7 | 933A            |
| 1SMA5934-AU    | 24                              | 22.8      | 25.2      | 15.6  | 19                               | 15.6  | 700                              | 0.25 | 1                                     | 18.2 | 934A            |
| 1SMA5935-AU    | 27                              | 25.65     | 28.35     | 13.9  | 23                               | 13.9  | 700                              | 0.25 | 1                                     | 20.6 | 935A            |
| 1SMA5936-AU    | 30                              | 28.5      | 31.5      | 12.5  | 26                               | 12.5  | 750                              | 0.25 | 1                                     | 22.8 | 936A            |
| 1SMA5937-AU    | 33                              | 31.35     | 34.65     | 11.4  | 33                               | 11.4  | 800                              | 0.25 | 1                                     | 25.1 | 937A            |
| 1SMA5938-AU    | 36                              | 34.2      | 37.8      | 10.4  | 38                               | 10.4  | 850                              | 0.25 | 1                                     | 27.4 | 938A            |
| 1SMA5939-AU    | 39                              | 37.05     | 40.95     | 9.6   | 45                               | 9.6   | 900                              | 0.25 | 1                                     | 29.7 | 939A            |
| 1SMA5940-AU    | 43                              | 40.85     | 45.15     | 8.7   | 53                               | 8.7   | 950                              | 0.25 | 1                                     | 32.7 | 940A            |
| 1SMA5941-AU    | 47                              | 44.65     | 49.35     | 8     | 67                               | 8     | 1000                             | 0.25 | 1                                     | 35.8 | 941A            |
| 1SMA5942-AU    | 51                              | 48.45     | 53.55     | 7.3   | 70                               | 7.3   | 1100                             | 0.25 | 1                                     | 38.8 | 942A            |
| 1SMA5943-AU    | 56                              | 53.2      | 58.8      | 6.7   | 86                               | 6.7   | 1300                             | 0.25 | 1                                     | 42.6 | 943A            |



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### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part Number | Nominal Zener Voltage           |        |        |     | Nominal Zener Impedance          |     |                                  |      | Max. Reverse Leakage Current   |      | Marking Code |
|-------------|---------------------------------|--------|--------|-----|----------------------------------|-----|----------------------------------|------|--------------------------------|------|--------------|
|             | 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> |      |              |
|             | Nom. V                          | Min. V | Max. V | mA  | Ω                                | mA  | Ω                                | mA   | uA                             | V    |              |
| 1SMA5944-AU | 62                              | 58.9   | 65.1   | 6   | 100                              | 6   | 1500                             | 0.25 | 1                              | 47.1 | 944A         |
| 1SMA5945-AU | 68                              | 64.6   | 71.4   | 5.5 | 120                              | 5.5 | 1700                             | 0.25 | 1                              | 51.7 | 945A         |

#### NOTES:

1. Mounted on a FR-4 PCB, single-sided copper, with 100cm<sup>2</sup> copper pad area.
2. Mounted on a FR-4 PCB, single-sided copper, mini pad .

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## TYPICAL CHARACTERISTIC CURVES

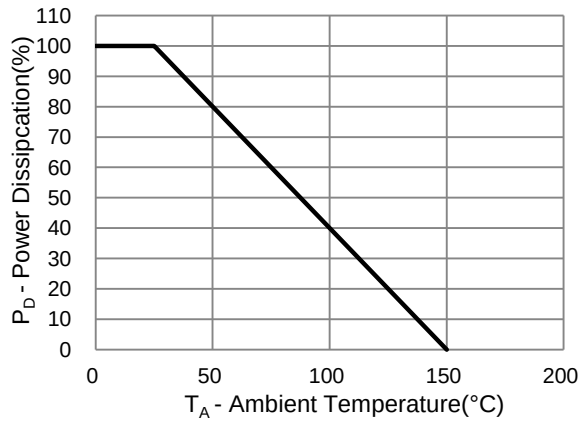


Fig.1 Power Derating Curve

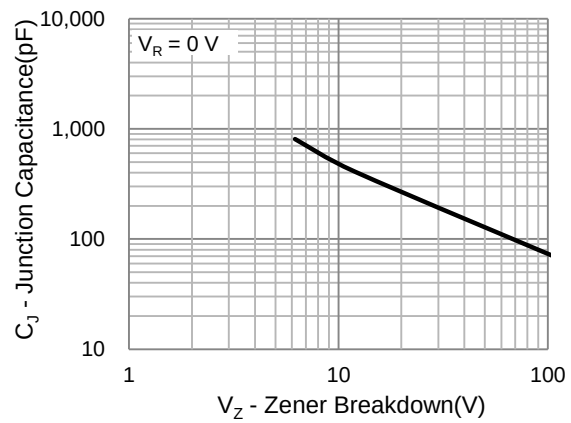


Fig.2 Typical Junction Capacitance

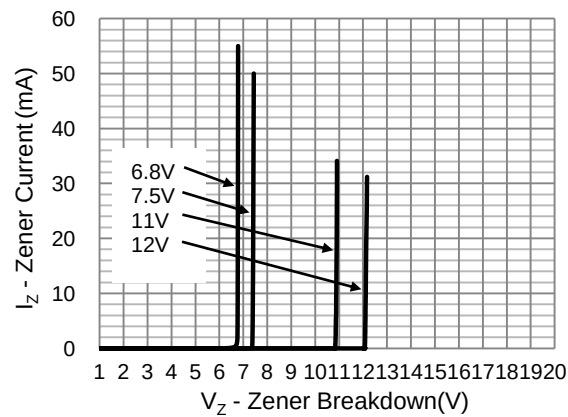


Fig.3 Typical Zener Breakdown

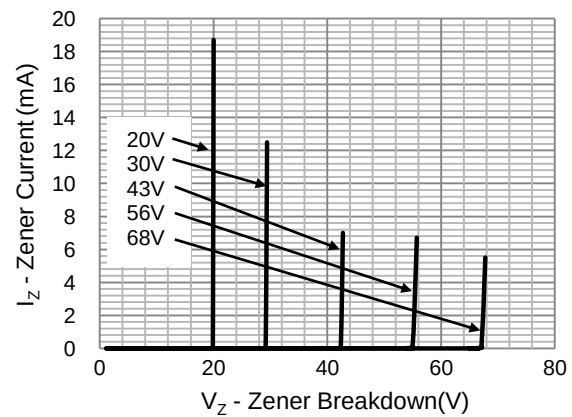


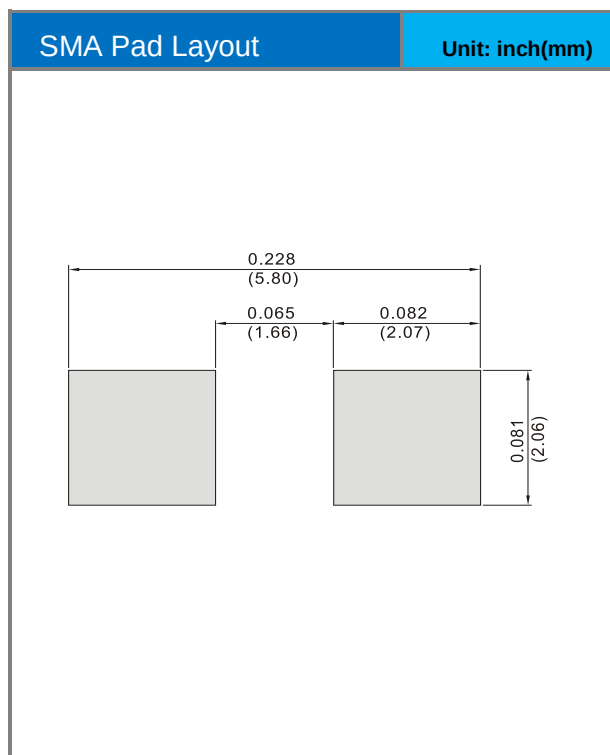
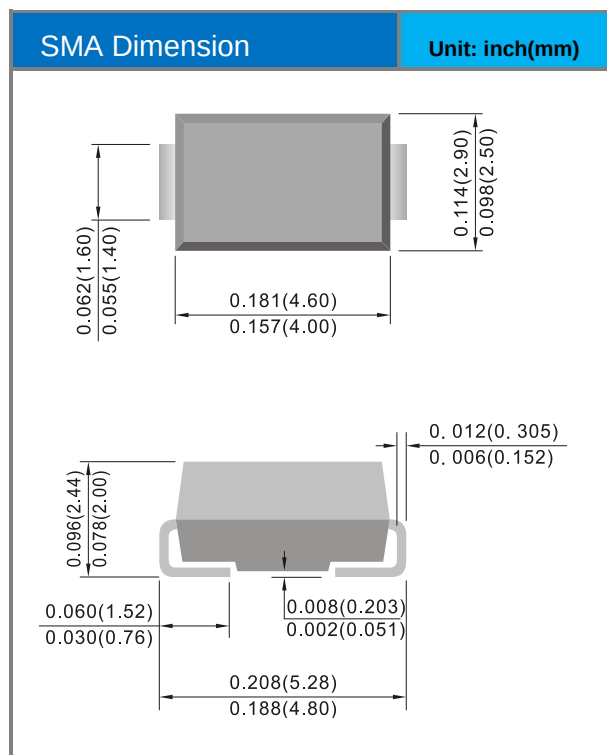
Fig.4 Typical Zener Breakdown

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## Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type        | Marking   | Version      |
|----------------------|--------------|---------------------|-----------|--------------|
| 1SMA59xx-AU_R2_000A1 | SMA          | 7.5K pcs / 13" reel | See Table | Halogen free |

## Packaging Information & Mounting Pad Layout





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