

# 1SMB5913B - 1SMB5956B

# SILICON ZENER DIODES

**V<sub>Z</sub> : 3.3 - 200 Volts**

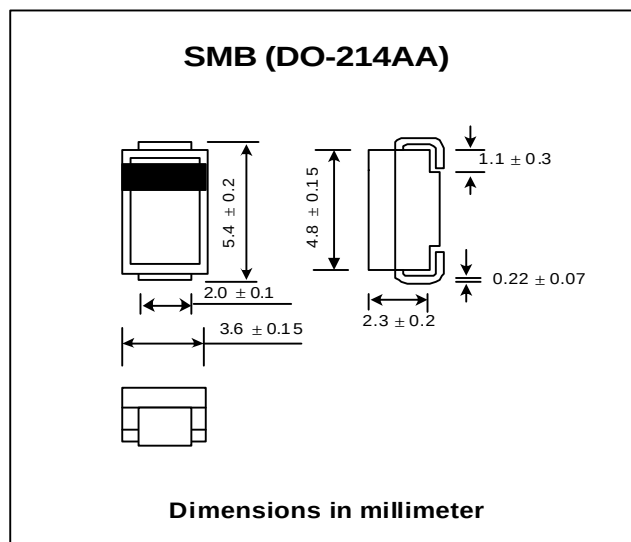
**P<sub>D</sub> : 3.0 Watts**

## FEATURES :

- \* Complete Voltage Range 3.3 to 200 Volts
- \* High peak reverse power dissipation
- \* Flat handling surface for accurate placement
- \* Low leakage current
- \* **Pb / RoHS Free**

## MECHANICAL DATA

- \* Case : SMB (DO-214AA) Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Maximum Lead Temperature for Soldering Purposes :  
260 °C for 10 Seconds
- \* Leads : Modified L-Bend providing more contact area to bond pads.
- \* Polarity : Cathode indicated by polarity band.
- \* Mounting position : Any
- \* Weight : 0.093 gram



## MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified

| Rating                                                                                            | Symbol           | Value         | Unit  |
|---------------------------------------------------------------------------------------------------|------------------|---------------|-------|
| Maximum Steady State Power Dissipation at T <sub>L</sub> = 75 °C,<br>Measured at Zero Lead Length | P <sub>D</sub>   | 3.0           | W     |
| Derate Above 75 °C                                                                                |                  | 40            | mW/°C |
| Thermal Resistance From Junction to Lead                                                          | R <sub>θJL</sub> | 25            | °C/W  |
| Maximum Steady State Power Dissipation at T <sub>a</sub> = 25 °C<br>Measured at Zero Lead Length  | P <sub>D</sub>   | 550           | mW    |
| Derate Above 25 °C                                                                                |                  | 4.4           | mW/°C |
| Thermal Resistance From Junction to Ambient                                                       | R <sub>θJA</sub> | 226           | °C/W  |
| Maximum Forward Voltage at I <sub>F</sub> = 200 mA , T <sub>L</sub> = 30°C                        | V <sub>F</sub>   | 1.5           | Volts |
| Junction Temperature Range                                                                        | T <sub>J</sub>   | - 65 to + 150 | °C    |
| Storage Temperature Range                                                                         | T <sub>stg</sub> | - 65 to + 150 | °C    |

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| TYPE      | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |       | Maximum DC Zener Current |
|-----------|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-------|--------------------------|
|           | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>KT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |       | I <sub>ZM</sub>          |
|           | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V)   | (mA)                     |
| 1SMB5913B | 3.3                              | 113.6           | 10                                | 500                               | 1.0             | 100                             | 1.0   | 454                      |
| 1SMB5914B | 3.6                              | 104.2           | 9.0                               | 500                               | 1.0             | 75                              | 1.0   | 416                      |
| 1SMB5915B | 3.9                              | 96.1            | 7.5                               | 500                               | 1.0             | 25                              | 1.0   | 384                      |
| 1SMB5916B | 4.3                              | 87.2            | 6.0                               | 500                               | 1.0             | 5.0                             | 1.0   | 348                      |
| 1SMB5917B | 4.7                              | 79.8            | 5.0                               | 500                               | 1.0             | 5.0                             | 1.5   | 319                      |
| 1SMB5918B | 5.1                              | 73.5            | 4.0                               | 500                               | 1.0             | 5.0                             | 2.0   | 294                      |
| 1SMB5919B | 5.6                              | 66.9            | 2.0                               | 250                               | 1.0             | 5.0                             | 3.0   | 267                      |
| 1SMB5920B | 6.2                              | 60.5            | 2.0                               | 200                               | 1.0             | 5.0                             | 4.0   | 241                      |
| 1SMB5921B | 6.8                              | 55.1            | 2.5                               | 200                               | 1.0             | 50                              | 5.2   | 220                      |
| 1SMB5922B | 7.5                              | 50.0            | 3.0                               | 400                               | 0.5             | 50                              | 6.0   | 200                      |
| 1SMB5923B | 8.2                              | 45.7            | 3.5                               | 400                               | 0.5             | 50                              | 6.5   | 182                      |
| 1SMB5924B | 9.1                              | 41.2            | 4.0                               | 500                               | 0.5             | 50                              | 7.0   | 164                      |
| 1SMB5925B | 10                               | 37.5            | 4.5                               | 500                               | 0.25            | 50                              | 8.0   | 150                      |
| 1SMB5926B | 11                               | 34.1            | 5.5                               | 550                               | 0.25            | 50                              | 8.4   | 136                      |
| 1SMB5927B | 12                               | 31.2            | 6.5                               | 550                               | 0.25            | 1.0                             | 9.1   | 125                      |
| 1SMB5928B | 13                               | 28.8            | 7.0                               | 550                               | 0.25            | 1.0                             | 9.9   | 115                      |
| 1SMB5929B | 15                               | 25.0            | 9.0                               | 600                               | 0.25            | 1.0                             | 11.4  | 100                      |
| 1SMB5930B | 16                               | 23.4            | 10                                | 600                               | 0.25            | 1.0                             | 12.2  | 93                       |
| 1SMB5931B | 18                               | 20.8            | 12                                | 650                               | 0.25            | 1.0                             | 13.7  | 83                       |
| 1SMB5932B | 20                               | 18.7            | 14                                | 650                               | 0.25            | 1.0                             | 15.2  | 75                       |
| 1SMB5933B | 22                               | 17.0            | 17.5                              | 650                               | 0.25            | 1.0                             | 16.7  | 68                       |
| 1SMB5934B | 24                               | 15.6            | 19                                | 700                               | 0.25            | 1.0                             | 18.2  | 62                       |
| 1SMB5935B | 27                               | 13.9            | 23                                | 700                               | 0.25            | 1.0                             | 20.6  | 55                       |
| 1SMB5936B | 30                               | 12.5            | 26                                | 750                               | 0.25            | 1.0                             | 22.8  | 50                       |
| 1SMB5937B | 33                               | 11.4            | 33                                | 800                               | 0.25            | 1.0                             | 25.1  | 45                       |
| 1SMB5938B | 36                               | 10.4            | 38                                | 850                               | 0.25            | 1.0                             | 27.4  | 41                       |
| 1SMB5939B | 39                               | 9.6             | 45                                | 900                               | 0.25            | 1.0                             | 29.7  | 38                       |
| 1SMB5940B | 43                               | 8.7             | 53                                | 950                               | 0.25            | 1.0                             | 32.7  | 34                       |
| 1SMB5941B | 47                               | 8.0             | 67                                | 1000                              | 0.25            | 1.0                             | 35.8  | 31                       |
| 1SMB5942B | 51                               | 7.3             | 70                                | 1100                              | 0.25            | 1.0                             | 38.8  | 29                       |
| 1SMB5943B | 56                               | 6.7             | 86                                | 1300                              | 0.25            | 1.0                             | 42.6  | 26                       |
| 1SMB5944B | 62                               | 6.0             | 100                               | 1500                              | 0.25            | 1.0                             | 47.1  | 24                       |
| 1SMB5945B | 68                               | 5.5             | 120                               | 1700                              | 0.25            | 1.0                             | 51.7  | 22                       |
| 1SMB5946B | 75                               | 5.0             | 140                               | 2000                              | 0.25            | 1.0                             | 56.0  | 20                       |
| 1SMB5947B | 82                               | 4.6             | 160                               | 2500                              | 0.25            | 1.0                             | 62.2  | 18                       |
| 1SMB5948B | 91                               | 4.1             | 200                               | 3000                              | 0.25            | 1.0                             | 69.2  | 16                       |
| 1SMB5949B | 100                              | 3.7             | 250                               | 3100                              | 0.25            | 1.0                             | 76.0  | 15                       |
| 1SMB5950B | 110                              | 3.4             | 300                               | 4000                              | 0.25            | 1.0                             | 83.6  | 13                       |
| 1SMB5951B | 120                              | 3.1             | 380                               | 4500                              | 0.25            | 1.0                             | 91.2  | 12                       |
| 1SMB5952B | 130                              | 2.9             | 450                               | 5000                              | 0.25            | 1.0                             | 98.8  | 11                       |
| 1SMB5953B | 150                              | 2.5             | 600                               | 6000                              | 0.25            | 1.0                             | 114.0 | 10                       |
| 1SMB5954B | 160                              | 2.3             | 700                               | 6500                              | 0.25            | 1.0                             | 121.6 | 9.0                      |
| 1SMB5955B | 180                              | 2.1             | 900                               | 7000                              | 0.25            | 1.0                             | 136.8 | 8.0                      |
| 1SMB5956B | 200                              | 1.9             | 1200                              | 8000                              | 0.25            | 1.0                             | 152.0 | 7.0                      |

Note :

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