



# 1SMB3EZ5.6~1SMB3EZ51

## GLASS PASSIVATED JUNCTION SILICON ZENER DIODES

**VOLTAGE**

**5.6 to 51 Volt**

**POWER**

**3 Watt**

**SMB / DO-214AA**

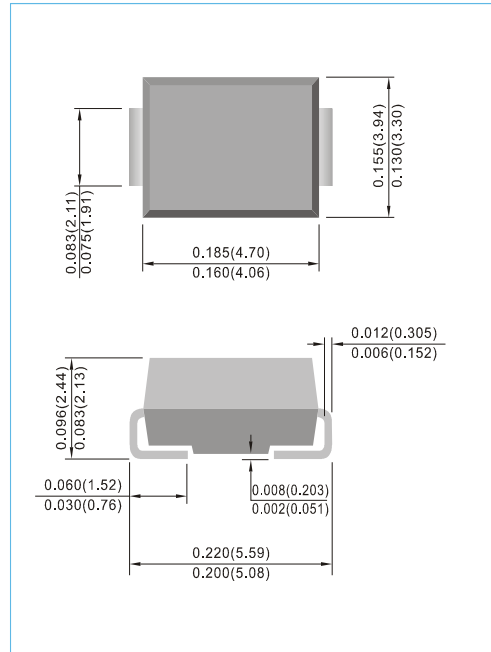
Unit : inch(mm)

### FEATURES

- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- 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

### MECHANICAL DATA

- Case: JEDEC DO-214AA, Molded plastic over passivated junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard packing: 12mm tape (E1A-481)
- Weight: 0.0032 ounce, 0.092 gram



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter   | Symbol         | Value        | Units            |
|---|----------------|--------------|------------------|
| Steady State Power Dissipation at $T_L=75\text{ }^\circ\text{C}$ (Note 1)         | $P_D$          | 3            | W                |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 15           | A                |
| Operating Junction and Storage Temperature Range                                  | $T_J, T_{STG}$ | -55 to + 150 | $^\circ\text{C}$ |

NOTE :

1. Mounted on infinite heatsink.

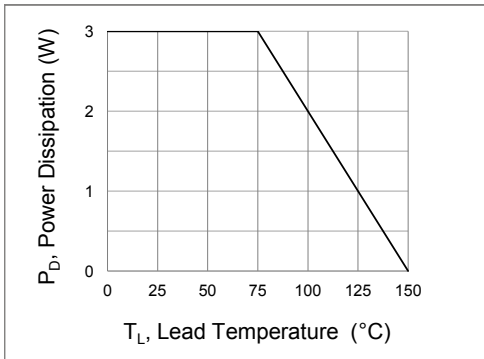


## 1SMB3EZ5.6~1SMB3EZ51

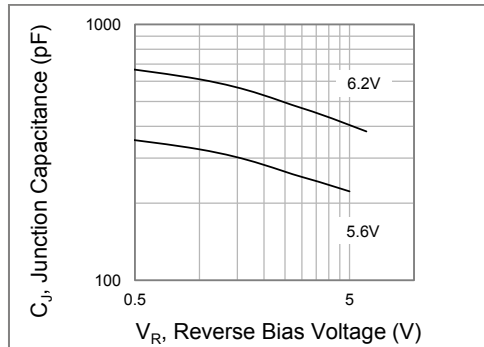
| Part Number | Nominal Zener Voltage |        |        | Maximum Zener Impedance |     |      |      | Max Reverse Leakage Current |      | Marking Code |
|-------------|-----------------------|--------|--------|-------------------------|-----|------|------|-----------------------------|------|--------------|
|             | Vz @ IzT              |        |        | ZzT                     | IzT | ZzK  | IzK  | IR @ VR                     |      |              |
|             | Nom. V                | Min. V | Max. V | Ω                       | mA  | Ω    | mA   | μA                          | V    |              |
| 1SMB3EZ5.6  | 5.6                   | 5.32   | 5.88   | 2                       | 134 | 700  | 1    | 5                           | 3    | 5V6B         |
| 1SMB3EZ6.2  | 6.2                   | 5.89   | 6.51   | 2                       | 120 | 700  | 1    | 5                           | 4    | 6V2B         |
| 1SMB3EZ6.8  | 6.8                   | 6.46   | 7.14   | 2                       | 110 | 700  | 1    | 5                           | 4    | 6V8B         |
| 1SMB3EZ7.5  | 7.5                   | 7.13   | 7.88   | 2                       | 100 | 700  | 0.5  | 5                           | 5    | 7V5B         |
| 1SMB3EZ8.2  | 8.2                   | 7.79   | 8.61   | 2                       | 91  | 700  | 0.5  | 5                           | 6    | 8V2B         |
| 1SMB3EZ8.7  | 8.7                   | 8.27   | 9.14   | 2                       | 85  | 700  | 0.5  | 4                           | 6.6  | 8V7B         |
| 1SMB3EZ9.1  | 9.1                   | 8.65   | 9.56   | 3                       | 82  | 700  | 0.5  | 3                           | 7    | 9V1B         |
| 1SMB3EZ10   | 10                    | 9.5    | 10.5   | 4                       | 75  | 700  | 0.25 | 3                           | 7.6  | 10B          |
| 1SMB3EZ11   | 11                    | 10.45  | 11.55  | 4                       | 68  | 700  | 0.25 | 1                           | 8.4  | 11B          |
| 1SMB3EZ12   | 12                    | 11.4   | 12.6   | 5                       | 63  | 700  | 0.25 | 1                           | 9.1  | 12B          |
| 1SMB3EZ13   | 13                    | 12.35  | 13.65  | 5                       | 58  | 700  | 0.25 | 0.5                         | 9.9  | 13B          |
| 1SMB3EZ14   | 14                    | 13.3   | 14.7   | 5                       | 53  | 700  | 0.25 | 0.5                         | 10.6 | 14B          |
| 1SMB3EZ15   | 15                    | 14.25  | 15.75  | 6                       | 50  | 700  | 0.25 | 0.5                         | 11.4 | 15B          |
| 1SMB3EZ16   | 16                    | 15.2   | 16.8   | 6                       | 47  | 700  | 0.25 | 0.5                         | 12.2 | 16B          |
| 1SMB3EZ17   | 17                    | 16.15  | 17.85  | 6                       | 44  | 750  | 0.25 | 0.5                         | 13   | 17B          |
| 1SMB3EZ18   | 18                    | 17.1   | 18.9   | 6                       | 42  | 750  | 0.25 | 0.5                         | 13.7 | 18B          |
| 1SMB3EZ19   | 19                    | 18.05  | 19.95  | 7                       | 40  | 750  | 0.25 | 0.5                         | 14.4 | 19B          |
| 1SMB3EZ20   | 20                    | 19     | 21     | 7                       | 37  | 750  | 0.25 | 0.5                         | 15.2 | 20B          |
| 1SMB3EZ22   | 22                    | 20.9   | 23.1   | 8                       | 34  | 750  | 0.25 | 0.5                         | 16.7 | 22B          |
| 1SMB3EZ24   | 24                    | 22.8   | 25.2   | 9                       | 31  | 750  | 0.25 | 0.5                         | 18.2 | 24B          |
| 1SMB3EZ25   | 25                    | 23.75  | 26.25  | 10                      | 30  | 750  | 0.25 | 0.5                         | 19   | 25B          |
| 1SMB3EZ27   | 27                    | 25.65  | 28.35  | 10                      | 28  | 750  | 0.25 | 0.5                         | 20.6 | 27B          |
| 1SMB3EZ28   | 28                    | 26.6   | 29.4   | 12                      | 27  | 750  | 0.25 | 0.5                         | 21.3 | 28B          |
| 1SMB3EZ30   | 30                    | 28.5   | 31.5   | 16                      | 25  | 1000 | 0.25 | 0.5                         | 22.5 | 30B          |
| 1SMB3EZ33   | 33                    | 31.35  | 34.65  | 20                      | 23  | 1000 | 0.25 | 0.5                         | 25.1 | 33B          |
| 1SMB3EZ36   | 36                    | 34.2   | 37.8   | 22                      | 21  | 1000 | 0.25 | 0.5                         | 27.4 | 36B          |
| 1SMB3EZ39   | 39                    | 37.05  | 40.95  | 28                      | 19  | 1000 | 0.25 | 0.5                         | 29.7 | 39B          |
| 1SMB3EZ43   | 43                    | 40.85  | 45.15  | 33                      | 17  | 1500 | 0.25 | 0.5                         | 32.7 | 43B          |
| 1SMB3EZ47   | 47                    | 44.65  | 49.35  | 38                      | 16  | 1500 | 0.25 | 0.5                         | 35.8 | 47B          |
| 1SMB3EZ51   | 51                    | 48.45  | 53.55  | 45                      | 15  | 1500 | 0.25 | 0.5                         | 38.8 | 51B          |



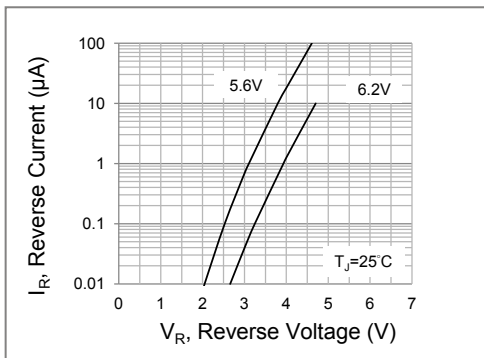
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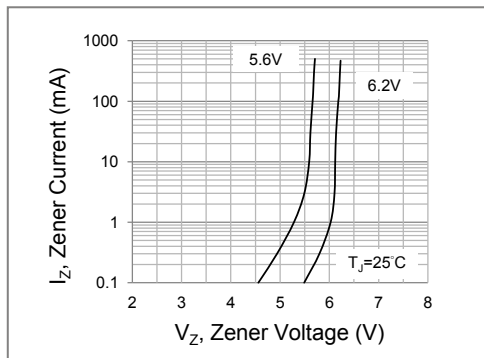
**Fig.1 Steady-State Power Derating Curve**



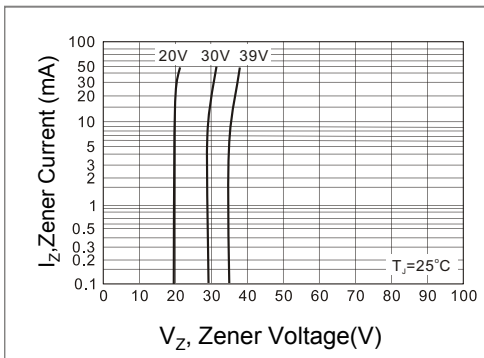
**Fig.2 Typical Junction Capacitance**



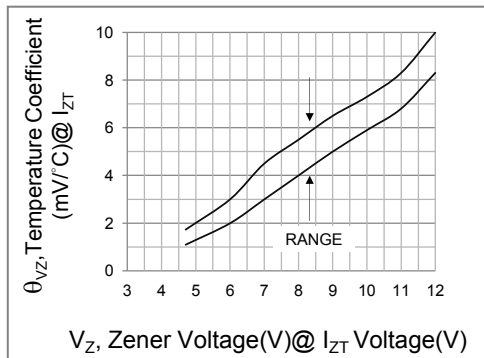
**Fig.3 Typical Leakage Characteristics**



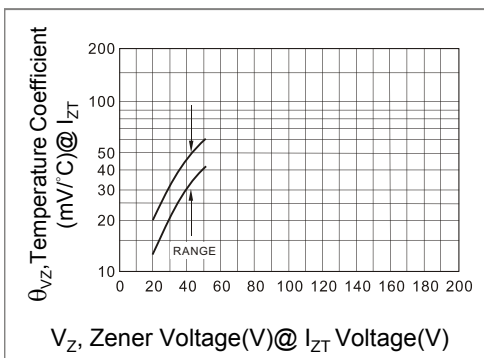
**Fig.4 Typical Zener Characteristics**



**Fig.5 Typical Zener Characteristics**



**Fig.6 Units 5.6 To 12 Volts**



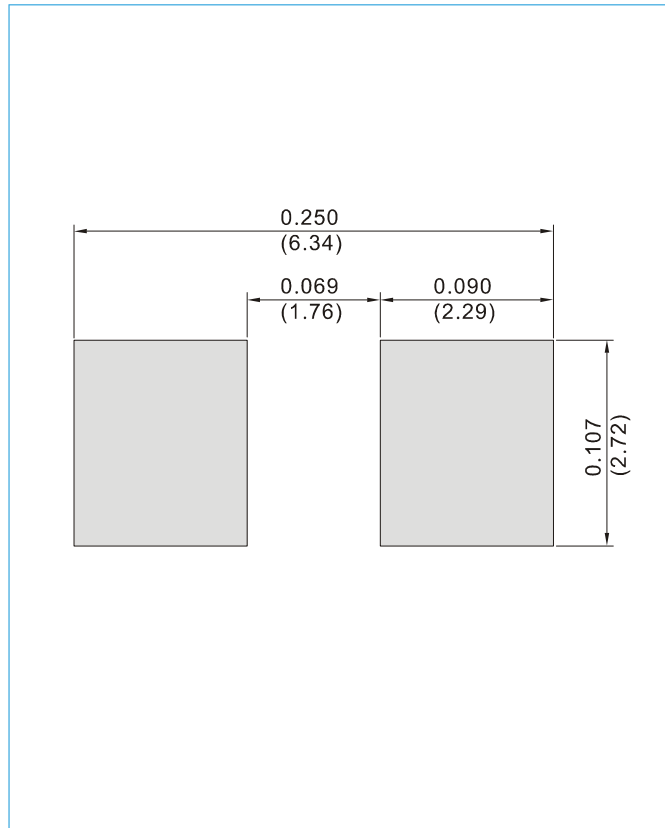
**Fig.7 Units 10 To 51 Volts**



# 1SMB3EZ5.6~1SMB3EZ51

## MOUNTING PAD LAYOUT

**SMB / DO-214AA** Unit : inch(mm)



## ORDER INFORMATION

- Packing information
  - T/R - 3K per 13" plastic Reel
  - T/R - 0.8K per 7" plastic Reel



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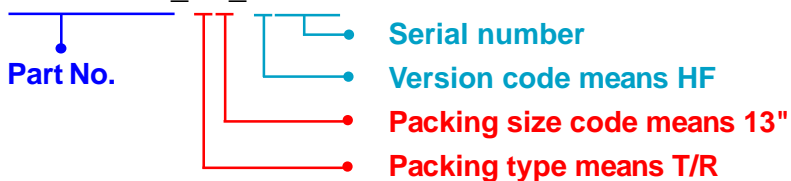
### Part No\_packing code\_Version

1SMB3EZ5.6\_R1\_00001

1SMB3EZ5.6\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |



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