

# 3SMAJ5913B THRU 3SMAJ5956B

## 3.0 Watt Surface Mount Silicon Zener Diodes

### Features

- 3.3thru 200 Volt Voltage Range
- Low Inductance, Low Profile Mounting
- Glass Passivated Junction
- High specified maximum current(I<sub>ZM</sub>)when adequately heat sinking
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Halogen free available upon request by adding suffix "-HF"
- Surface Mount Application

### Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals solderable per MIL-STD-750, Method 2026
- Polarity is indicated by cathode band.
- Packaging: Standard 12mm Tape (see EIA 481)
- Maximum temperature for soldering: 260 °C for 10 seconds.

### Maximum Ratings @ 25°C Unless Otherwise Specified

|                                     |                                   |                 |           |
|-------------------------------------|-----------------------------------|-----------------|-----------|
| Maximum Forward Voltage             | V <sub>F</sub>                    | 1.5V            | (Note: 2) |
| Steady State Power Dissipation      | P <sub>d</sub>                    | 3.0W            | (Note: 3) |
| Operation and Storage Temperature   | T <sub>J</sub> , T <sub>STG</sub> | -55°C to +150°C |           |
| Thermal Resistance Junction to Lead | R <sub>thJL</sub>                 | 25°C/W          |           |

- Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.  
 2. Forward Current @ 200mA.  
 3. Mounted on 5.0mm<sup>2</sup> (1oz thick) land areas.  
 Lead temperature at T<sub>L</sub>=75°C

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

| 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**

### 3SMAJ5913B thru 3SMAJ5956B

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ELECTRICAL CHARACTERISTICS ( $T_L=30C$  unless otherwise noted) ( $V_F=1.5$ Volts Max @  $I_F=200$ mA for all types.)

| MCC PART NUMBER | ZENER VOLTAGE $V_Z (1)$ | TEST CURRENT $I_{ZT}$ | MAXIMUM DYNAMIC IMPEDANCE $Z_{ZT} @ I_{ZT}$ | KNEE CURRENT $I_{ZK}$ | KNEE IMPEDANCE $Z_{ZK}$ | MAXIMUM REVERSE CURRENT $I_R$ | REVERSE VOLTAGE $V_R$ | Maximum DC Zener Current $I_{ZM}$ | DEVICE MARKING |
|-----------------|-------------------------|-----------------------|---|-----------------------|-------------------------|-------------------------------|-----------------------|-----------------------------------|----------------|
|                 | VOLTS                   | mA                    | OHMS  | mA                    | OHMS                    | $\mu$ A                       | VOLTS                 | mA                                |                |
| 3SMAJ5913B      | 3.3                     | 113.6                 | 10  | 1                     | 500                     | 100                           | 1                     | 908                               | H13B           |
| 3SMAJ5914B      | 3.6                     | 104.2                 | 9   | 1                     | 500                     | 75                            | 1                     | 832                               | H14B           |
| 3SMAJ5915B      | 3.9                     | 96.1                  | 7.5   | 1                     | 500                     | 25                            | 1                     | 768                               | H15B           |
| 3SMAJ5916B      | 4.3                     | 87.2                  | 6   | 1                     | 500                     | 5                             | 1                     | 696                               | H16B           |
| 3SMAJ5917B      | 4.7                     | 79.8                  | 5   | 1                     | 500                     | 5                             | 1.5                   | 638                               | H17B           |
| 3SMAJ5918B      | 5.1                     | 73.5                  | 4   | 1                     | 350                     | 5                             | 2                     | 588                               | H18B           |
| 3SMAJ5919B      | 5.6                     | 66.9                  | 2   | 1                     | 250                     | 5                             | 3                     | 534                               | H19B           |
| 3SMAJ5920B      | 6.2                     | 60.5                  | 2   | 1                     | 200                     | 5                             | 4                     | 482                               | H20B           |
| 3SMAJ5921B      | 6.8                     | 55.1                  | 2.5   | 1                     | 200                     | 5                             | 5.2                   | 440                               | H21B           |
| 3SMAJ5922B      | 7.5                     | 50                    | 3   | 0.5                   | 400                     | 5                             | 6                     | 400                               | H22B           |
| 3SMAJ5923B      | 8.2                     | 45.7                  | 3.5   | 0.5                   | 400                     | 5                             | 6.5                   | 364                               | H23B           |
| 3SMAJ5924B      | 9.1                     | 41.2                  | 4   | 0.5                   | 500                     | 5                             | 7                     | 328                               | H24B           |
| 3SMAJ5925B      | 10                      | 37.5                  | 4.5   | 0.25                  | 500                     | 5                             | 8                     | 300                               | H25B           |
| 3SMAJ5926B      | 11                      | 34.1                  | 5.5   | 0.25                  | 550                     | 1                             | 8.4                   | 272                               | H26B           |
| 3SMAJ5927B      | 12                      | 31.2                  | 6.5   | 0.25                  | 550                     | 1                             | 9.1                   | 250                               | H27B           |
| 3SMAJ5928B      | 13                      | 28.8                  | 7   | 0.25                  | 550                     | 1                             | 9.9                   | 230                               | H28B           |
| 3SMAJ5929B      | 15                      | 25                    | 9   | 0.25                  | 600                     | 1                             | 11.4                  | 200                               | H29B           |
| 3SMAJ5930B      | 16                      | 23.4                  | 10  | 0.25                  | 600                     | 1                             | 12.2                  | 186                               | H30B           |
| 3SMAJ5931B      | 18                      | 20.8                  | 12  | 0.25                  | 650                     | 1                             | 13.7                  | 166                               | H31B           |
| 3SMAJ5932B      | 20                      | 18.7                  | 14  | 0.25                  | 650                     | 1                             | 15.2                  | 150                               | H32B           |
| 3SMAJ5933B      | 22                      | 17                    | 17.5  | 0.25                  | 650                     | 1                             | 16.7                  | 136                               | H33B           |
| 3SMAJ5934B      | 24                      | 15.6                  | 19  | 0.25                  | 700                     | 1                             | 18.2                  | 124                               | H34B           |
| 3SMAJ5935B      | 27                      | 13.9                  | 23  | 0.25                  | 700                     | 1                             | 20.6                  | 110                               | H35B           |
| 3SMAJ5936B      | 30                      | 12.5                  | 28  | 0.25                  | 750                     | 1                             | 22.8                  | 100                               | H36B           |
| 3SMAJ5937B      | 33                      | 11.4                  | 33  | 0.25                  | 800                     | 1                             | 25.1                  | 90                                | H37B           |
| 3SMAJ5938B      | 36                      | 10.4                  | 38  | 0.25                  | 850                     | 1                             | 27.4                  | 82                                | H38B           |
| 3SMAJ5939B      | 39                      | 9.6                   | 45  | 0.25                  | 900                     | 1                             | 29.7                  | 76                                | H39B           |
| 3SMAJ5940B      | 43                      | 8.7                   | 53  | 0.25                  | 950                     | 1                             | 32.7                  | 68                                | H40B           |
| 3SMAJ5941B      | 47                      | 8                     | 67  | 0.25                  | 1000                    | 1                             | 35.8                  | 62                                | H41B           |
| 3SMAJ5942B      | 51                      | 7.3                   | 70  | 0.25                  | 1100                    | 1                             | 38.8                  | 58                                | H42B           |
| 3SMAJ5943B      | 56                      | 6.7                   | 86  | 0.25                  | 1300                    | 1                             | 42.6                  | 52                                | H43B           |
| 3SMAJ5944B      | 62                      | 6                     | 100   | 0.25                  | 1500                    | 1                             | 47.1                  | 48                                | H44B           |
| 3SMAJ5945B      | 68                      | 5.5                   | 120   | 0.25                  | 1700                    | 1                             | 51.7                  | 44                                | H45B           |
| 3SMAJ5946B      | 75                      | 5                     | 140   | 0.25                  | 2000                    | 1                             | 56                    | 40                                | H46B           |
| 3SMAJ5947B      | 82                      | 4.6                   | 160   | 0.25                  | 2500                    | 1                             | 62.2                  | 36                                | H47B           |
| 3SMAJ5948B      | 91                      | 4.1                   | 200   | 0.25                  | 3000                    | 1                             | 69.2                  | 32                                | H48B           |
| 3SMAJ5949B      | 100                     | 3.7                   | 250   | 0.25                  | 3100                    | 1                             | 76                    | 30                                | H49B           |
| 3SMAJ5950B      | 110                     | 3.4                   | 300   | 0.25                  | 4000                    | 1                             | 83.6                  | 26                                | H50B           |
| 3SMAJ5951B      | 120                     | 3.1                   | 380   | 0.25                  | 4500                    | 1                             | 91.2                  | 24                                | H51B           |
| 3SMAJ5952B      | 130                     | 2.9                   | 450   | 0.25                  | 5000                    | 1                             | 98.8                  | 22                                | H52B           |
| 3SMAJ5953B      | 150                     | 2.5                   | 600   | 0.25                  | 6000                    | 1                             | 114                   | 20                                | H53B           |
| 3SMAJ5954B      | 160                     | 2.3                   | 700   | 0.25                  | 6500                    | 1                             | 121.6                 | 18                                | H54B           |
| 3SMAJ5955B      | 180                     | 2.1                   | 900   | 0.25                  | 7000                    | 1                             | 136.8                 | 16                                | H55B           |
| 3SMAJ5956B      | 200                     | 1.9                   | 1200  | 0.25                  | 8000                    | 1                             | 152                   | 14                                | H56B           |

Note 1: TOLERANCE AND VOLTAGE DESIGNATION - The type numbers listed indicate a tolerance of +/- 5%.

RATING AND CHARACTERISTICS CURVES  
**3SMAJ5913B thru 3SMAJ5956B**

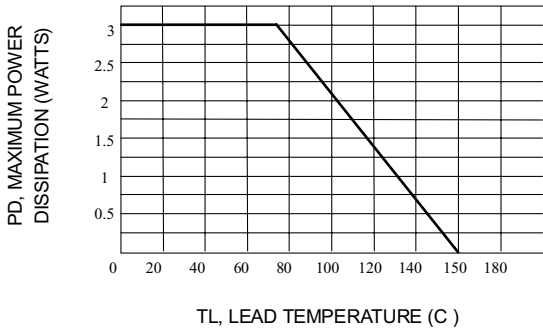


Fig. 1-STEADY STATE POWER DERATING

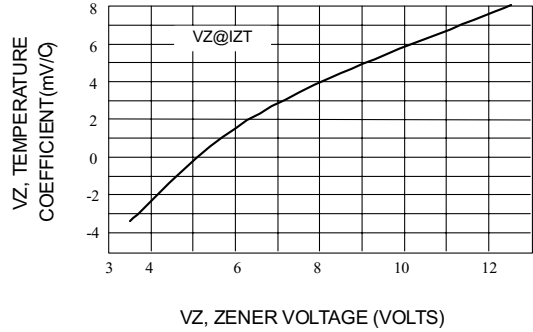


Fig. 2-ZENER VOLTAGE- 3 TO 12 VOLTS



Fig. 3-ZENER VOLTAGE-10 TO 200 VOLTS

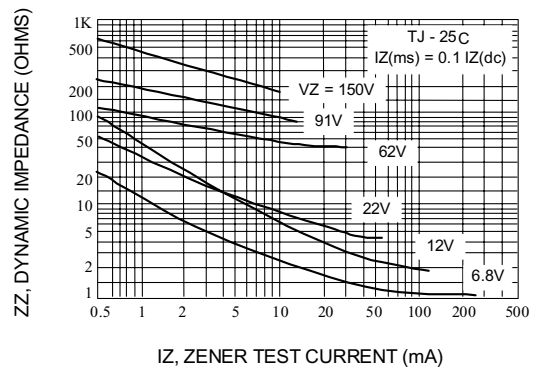


Fig. 4-EFFECT OF ZENER CURRENT

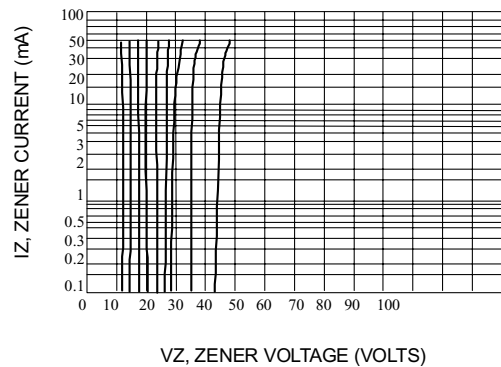
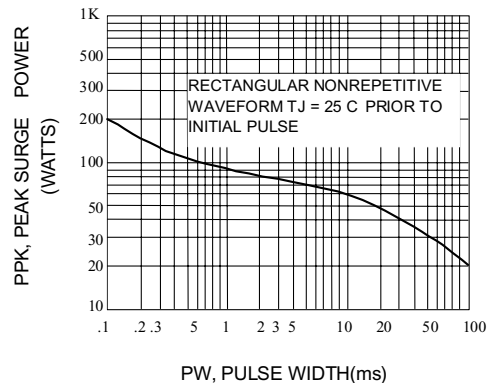
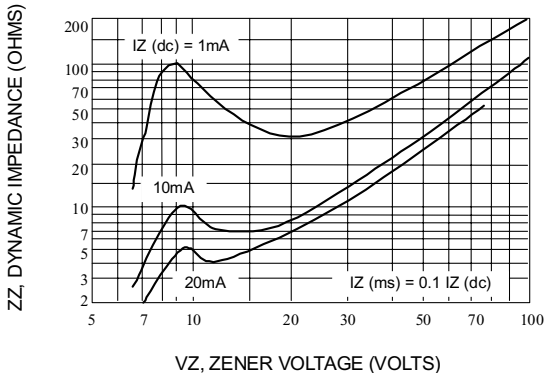


Fig. 7-VZ = 12 THRU 40 VOLTS



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### Ordering Information :

| Device         | Packing                 |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 7.5Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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