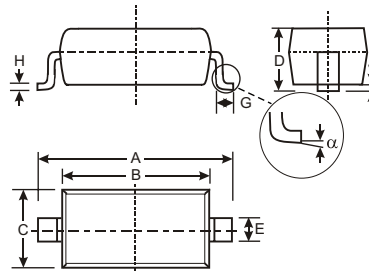


### Features

- Very Sharp Breakdown Characteristics
- 500mW Power Dissipation on Ceramic PCB
- Very Tight Tolerance on  $V_Z$
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- Lead Free Product

### Mechanical Data

- Case: SOD-123, Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208 (Note 1)
- Polarity: Cathode Band
- Marking: See Below
- Weight: 0.01 grams (approx.)



| SOD-123              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 3.55         | 3.85 |
| B                    | 2.55         | 2.85 |
| C                    | 1.40         | 1.70 |
| D                    | —            | 1.35 |
| E                    | 0.55 Typical |      |
| G                    | 0.25         | —    |
| H                    | 0.11 Typical |      |
| J                    | —            | 0.10 |
| $\alpha$             | 0°           | 8°   |
| All Dimensions in mm |              |      |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                                       | Symbol           | Value       | Unit               |
|--|------------------|-------------|--------------------|
| Forward Voltage @ $I_F = 10\text{mA}$                | $V_F$            | 0.9         | V                  |
| Power Dissipation (Note 2)                           | $P_d$            | 500         | mW                 |
| Thermal Resistance, Junction to Ambient Air (Note 2) | $R_{\theta JA}$  | 305         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range              | $T_{j}, T_{STG}$ | -65 to +150 | $^\circ\text{C}$   |

- Note:
1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
  2. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>.

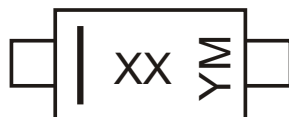
### Ordering Information (Note 3)

| Device              | Packaging | Shipping         |
|---------------------|-----------|------------------|
| DDZ( $V_Z$ Rank)-7* | SOD-123   | 3000/Tape & Reel |

\* Example: The part number for the 6.2 Volt device would be DDZ6V2B-7.

Note : 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

### Marking Information



XX = Product Type Marking Code (See Table 1)  
 YM = Date Code Marking  
 Y = Year (ex: P = 2003)  
 M = Month (ex: 9 = September)

#### Date Code Key

| Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|
| Code | P    | R    | S    | T    | U    | V    | W    |

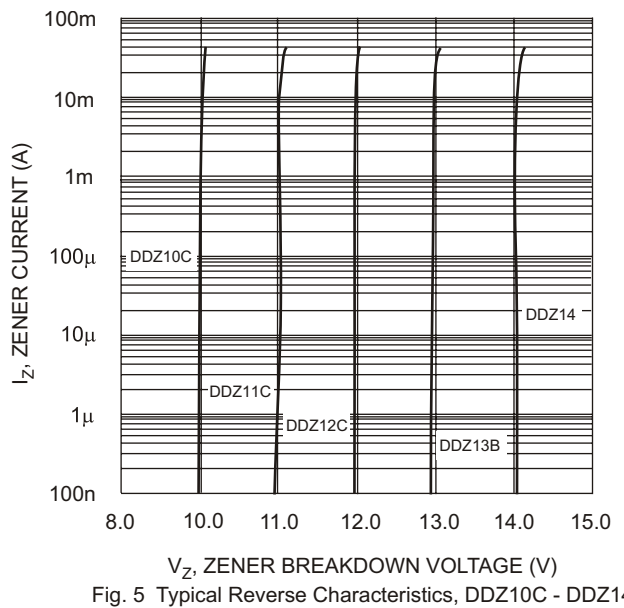
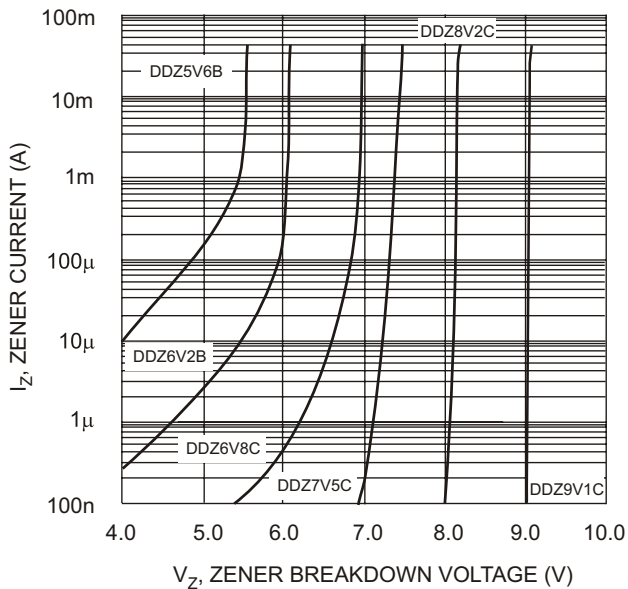
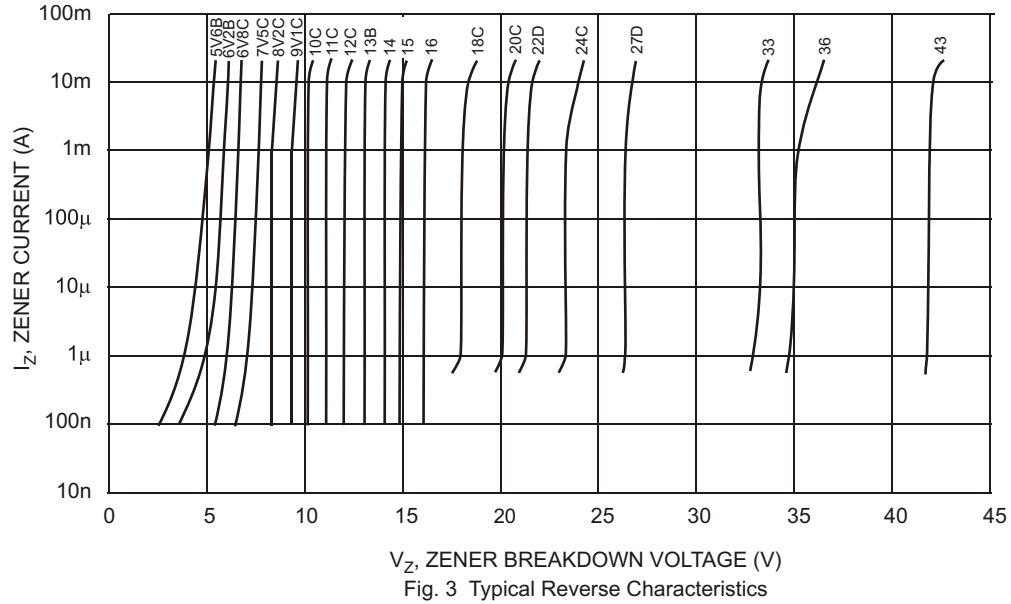
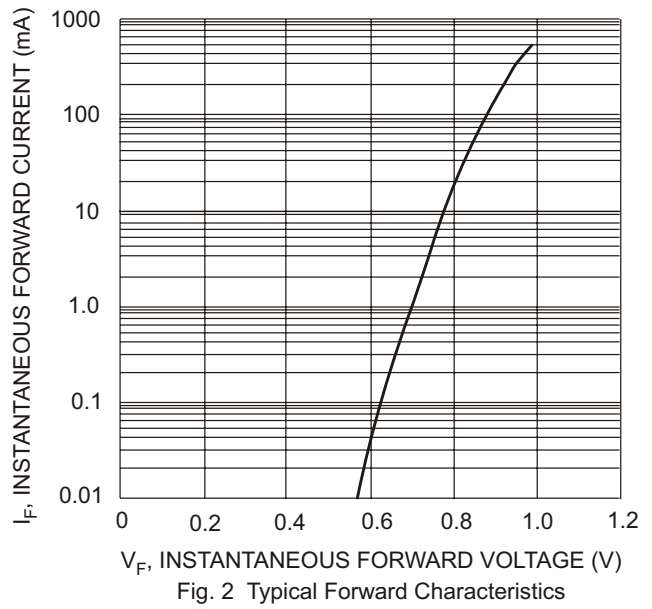
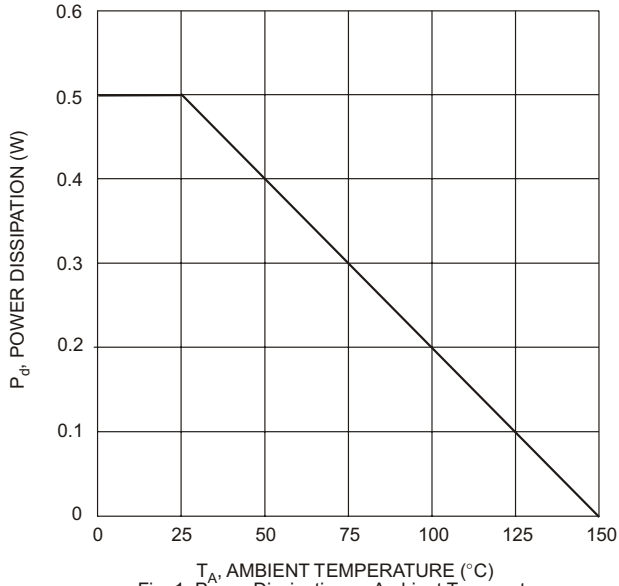
| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

**Table 1**

| Type Number | Marking Code | Zener Voltage Range<br>(Notes 4,5) |         |                 | Maximum Zener Impedance<br>(Note 6) |                                   |                 | Maximum Reverse<br>Current (Note 7) |                  |
|-------------|--------------|------------------------------------|---------|-----------------|-------------------------------------|-----------------------------------|-----------------|-------------------------------------|------------------|
|             |              | V <sub>Z</sub> @ I <sub>ZT</sub>   |         | I <sub>ZT</sub> | Z <sub>ZT</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> |
|             |              | Min (V)                            | Max (V) | mA              | Ω                                   |                                   | mA              | μA                                  | V                |
| DDZ3V3A     | GG           | 3.16                               | 3.38    | 20              | 70                                  | 1000                              | 1               | 20                                  | 1.0              |
| DDZ3V6B     | KH           | 3.600                              | 3.845   | 20              | 60                                  | 1000                              | 1               | 10                                  | 1.0              |
| DDZ3V9B     | KJ           | 3.89                               | 4.16    | 20              | 50                                  | 1000                              | 1               | 5                                   | 1.0              |
| DDZ4V3B     | KK           | 4.17                               | 4.43    | 20              | 40                                  | 1000                              | 1               | 5                                   | 1.0              |
| DDZ4V7B     | KL           | 4.55                               | 4.80    | 20              | 25                                  | 900                               | 1               | 5                                   | 1.0              |
| DDZ5V1B     | KM           | 4.94                               | 5.20    | 20              | 17                                  | 480                               | 1               | 5                                   | 1.5              |
| DDZ5V6B     | KN           | 5.45                               | 5.73    | 20              | 11                                  | 400                               | 1               | 0.5                                 | 2.5              |
| DDZ6V2B     | KO           | 5.96                               | 6.27    | 20              | 7                                   | 150                               | 1               | 0.5                                 | 4.0              |
| DDZ6V8B     | KP           | 6.49                               | 6.83    | 20              | 5                                   | 150                               | 0.5             | 0.1                                 | 5.0              |
| DDZ6V8C     | YP           | 6.66                               | 7.01    | 20              | 5                                   | 150                               | 0.5             | 0.1                                 | 5.0              |
| DDZ7V5B     | KQ           | 7.07                               | 7.45    | 20              | 6                                   | 120                               | 0.5             | 0.1                                 | 6.0              |
| DDZ7V5C     | YQ           | 7.29                               | 7.67    | 20              | 6                                   | 120                               | 0.5             | 0.1                                 | 6.0              |
| DDZ8V2B     | KR           | 7.78                               | 8.19    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 6.5              |
| DDZ8V2C     | YR           | 8.03                               | 8.45    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 6.5              |
| DDZ9V1B     | KS           | 8.57                               | 9.01    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 7.0              |
| DDZ9V1C     | YS           | 8.83                               | 9.30    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 7.0              |
| DDZ10B      | KT           | 9.41                               | 9.90    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 8.0              |
| DDZ10C      | YT           | 9.70                               | 10.20   | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 8.0              |
| DDZ11B      | KU           | 10.50                              | 11.05   | 10              | 10                                  | 120                               | 0.5             | 0.1                                 | 8.4              |
| DDZ11C      | YU           | 10.82                              | 11.38   | 10              | 10                                  | 120                               | 0.5             | 0.1                                 | 8.4              |
| DDZ12B      | KV           | 11.44                              | 12.03   | 10              | 12                                  | 110                               | 0.5             | 0.1                                 | 9.1              |
| DDZ12C      | YV           | 11.74                              | 12.35   | 10              | 12                                  | 110                               | 0.5             | 0.1                                 | 9.1              |
| DDZ13B      | KW           | 12.55                              | 13.21   | 10              | 14                                  | 110                               | 0.5             | 0.1                                 | 10.0             |
| DDZ14       | GX           | 13.44                              | 14.13   | 10              | 16                                  | 110                               | 0.5             | 0.05                                | 11.0             |
| DDZ14B      | KX           | 13.89                              | 14.62   | 10              | 16                                  | 110                               | 0.5             | 0.05                                | 11.0             |
| DDZ15       | GY           | 14.80                              | 15.57   | 10              | 18                                  | 150                               | 0.5             | 0.05                                | 12.0             |
| DDZ16B      | KY           | 15.25                              | 16.04   | 10              | 18                                  | 150                               | 0.5             | 0.05                                | 12.0             |
| DDZ16       | YY           | 15.69                              | 16.51   | 10              | 18                                  | 150                               | 0.5             | 0.05                                | 12.0             |
| DDZ17       | KZ           | 16.82                              | 17.70   | 10              | 23                                  | 150                               | 0.5             | 0.05                                | 14.0             |
| DDZ18C      | YZ           | 17.42                              | 18.33   | 10              | 23                                  | 150                               | 0.5             | 0.05                                | 14.0             |
| DDZ19       | ZJ           | 18.63                              | 19.59   | 10              | 28                                  | 200                               | 0.5             | 0.05                                | 15.0             |
| DDZ20C      | PJ           | 19.23                              | 20.22   | 10              | 28                                  | 200                               | 0.5             | 0.05                                | 15.0             |
| DDZ21       | ZK           | 20.64                              | 21.71   | 5               | 30                                  | 200                               | 0.5             | 0.05                                | 17.0             |
| DDZ22D      | 2K           | 21.52                              | 22.63   | 5               | 30                                  | 200                               | 0.5             | 0.05                                | 17.0             |
| DDZ23       | ZL           | 22.61                              | 23.77   | 5               | 35                                  | 200                               | 0.5             | 0.05                                | 19.0             |
| DDZ24C      | PL           | 23.12                              | 24.31   | 5               | 35                                  | 200                               | 0.5             | 0.05                                | 19.0             |
| DDZ26       | ZM           | 24.97                              | 26.26   | 5               | 45                                  | 250                               | 0.5             | 0.05                                | 21.0             |
| DDZ27D      | 2M           | 26.29                              | 27.64   | 5               | 45                                  | 250                               | 0.5             | 0.05                                | 21.0             |
| DDZ28       | ZN           | 27.70                              | 29.13   | 5               | 55                                  | 250                               | 0.5             | 0.05                                | 23.0             |
| DDZ30D      | 2N           | 29.02                              | 30.51   | 5               | 55                                  | 250                               | 0.5             | 0.05                                | 23.0             |
| DDZ31       | ZO           | 30.32                              | 31.88   | 5               | 65                                  | 250                               | 0.5             | 0.05                                | 25.0             |
| DDZ33       | RP           | 32.14                              | 33.79   | 5               | 75                                  | 250                               | 0.5             | 0.05                                | 27.0             |
| DDZ34       | ZP           | 32.79                              | 34.49   | 5               | 75                                  | 250                               | 0.5             | 0.05                                | 27.0             |
| DDZ36       | ZQ           | 35.36                              | 37.19   | 5               | 85                                  | 250                               | 0.5             | 0.05                                | 30.0             |
| DDZ39F      | 5Q           | 38.14                              | 40.11   | 5               | 85                                  | 250                               | 0.5             | 0.05                                | 30.0             |
| DDZ43       | ZR           | 42.14                              | 43.86   | 5               | 90                                  | —                                 | —               | 0.05                                | 33.0             |

- Notes:
- The Zener voltage is measured 40ms after power is supplied.
  - For inquiries on tighter tolerances, or alternate nominal zener voltages, please contact your Diodes Inc. sales representative for availability and minimum order details.
  - f = 1kHz.
  - Short duration pulse test used to minimize self-heating effect.



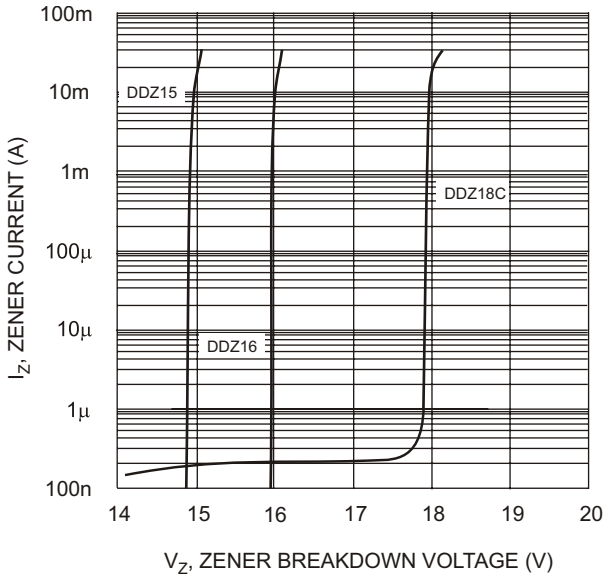


Fig. 6 Typical Reverse Characteristics, DDZ15 - DDZ18C

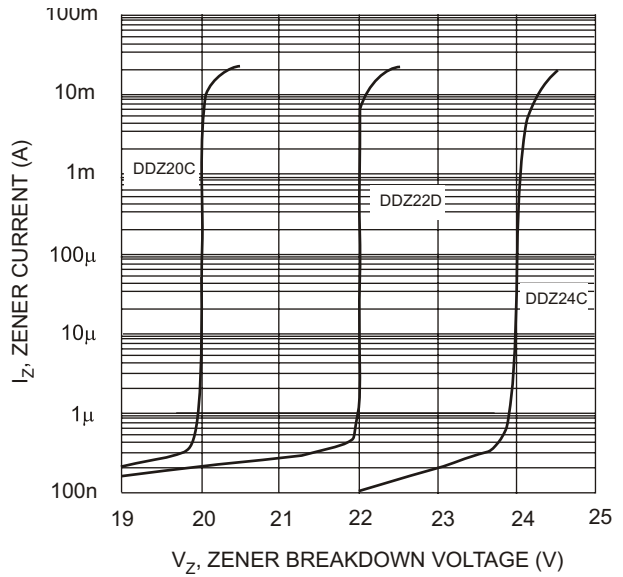


Fig. 7 Typical Reverse Characteristics, DDZ20C - DDZ24C

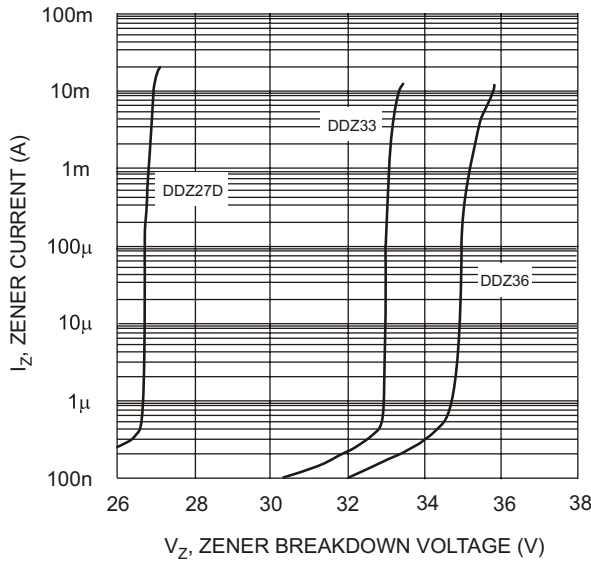


Fig. 8 Typical Reverse Characteristics, DDZ27D - DDZ36

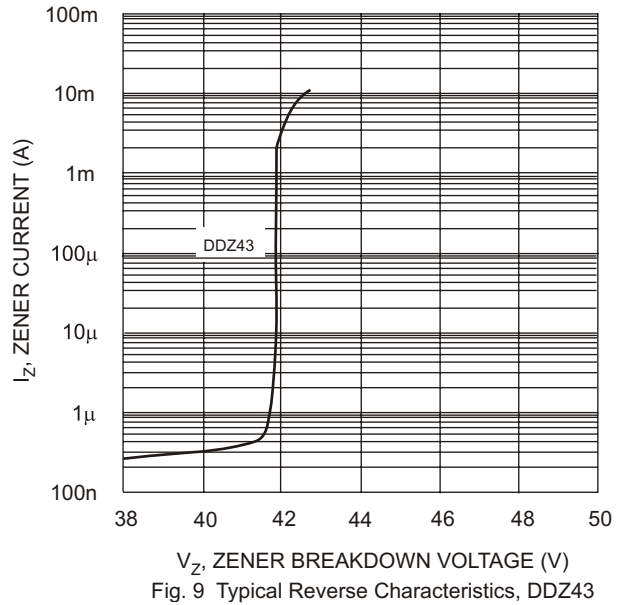


Fig. 9 Typical Reverse Characteristics, DDZ43

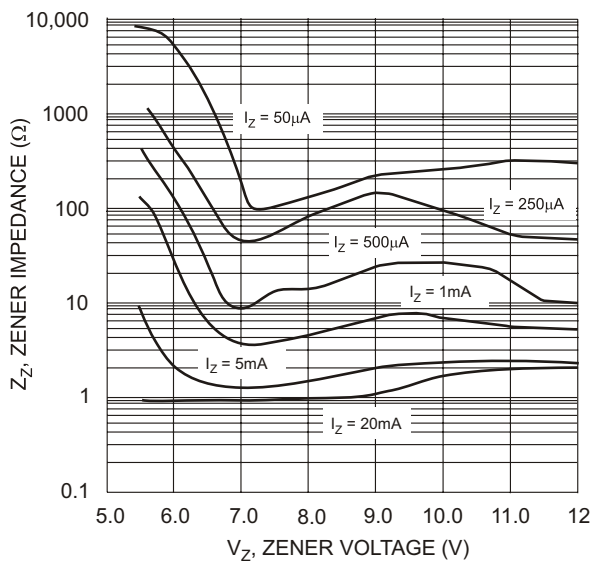


Fig. 10 Typical Zener Impedance Characteristics, DDZ5V6B - DDZ12C

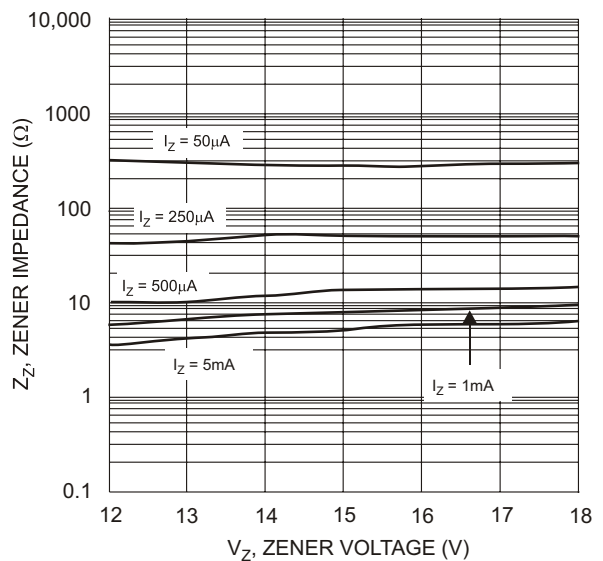


Fig. 11 Typical Zener Impedance Characteristics, DDZ12C - DDZ18C

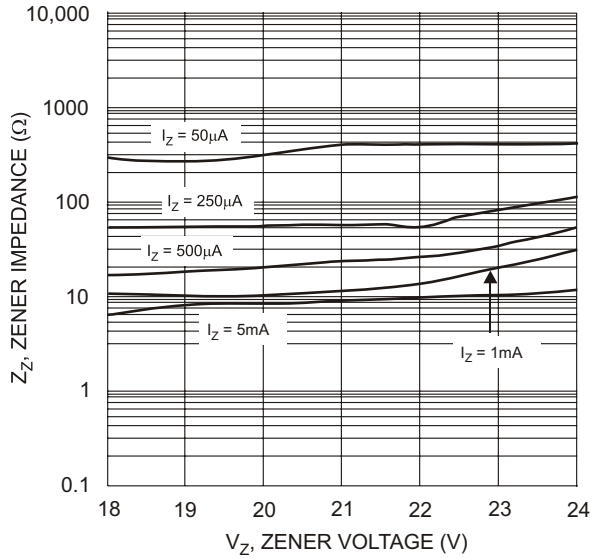


Fig. 12 Typical Zener Impedance Characteristics, DDZ18C - DDZ24C

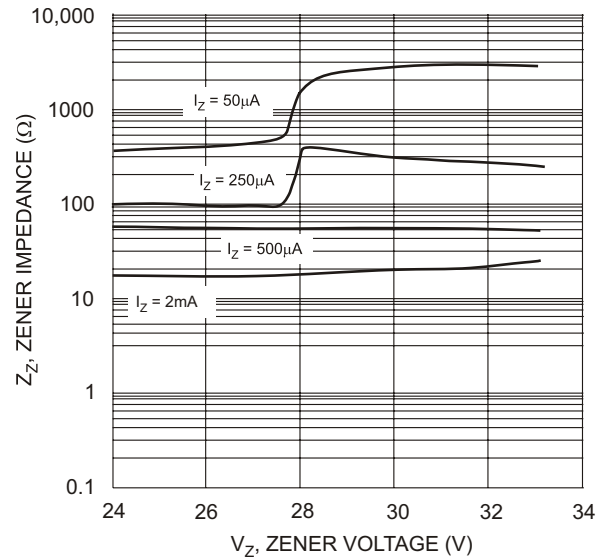


Fig. 13 Typical Zener Impedance Characteristics, DDZ24C - DDZ33

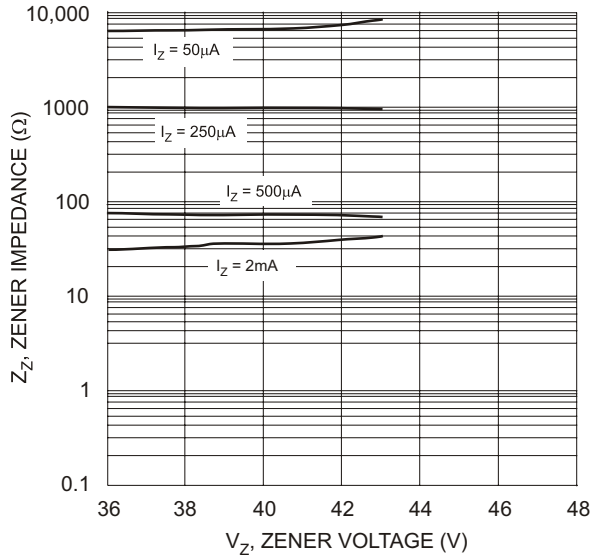


Fig. 14 Typical Zener Impedance Characteristics, DDZ36 - DDZ43

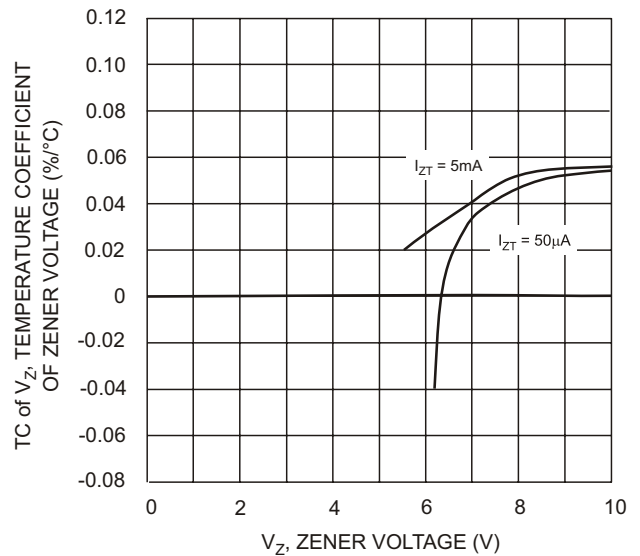


Fig. 15 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ6V2B-DDZ10C

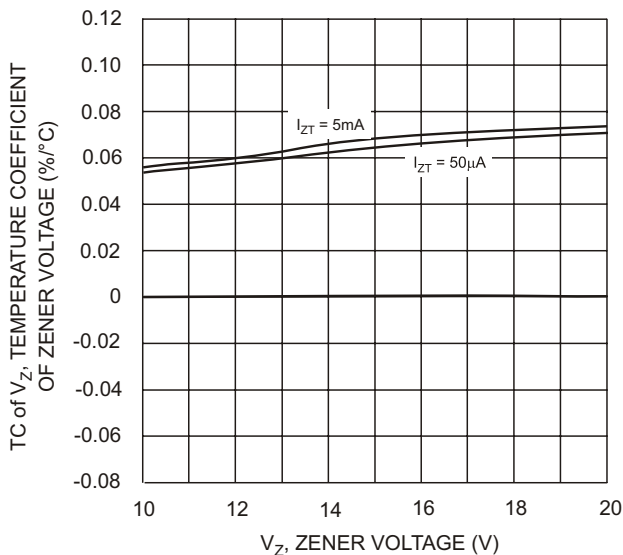


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ10C-DDZ20C

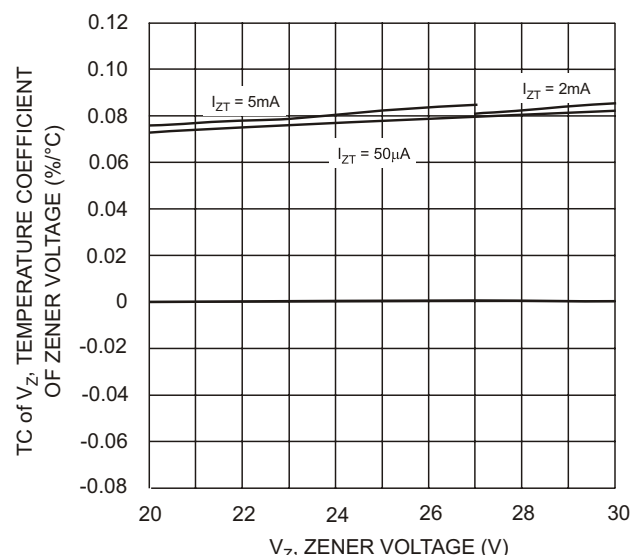


Fig. 17 Typical Temperature Coefficient of Zener Voltage, DDZ20C-DDZ30D

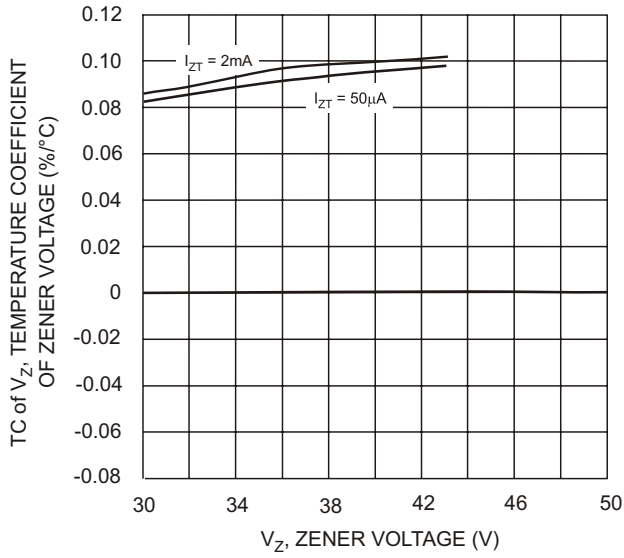


Fig. 18 Typical Temperature Coefficient of Zener Voltage, DDZ30D-DDZ43

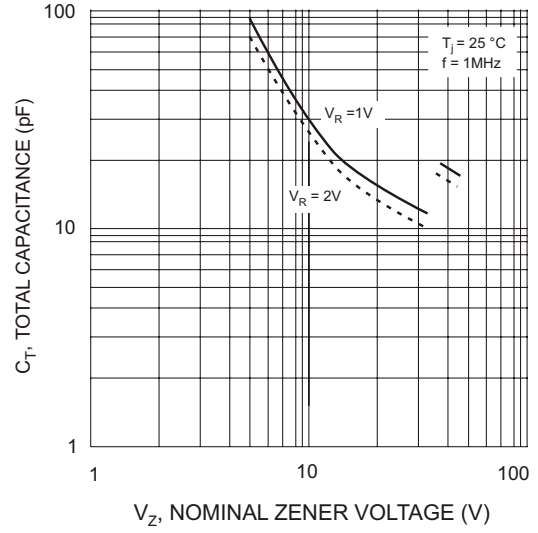


Fig. 19 Total Capacitance vs Nominal Zener Voltage



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