

# Zener Diode 500mW

## 1N5221B - 1N5281B



### Features:

- High reliability
- Very sharp reverse characteristic
- Low reverse current level
- $V_Z$ -tolerance  $\pm 5\%$

### Applications:

Voltage stabilization

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### Absolute Maximum Ratings $T_j = 25^\circ\text{C}$

| Parameter                 | Test Conditions                        | Symbol           | Value       | Unit             |
|---------------------------|----------------------------------------|------------------|-------------|------------------|
| Power Dissipation         | $T_{\text{amb}} \leq 75^\circ\text{C}$ | $P_V$            | 500         | mW               |
| Z-Current                 | -                                      | $I_Z$            | $P_V / V_Z$ | mA               |
| Junction Temperature      | -                                      | $T_j$            | 200         | $^\circ\text{C}$ |
| Storage Temperature Range | -                                      | $T_{\text{stg}}$ | -65 to +200 |                  |

### Maximum Thermal Resistance $T_j = 25^\circ\text{C}$

| Parameter        | Test Conditions                                           | Symbol            | Value | Unit |
|------------------|-----------------------------------------------------------|-------------------|-------|------|
| Junction Ambient | $l = 9.5 \text{ mm (3/8 Inches)}$ $T_L = \text{Constant}$ | $R_{\text{thJA}}$ | 300   | K/W  |

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

### Electrical Characteristics $T_j = 25^\circ\text{C}$

| Parameter       | Test Conditions        | Symbol | Maximum | Unit |
|-----------------|------------------------|--------|---------|------|
| Forward Voltage | $I_F = 200 \text{ mA}$ | $V_F$  | 1.1     | V    |

### Specification Table

| Description                     | V <sub>Znom</sub> <sup>1)</sup> | I <sub>ZT</sub> | for  | r <sub>zIT</sub> | r <sub>ziK</sub> | at   | I <sub>ZK</sub> | I <sub>R</sub> | at       | V <sub>R</sub> | TK <sub>VZ</sub> | Part Number |
|---------------------------------|---------------------------------|-----------------|------|------------------|------------------|------|-----------------|----------------|----------|----------------|------------------|-------------|
|                                 | V                               | mA              |      | Ω                | Ω                |      | mA              | μA             |          | V              | %/K              |             |
| Diode, Zener, 0.5W, 6V, DO-35   | 6                               | 20              |      | < 7              | < 1,600          | 0.25 |                 | < 5            | 3.5      | < +0.038       |                  | 1N5233B     |
| Diode, Zener, 0.5W, 8.7V, DO-35 | 8.7                             |                 |      | < 8              |                  |      |                 | < 3            | 6.5      | < +0.065       |                  | 1N5238B     |
| Diode, Zener, 0.5W, 14V, DO-35  | 14                              | 9               | < 15 | < 600            | < 0.1            |      |                 | 10             | < +0.082 |                | 1N5244B          |             |
| Diode, Zener, 0.5W, 17V, DO-35  | 17                              | 7.4             | < 19 |                  |                  |      |                 |                | 13       | < +0.084       |                  | 1N5247B     |

<sup>1)</sup> Based on DC-measurement at thermal equilibrium while maintaining the lead temperature ( $T_L$ ) at  $30^\circ\text{C}$ , 9.5 mm (3/8 inches) from the diode body

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Characteristics ( $T_j = 25^\circ\text{C}$  Unless Otherwise Specified)

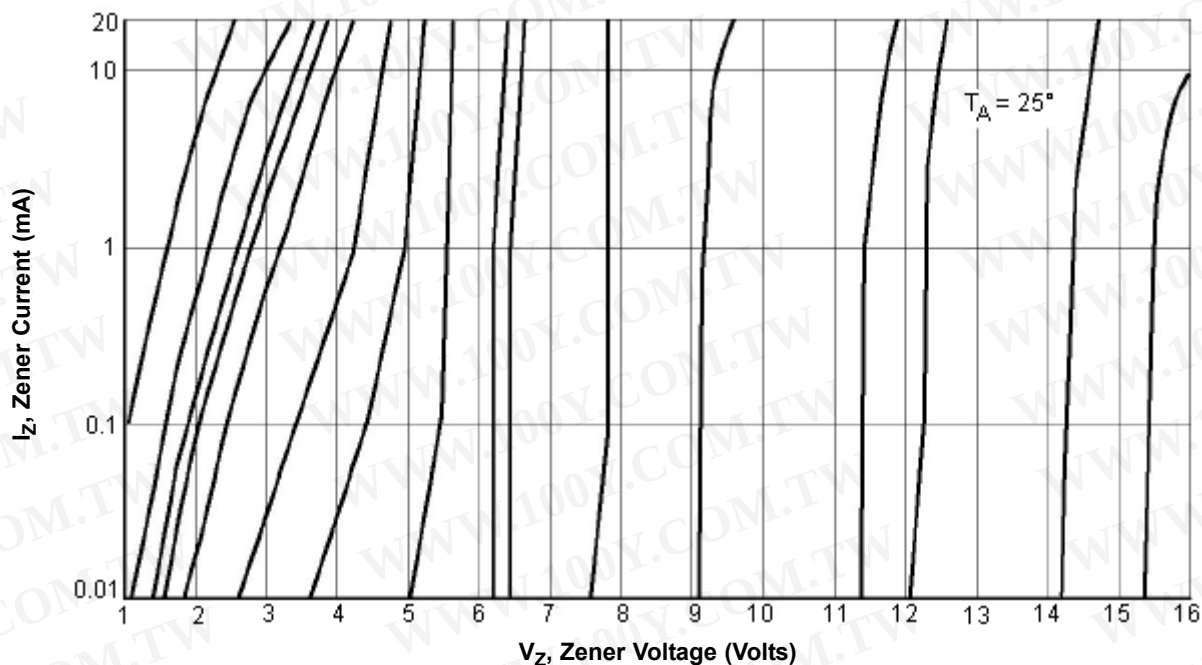


Figure 1. Zener Voltage Versus Zener Current -  $V_Z = 1$  thru 16 Volts

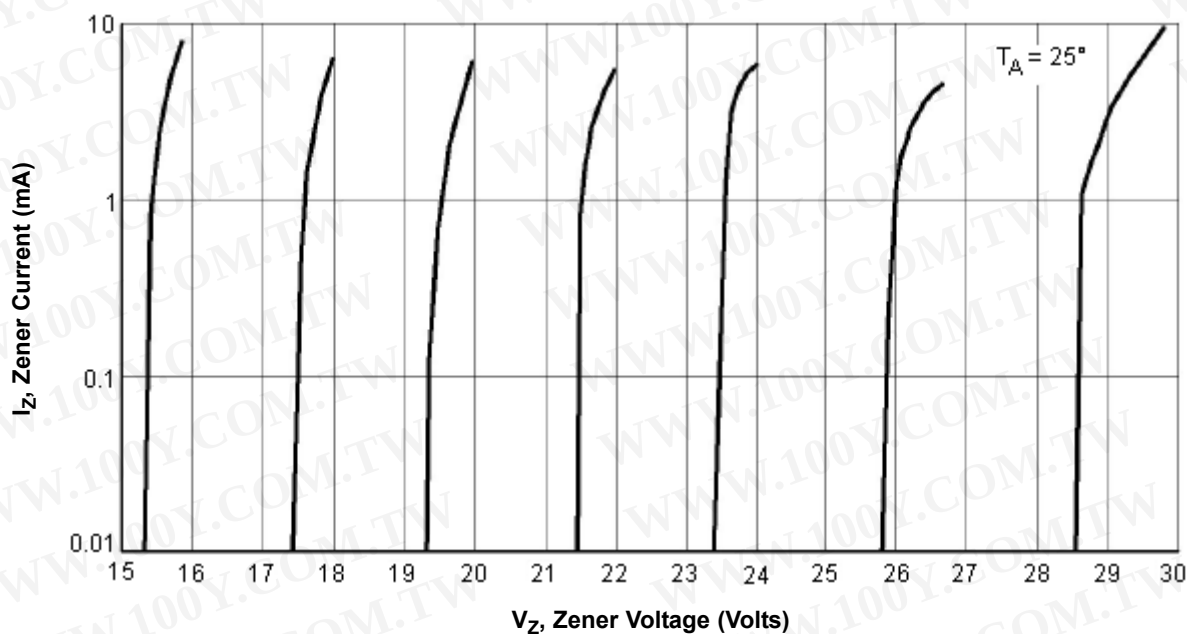


Figure 2. Zener Voltage Versus Zener Current -  $V_Z = 15$  thru 30 Volts

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Characteristics ( $T_j = 25^\circ\text{C}$  Unless Otherwise Specified)

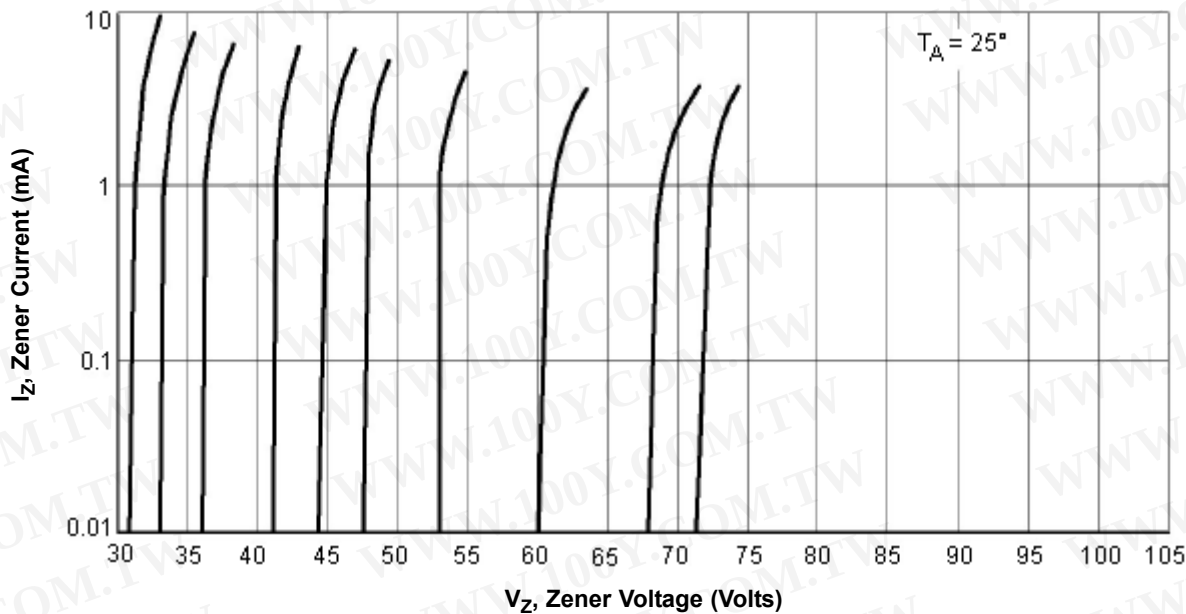


Figure 3. Zener Voltage Versus Zener Current -  $V_Z = 30$  thru 75 Volts

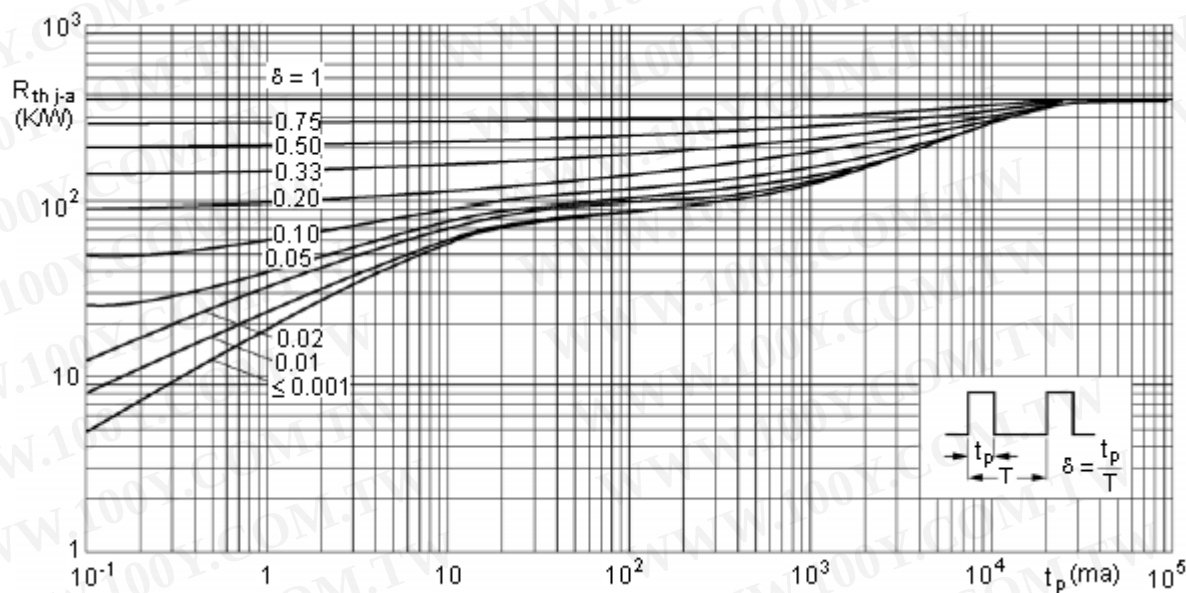


Figure 4. Thermal Resistance from Junction to Ambient as a Function of Pulse Duration

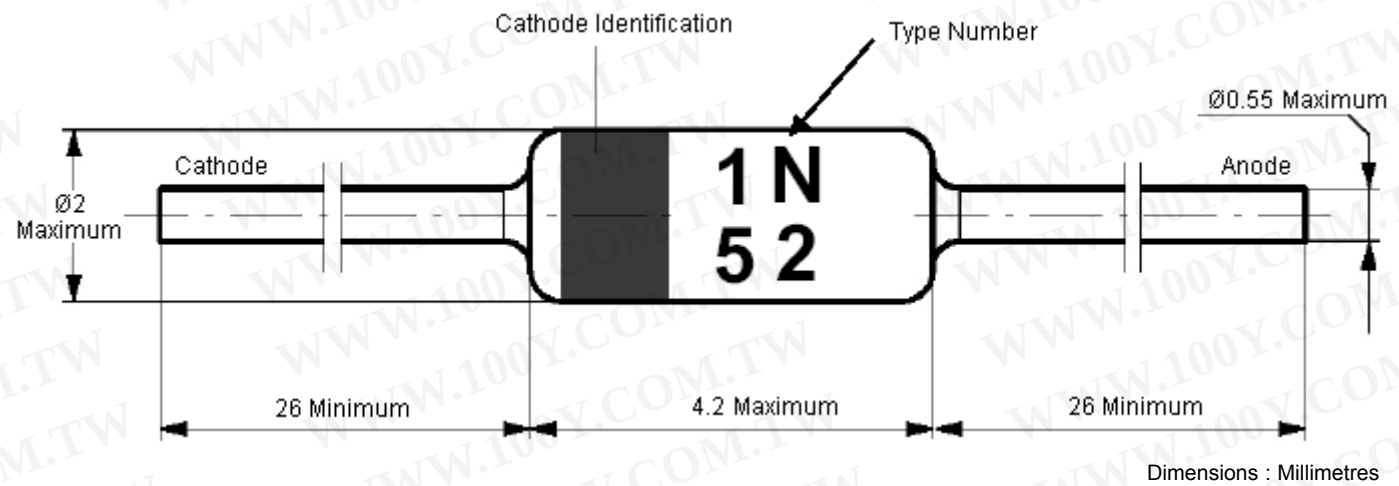
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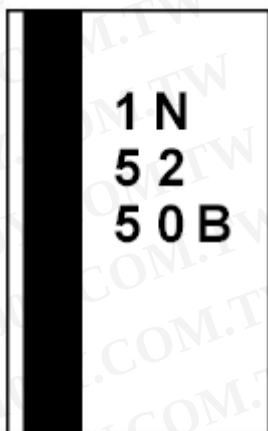
## 1N5221B - 1N5281B

### Dimensions in mm



Standard Glass case  
JEDEC DO-35

### Marking



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