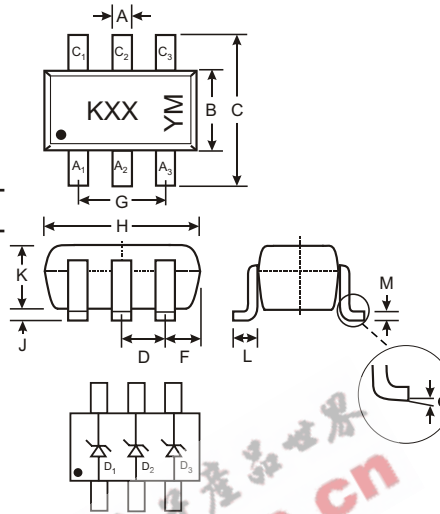


### Features

- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on  $V_Z$
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- Lead Free Device

### Mechanical Data

- Case: SOT-363, 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)
- Orientation: See Diagram
- Marking: See Below
- Weight: 0.006 grams (approx.)



| SOT-363              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 0.10         | 0.30 |
| B                    | 1.15         | 1.35 |
| C                    | 2.00         | 2.20 |
| D                    | 0.65 Nominal |      |
| F                    | 0.30         | 0.40 |
| H                    | 1.80         | 2.20 |
| J                    | —            | 0.10 |
| K                    | 0.90         | 1.00 |
| L                    | 0.25         | 0.40 |
| M                    | 0.10         | 0.25 |
| $\alpha$             | 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)                           | $P_d$           | 200         | mW                 |
| Thermal Resistance, Junction to Ambient Air (Note 2) | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range              | $T_j, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

- Notes:
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 FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

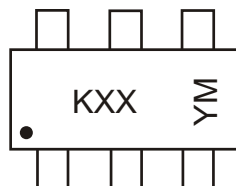
### Ordering Information (Note 3)

| Device           | Packaging | Shipping         |
|------------------|-----------|------------------|
| (Type Number)-7* | SOT-363   | 3000/Tape & Reel |

\* Example: The part number for the 6.2 Volt device would be DDZX6V2BTS-7.

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

### Marking Information



KXX = 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                |
| DDZX5V1BTS  | KM           | 4.94                               | 5.20    | 20              | 17                                  | 480                               | 1               | 5                                   | 1.5              |
| DDZX5V6BTS  | KN           | 5.45                               | 5.73    | 20              | 11                                  | 400                               | 1               | 0.5                                 | 2.5              |
| DDZX6V2BTS  | KO           | 5.96                               | 6.27    | 20              | 7                                   | 150                               | 1               | 0.5                                 | 4.0              |
| DDZX6V8CTS  | YP           | 6.66                               | 7.01    | 20              | 5                                   | 150                               | 0.5             | 0.1                                 | 5.0              |
| DDZX7V5CTS  | YQ           | 7.29                               | 7.67    | 20              | 6                                   | 120                               | 0.5             | 0.1                                 | 6.0              |
| DDZX8V2CTS  | YR           | 8.03                               | 8.45    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 6.5              |
| DDZX9V1CTS  | YS           | 8.83                               | 9.30    | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 7.0              |
| DDZX10CTS   | YT           | 9.70                               | 10.20   | 20              | 8                                   | 120                               | 0.5             | 0.1                                 | 8.0              |
| DDZX11CTS   | YU           | 10.82                              | 11.38   | 10              | 10                                  | 120                               | 0.5             | 0.1                                 | 8.4              |
| DDZX12CTS   | YV           | 11.74                              | 12.35   | 10              | 12                                  | 110                               | 0.5             | 0.1                                 | 9.1              |
| DDZX13BTS   | KW           | 12.55                              | 13.21   | 10              | 14                                  | 110                               | 0.5             | 0.1                                 | 10.0             |
| DDZX14TS    | GX           | 13.44                              | 14.13   | 10              | 16                                  | 110                               | 0.5             | 0.05                                | 11.0             |
| DDZX15TS    | GY           | 14.80                              | 15.57   | 10              | 18                                  | 150                               | 0.5             | 0.05                                | 12.0             |
| DDZX16TS    | YY           | 15.69                              | 16.51   | 10              | 18                                  | 150                               | 0.5             | 0.05                                | 12.0             |
| DDZX18CTS   | YZ           | 17.42                              | 18.33   | 10              | 23                                  | 150                               | 0.5             | 0.05                                | 14.0             |
| DDZX20CTS   | PJ           | 19.23                              | 20.22   | 10              | 28                                  | 200                               | 0.5             | 0.05                                | 15.0             |
| DDZX22DTS   | 2K           | 21.52                              | 22.63   | 5               | 30                                  | 200                               | 0.5             | 0.05                                | 17.0             |
| DDZX24CTS   | PL           | 23.12                              | 24.31   | 5               | 35                                  | 200                               | 0.5             | 0.05                                | 19.0             |
| DDZX27DTS   | 2M           | 26.29                              | 27.64   | 5               | 45                                  | 250                               | 0.5             | 0.05                                | 21.0             |
| DDZX30DS    | 2N           | 29.02                              | 30.51   | 5               | 55                                  | 250                               | 0.5             | 0.05                                | 23.0             |
| DDZX33TS    | RP           | 32.14                              | 33.79   | 5               | 75                                  | 250                               | 0.5             | 0.05                                | 27.0             |
| DDZX36TS    | ZQ           | 35.36                              | 37.19   | 5               | 85                                  | 250                               | 0.5             | 0.05                                | 30.0             |
| DDZX39FTS   | 5Q           | 38.14                              | 40.11   | 5               | 85                                  | 250                               | 0.5             | 0.05                                | 30.0             |
| DDZX43TS    | ZR           | 42.14                              | 43.86   | 5               | 90                                  | —                                 | —               | 0.05                                | 33.0             |
| DDZX47TS    | ZS           | 46.06                              | 47.94   | 5               | 90                                  | —                                 | —               | 0.05                                | 36.0             |

- 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 test pulse used to minimize self-heating effect.

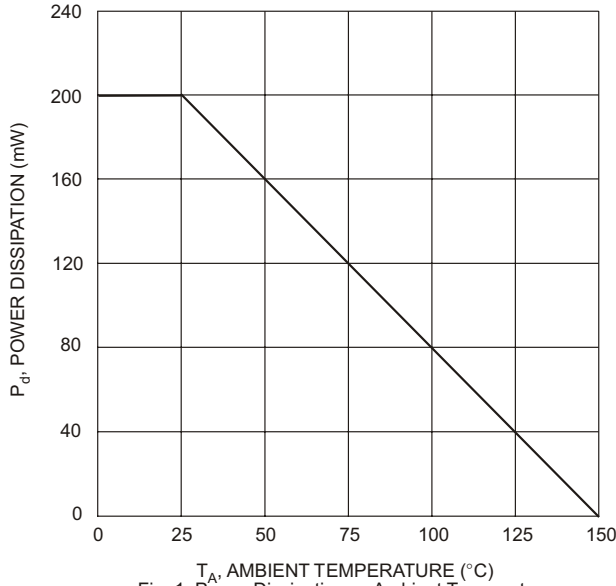


Fig. 1 Power Dissipation vs Ambient Temperature

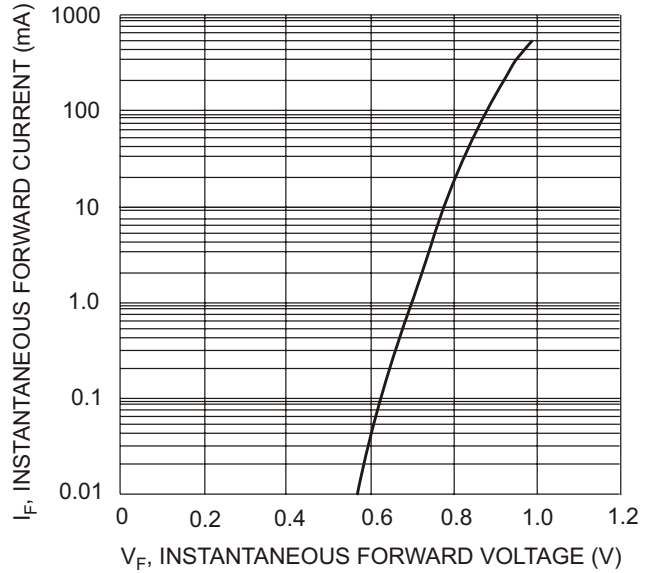


Fig. 2 Typical Forward Characteristics

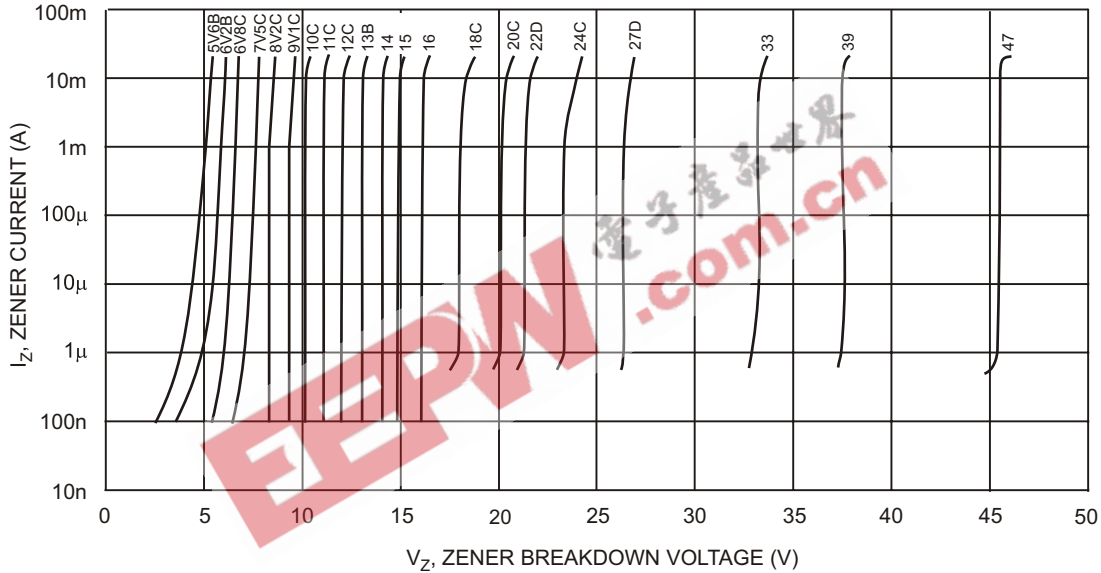


Fig. 3 Typical Reverse Characteristics

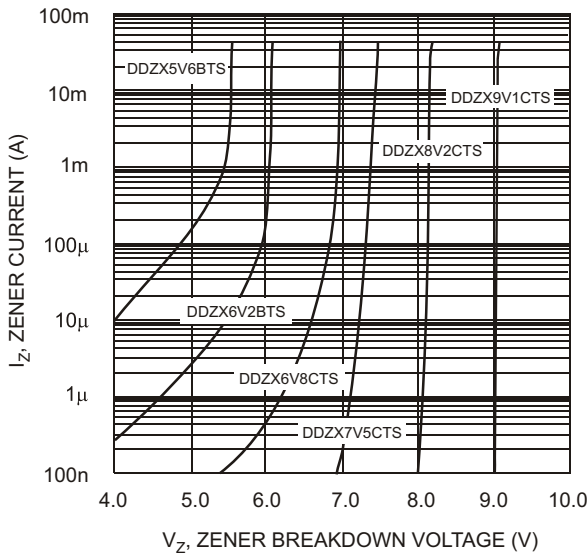


Fig. 4 Typical Reverse Characteristics, DDZX5V6BTS - DDZX9V1CTS

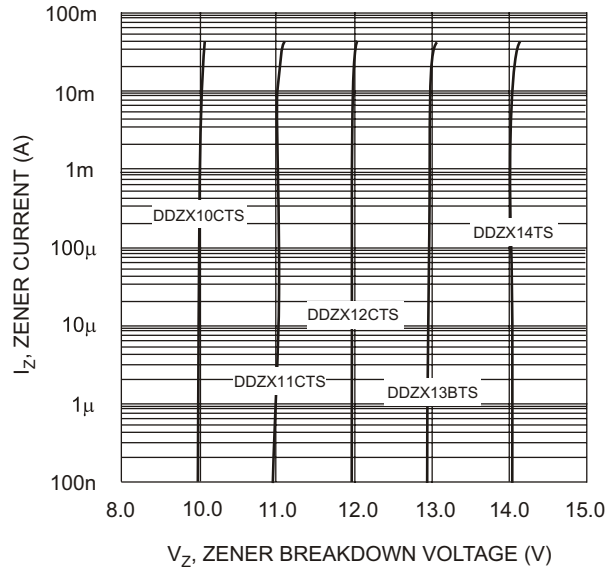


Fig. 5 Typical Reverse Characteristics, DDZX10CTS - DDZX14TS

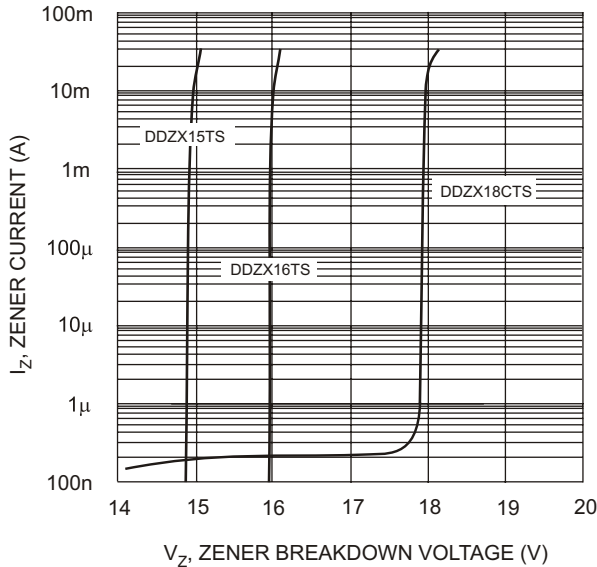


Fig. 6 Typical Reverse Characteristics, DDZX15TS - DDZX18CTS

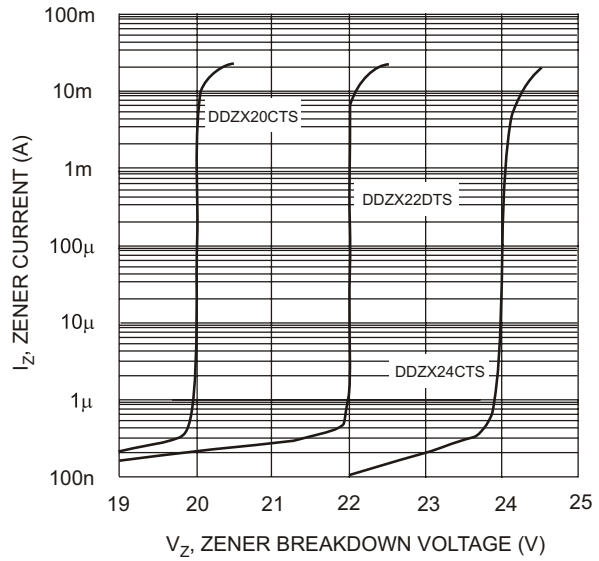


Fig. 7 Typical Reverse Characteristics, DDZX20CTS - DDZX24CTS

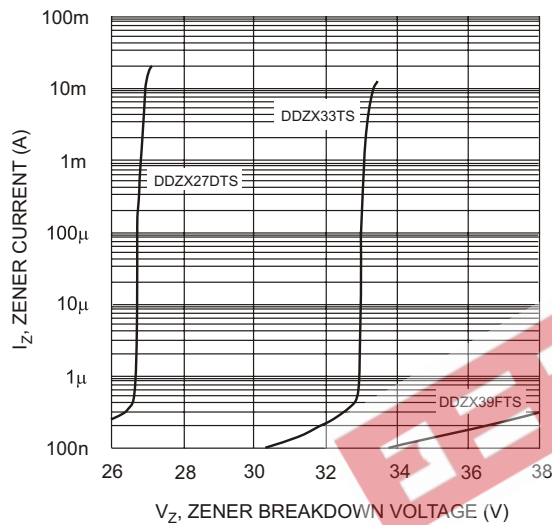


Fig. 8 Typical Reverse Characteristics, DDZX27DTS - DDZX39FTS

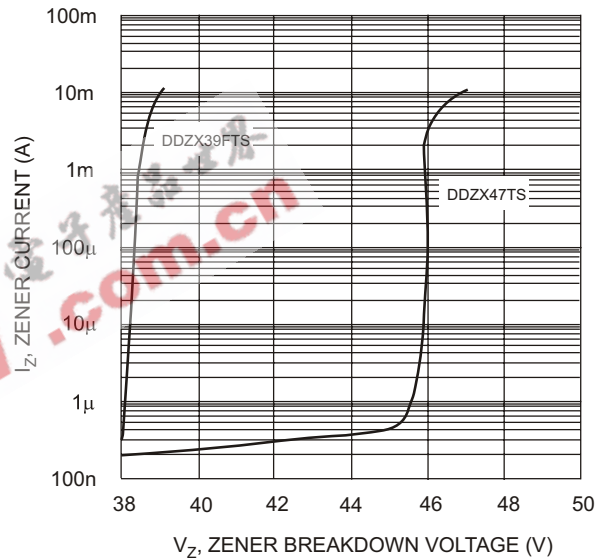


Fig. 9 Typical Reverse Characteristics, DDZX39FTS - DDZX47TS

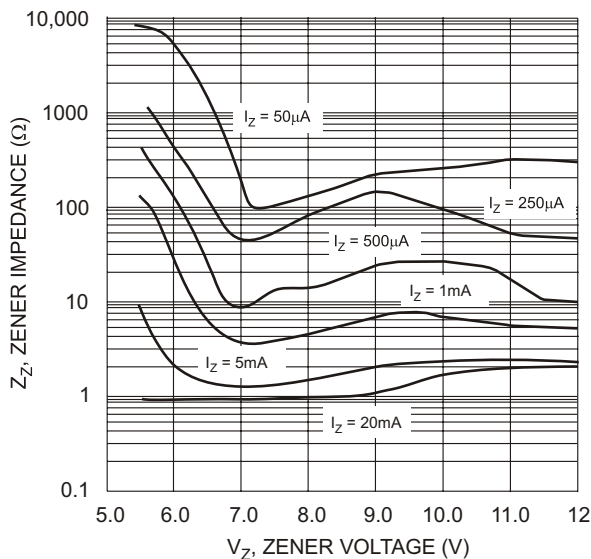


Fig. 10 Typical Zener Impedance Characteristics, DDZX5V6BTS - DDZX12CTS

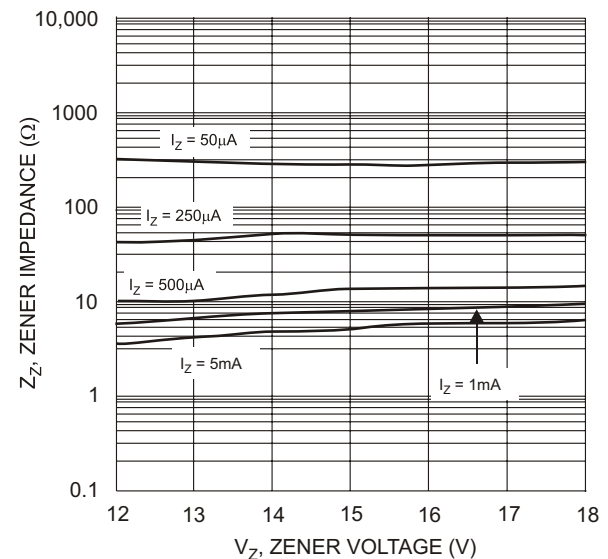


Fig. 11 Typical Zener Impedance Characteristics, DDZX12CTS - DDZX18CTS

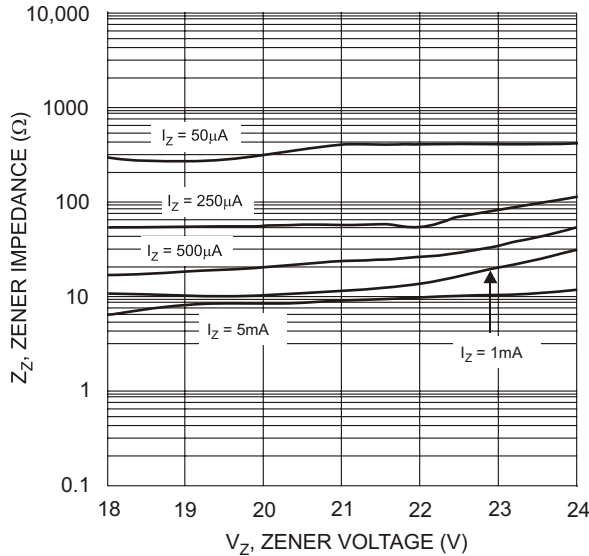


Fig. 12 Typical Zener Impedance Characteristics, DDZX18CTS - DDZX24CTS

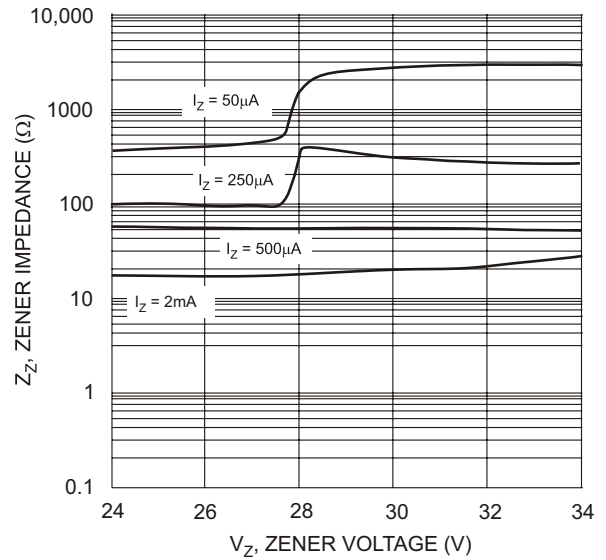


Fig. 13 Typical Zener Impedance Characteristics, DDZX24CTS - DDZX33TS

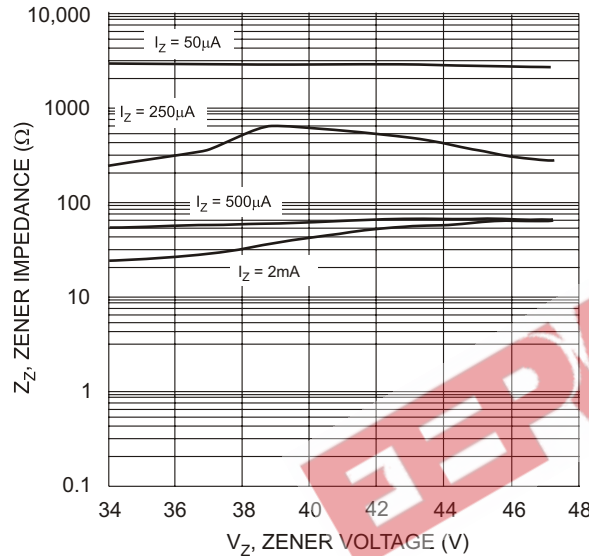


Fig. 14 Typical Zener Impedance Characteristics, DDZX36TS - DDZX47TS

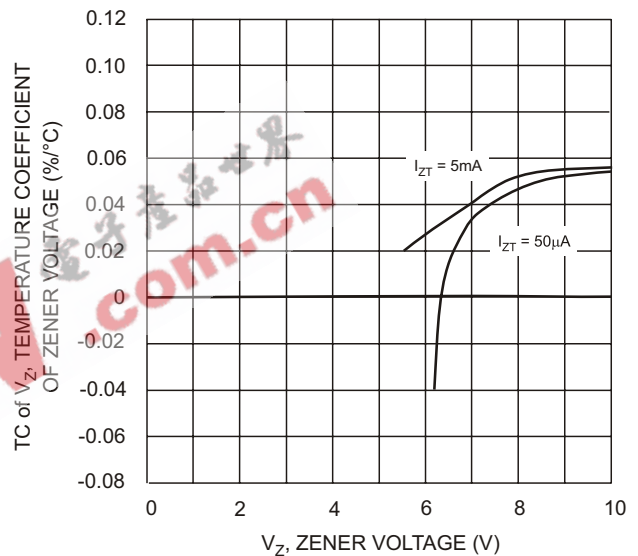


Fig. 15 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX6V62TS-DDZX10CTS

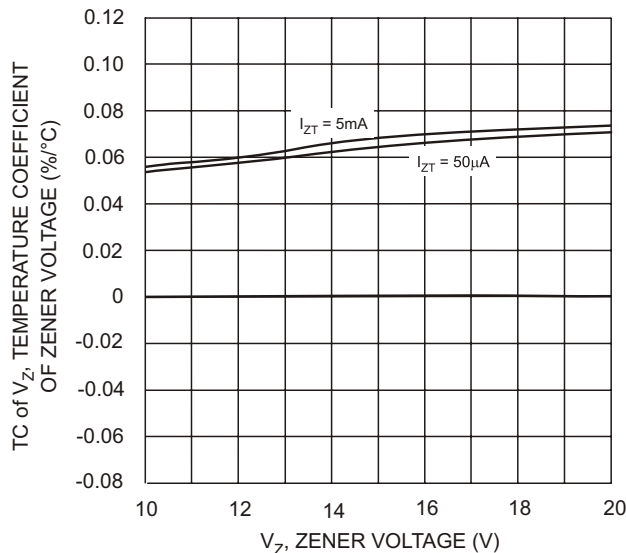


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX10CTS-DDZX20CTS

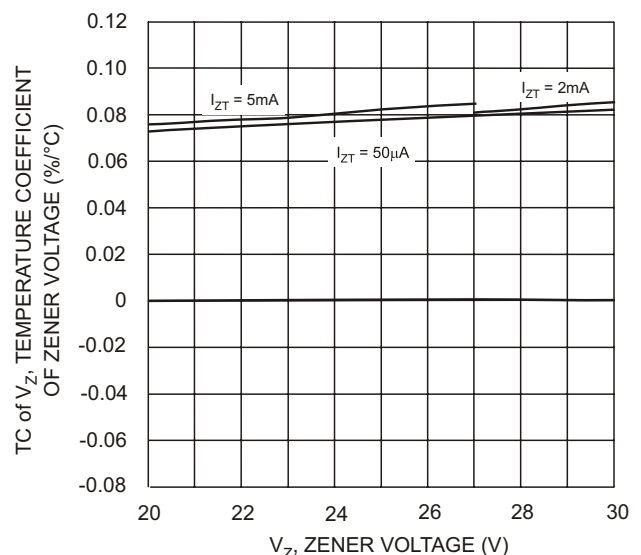


Fig. 17 Typical Temperature Coefficient of Zener Voltage, DDZX20CTS-DDZX30DTS

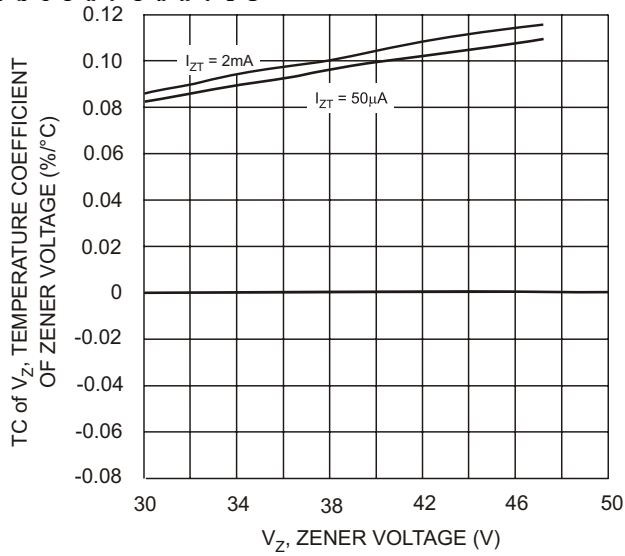


Fig. 18 Typical Temperature Coefficient of Zener Voltage, DDZX30DTS-DDZX47TS

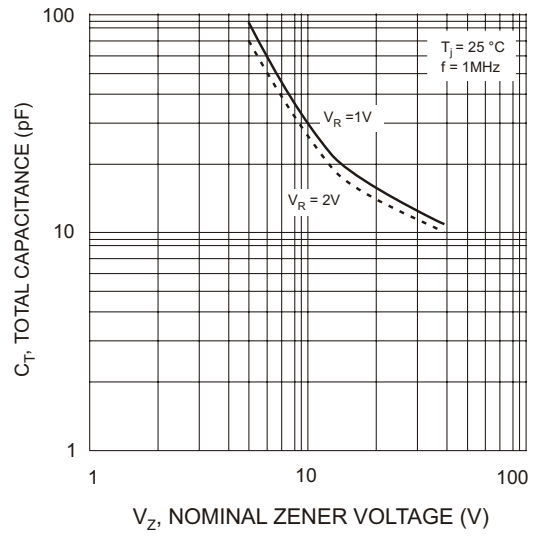


Fig. 19 Total Capacitance vs Nominal Zener Voltage

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