

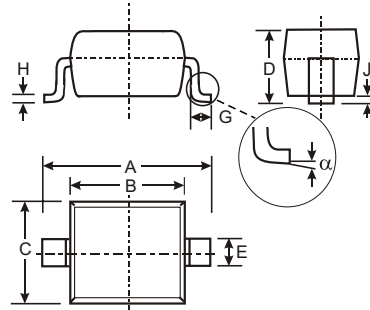
**UNDER DEVELOPMENT**

**Features**

- Ultra-Small Surface Mount Package
- Ideally suited for Automated Assembly Processes
- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on Zener Breakdown Voltage

**Mechanical Data**

- Case: SOD-323, Plastic
- Case Material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: Marking Code (See Table on Page 2)
- Weight: 0.004 grams (approx.)
- Ordering Information, See Below



| SOD-323              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 2.30         | 2.70 |
| B                    | 1.60         | 1.80 |
| C                    | 1.20         | 1.40 |
| D                    | 1.05 Typical |      |
| E                    | 0.25         | 0.35 |
| G                    | 0.20         | 0.40 |
| H                    | 0.10         | 0.15 |
| J                    | 0.05 Typical |      |
| α                    | 0°           | 8°   |
| All Dimensions in mm |              |      |

**Maximum Ratings** @ T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                       | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 2)                           | P <sub>d</sub>                    | 200         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 2) | R <sub>θJA</sub>                  | 625         | °C/W |
| Operating and Storage Temperature Range              | T <sub>j</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Ordering Information** (Note 1)

| Device           | Packaging | Shipping         |
|------------------|-----------|------------------|
| (Type Number)-7* | SOD-323   | 3000/Tape & Reel |

\* Add "-7" to the appropriate type number in Table 1 from Sheet 2 example: 6.2V Zener = UDZ6V2B-7.

- Notes:
1. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  2. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

**Marking Information**



XX = Product Type Marking Code

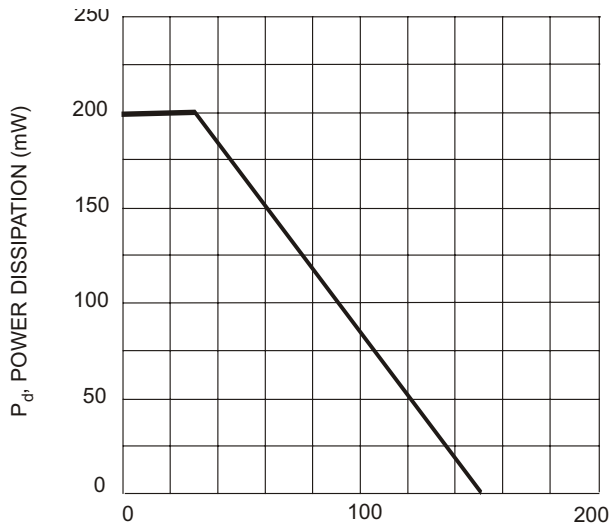
**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range (Note 3) |         |          | Maximum Zener Impedance (Note 4) |                     |          | Maximum Reverse Current (Note 3) |       |
|-------------|--------------|------------------------------|---------|----------|----------------------------------|---------------------|----------|----------------------------------|-------|
|             |              | $V_{ZT}$ @ $I_{ZT}$          |         | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$              | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$                            | $V_R$ |
|             |              | Min (V)                      | Max (V) | mA       | $\Omega$                         |                     | mA       | $\mu\text{A}$                    | V     |
| UDZ2V0B     | B1           | 2.020                        | 2.200   | 5        | 100                              | 1000                | 0.5      | 120                              | 0.5   |
| UDZ2V2B     | B2           | 2.220                        | 2.410   | 5        | 100                              | 1000                | 0.5      | 120                              | 0.7   |
| UDZ2V4B     | B3           | 2.430                        | 2.630   | 5        | 100                              | 1000                | 0.5      | 120                              | 1.0   |
| UDZ2V7B     | B4           | 2.690                        | 2.910   | 5        | 110                              | 1000                | 0.5      | 100                              | 1.0   |
| UDZ3V0B     | B5           | 3.010                        | 3.220   | 5        | 120                              | 1000                | 0.5      | 50                               | 1.0   |
| UDZ3V3B     | B6           | 3.320                        | 3.530   | 5        | 120                              | 1000                | 0.5      | 20                               | 1.0   |
| UDZ3V6B     | B7           | 3.600                        | 3.845   | 5        | 100                              | 1000                | 1.0      | 10                               | 1.0   |
| UDZ3V9B     | B8           | 3.890                        | 4.160   | 5        | 100                              | 1000                | 1.0      | 5                                | 1.0   |
| UDZ4V3B     | B9           | 4.170                        | 4.430   | 5        | 100                              | 1000                | 1.0      | 5                                | 1.0   |
| UDZ4V7B     | BA           | 4.550                        | 4.750   | 5        | 100                              | 800                 | 0.5      | 2                                | 1.0   |
| UDZ5V1B     | BB           | 4.980                        | 5.200   | 5        | 80                               | 500                 | 0.5      | 2                                | 1.5   |
| UDZ5V6B     | BC           | 5.490                        | 5.730   | 5        | 60                               | 200                 | 0.5      | 1                                | 2.5   |
| UDZ6V2B     | BD           | 6.060                        | 6.330   | 5        | 60                               | 100                 | 0.5      | 1                                | 3.0   |
| UDZ6V8B     | BE           | 6.650                        | 6.930   | 5        | 40                               | 60                  | 0.5      | 0.5                              | 3.5   |
| UDZ7V5B     | BF           | 7.280                        | 7.600   | 5        | 30                               | 60                  | 0.5      | 0.5                              | 4.0   |
| UDZ8V2B     | BG           | 8.020                        | 8.360   | 5        | 30                               | 60                  | 0.5      | 0.5                              | 5.0   |
| UDZ9V1B     | BH           | 8.850                        | 9.230   | 5        | 30                               | 60                  | 0.5      | 0.5                              | 6.0   |
| UDZ10B      | BI           | 9.770                        | 10.210  | 5        | 30                               | 60                  | 0.5      | 0.1                              | 7.0   |
| UDZ11B      | BJ           | 10.760                       | 11.220  | 5        | 30                               | 60                  | 0.5      | 0.1                              | 8.0   |
| UDZ12B      | BK           | 11.740                       | 12.240  | 5        | 30                               | 80                  | 0.5      | 0.1                              | 9.0   |
| UDZ13B      | BL           | 12.910                       | 13.490  | 5        | 37                               | 80                  | 0.5      | 0.1                              | 10.0  |
| UDZ15B      | BM           | 14.340                       | 14.980  | 5        | 42                               | 80                  | 0.5      | 0.1                              | 11.0  |
| UDZ16B      | BN           | 15.850                       | 16.510  | 5        | 50                               | 80                  | 0.5      | 0.1                              | 12.0  |
| UDZ18B      | BO           | 17.560                       | 18.350  | 5        | 65                               | 80                  | 0.5      | 0.1                              | 13.0  |
| UDZ20B      | BP           | 19.520                       | 20.390  | 5        | 85                               | 100                 | 0.5      | 0.1                              | 15.0  |
| UDZ22B      | BQ           | 21.540                       | 22.470  | 5        | 100                              | 100                 | 0.5      | 0.1                              | 17.0  |
| UDZ24B      | BR           | 23.720                       | 24.780  | 5        | 120                              | 120                 | 0.5      | 0.1                              | 19.0  |
| UDZ27B      | BS           | 26.190                       | 27.530  | 5        | 150                              | 150                 | 0.5      | 0.1                              | 21.0  |
| UDZ30B      | BT           | 29.190                       | 30.690  | 5        | 200                              | 200                 | 0.5      | 0.1                              | 23.0  |
| UDZ33B      | BU           | 32.150                       | 33.790  | 5        | 250                              | 250                 | 0.5      | 0.1                              | 25.0  |
| UDZ36B      | BV           | 35.070                       | 36.870  | 5        | 300                              | 300                 | 0.5      | 0.1                              | 27.0  |
| UDZ39B      | BW           | 38.025                       | 39.975  | 5        | 300                              | 350                 | 0.5      | 0.1                              | 29.0  |
| UDZ43B      | BX           | 41.925                       | 44.075  | 2        | 300                              | 400                 | 0.5      | 0.1                              | 32.0  |
| UDZ47B      | BY           | 45.825                       | 48.175  | 2        | 300                              | 450                 | 0.5      | 0.1                              | 35.0  |
| UDZ51B      | BZ           | 49.725                       | 52.275  | 2        | 350                              | 500                 | 0.5      | 0.1                              | 38.0  |
| UDZ56B      | U1           | 54.600                       | 57.400  | 2        | 350                              | 500                 | 0.5      | 0.1                              | 42.0  |

Notes: 3. Short duration test pulse used to minimize self-heating effect.

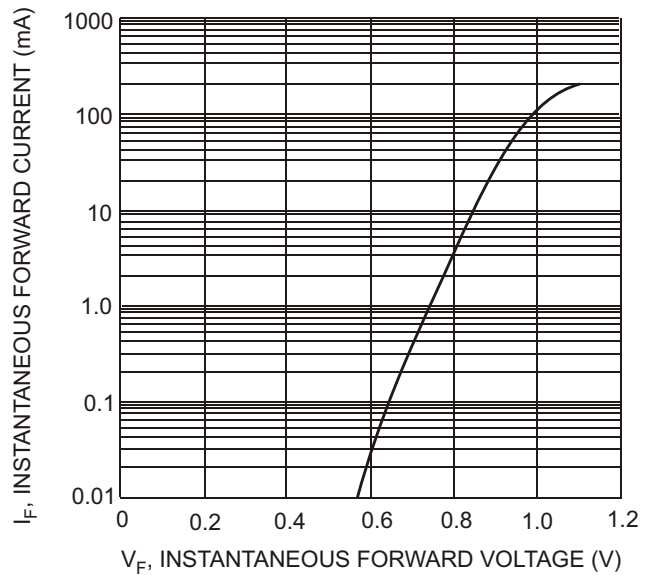
4. The zener impedances ( $Z_{ZT}$ ,  $Z_{ZK}$ ) are measured by superimposing a minute alternating current on the regulated current ( $I_Z$ ).

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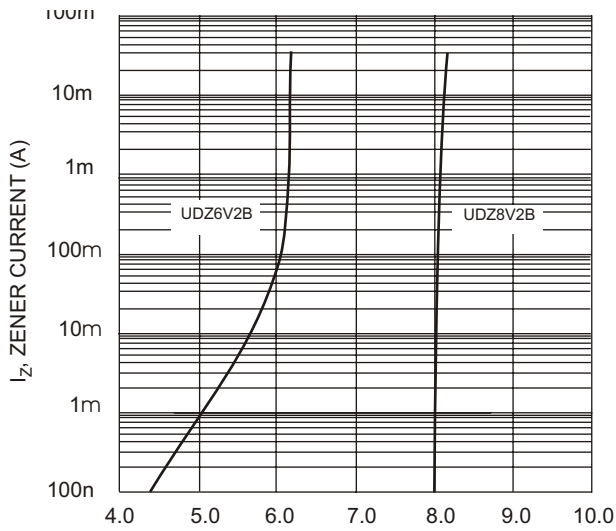
$T_A$ , AMBIENT TEMPERATURE, (°C)

Fig. 1 Power Derating Curve



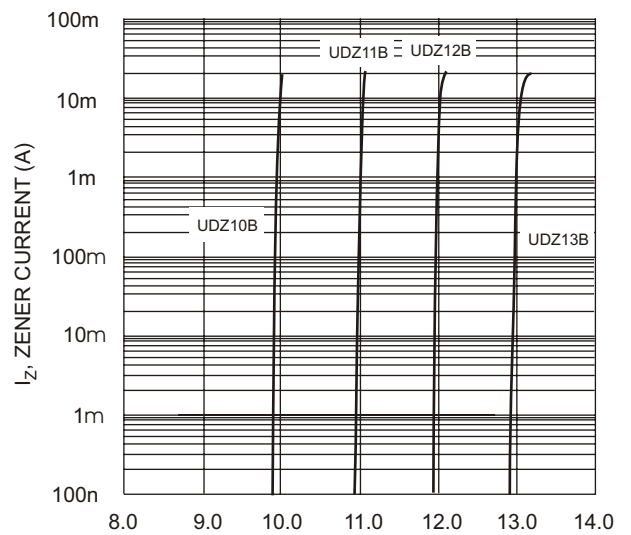
$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)

Fig. 2 Typical Forward Characteristics



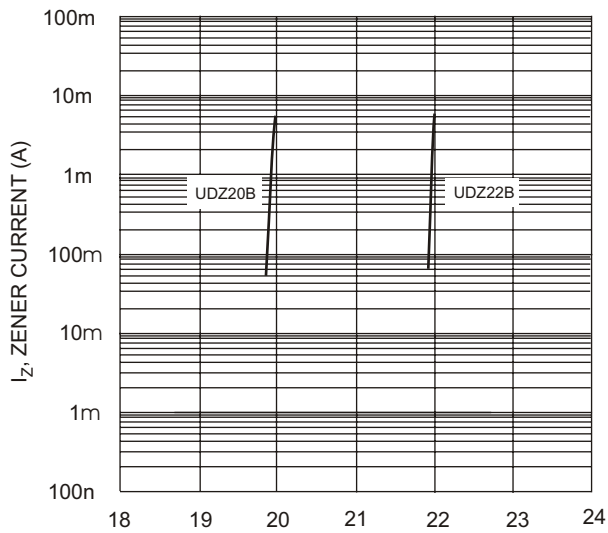
$V_Z$ , ZENER BREAKDOWN VOLTAGE (V)

Fig. 3 Typical Reverse Characteristics, UDZ6V2B - UDZ8V2B



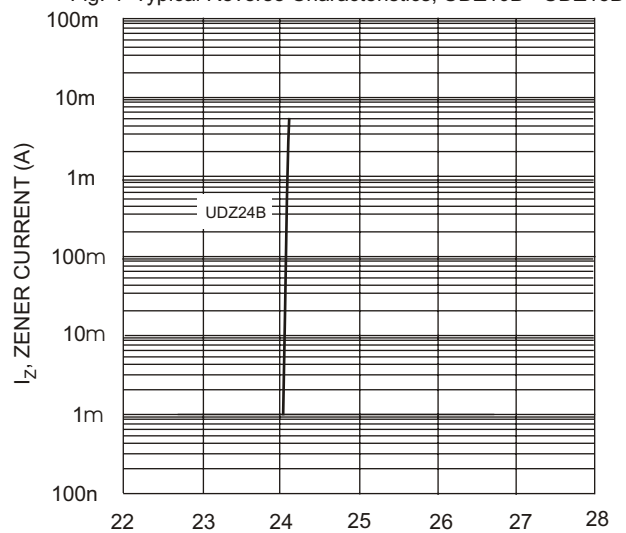
$V_Z$ , ZENER BREAKDOWN VOLTAGE (V)

Fig. 4 Typical Reverse Characteristics, UDZ10B - UDZ13B



$V_Z$ , ZENER BREAKDOWN VOLTAGE (V)

Fig. 5 Typical Reverse Characteristics, UDZ20B - UDZ22B



$V_Z$ , ZENER BREAKDOWN VOLTAGE (V)

Fig. 6 Typical Reverse Characteristics, UDZ24B

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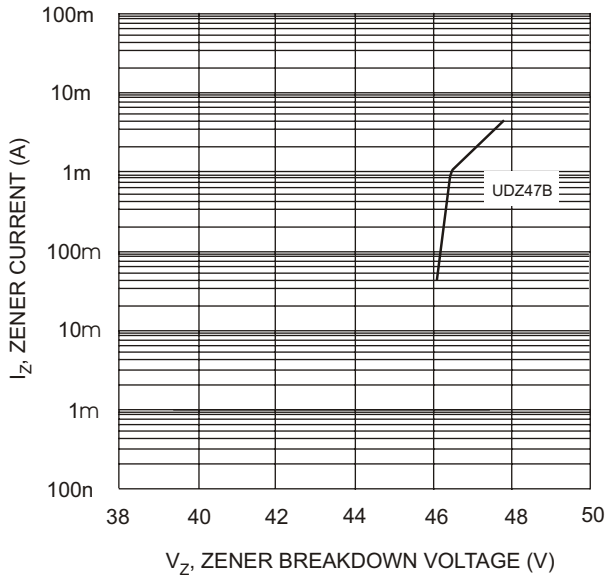


Fig. 7 Typical Reverse Characteristics, UDZ47B

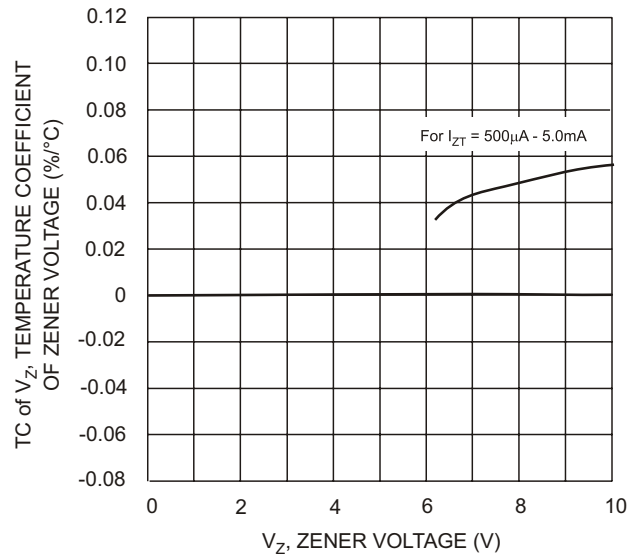


Fig. 8 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, UDZ6V2B-UDZ10B

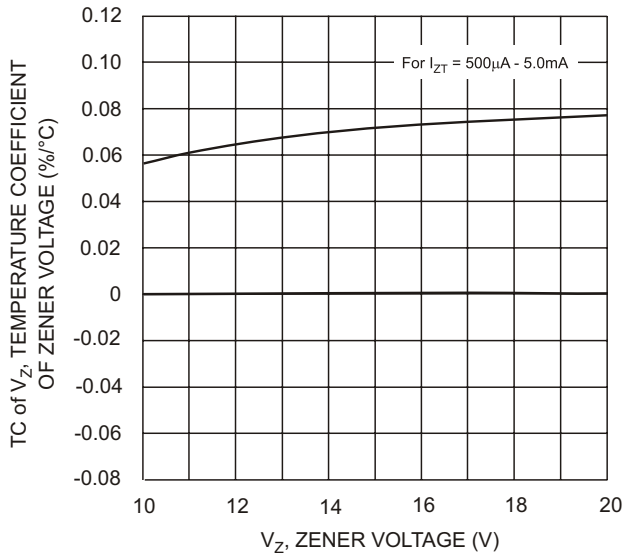


Fig. 9 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, UDZ10B-UDZ20B

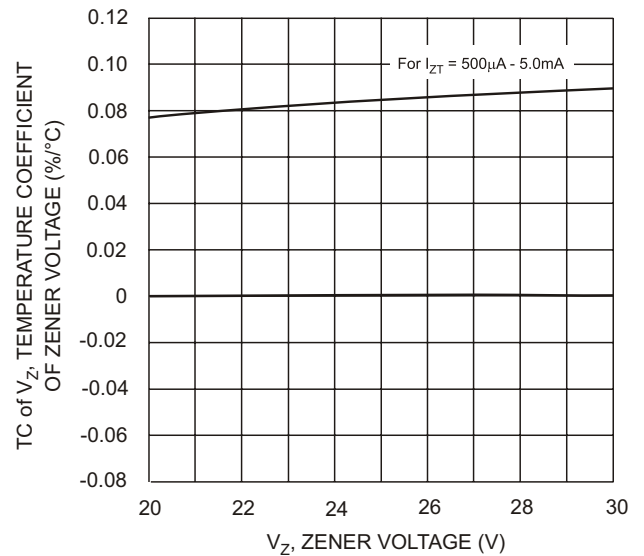


Fig. 10 Typical Temperature Coefficient of Zener Voltage, UDZ20B-UDZ30B

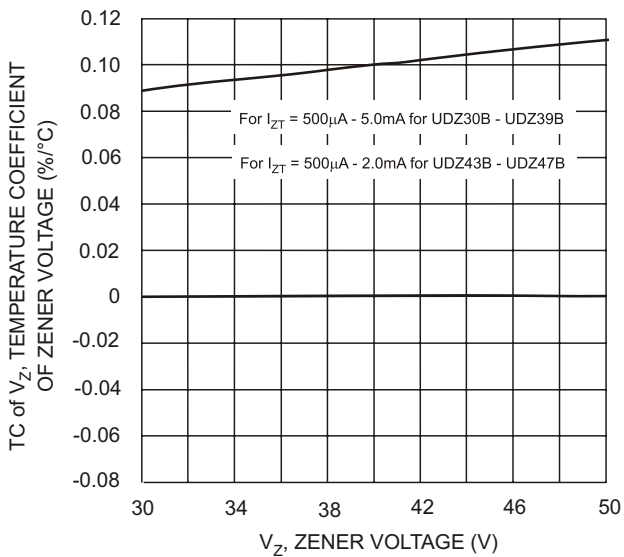


Fig. 11 Typical Temperature Coefficient of Zener Voltage, UDZ30B-UDZ47B

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\*Note: Additional Plots for Reverse Characteristics and Temperature Coefficient of Zener Voltage shall be available soon.