

DDZX9689TS - DDZX9717TS

TRIPLE SURFACE MOUNT PRECISION
ZENER DIODE ARRAY

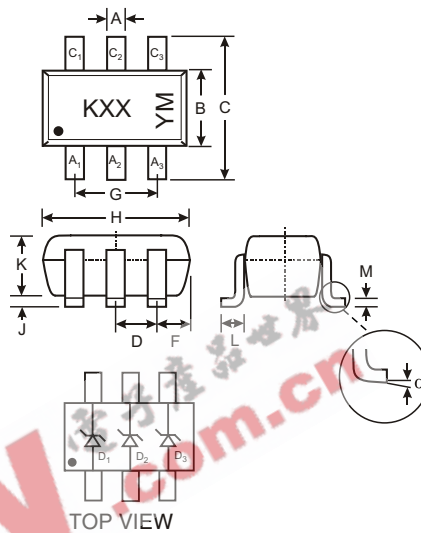
NEW PRODUCT

Features

- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on V_Z
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- **Lead Free By Design/RoHS Compliant (Note 5)**

Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See diagram
- Marking & Type Code Information: See Page 2 & Page 6
- Ordering Information: See Page 6
- 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 |
| α | 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 1) | P_d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 625 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Notes: 1. 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>.

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

Table 1

| Type Number | Type Code | Zener Voltage Range (Note 2) | | | | Maximum Reverse Leakage Current (Note 3) | |
|-------------|-----------|------------------------------|---------|---------|---------------|--|------|
| | | $V_Z @ I_{ZT}$ | | | I_{ZT} | $I_R @ V_R$ | |
| | | Nom (V) | Min (V) | Max (V) | μA | μA | V |
| DDZX9689TS | HH | 5.1 | 4.85 | 5.36 | 50 | 5 | 3 |
| DDZX9690TS | HJ | 5.6 | 5.32 | 5.88 | 50 | 2 | 4 |
| DDZX9691TS | HK | 6.2 | 5.89 | 6.51 | 50 | 1 | 5 |
| DDZX9692TS | HL | 6.8 | 6.46 | 7.14 | 50 | 0.1 | 5.1 |
| DDZX9693TS | HM | 7.5 | 7.13 | 7.88 | 50 | 0.1 | 5.7 |
| DDZX9694TS | HN | 8.2 | 7.79 | 8.61 | 50 | 0.1 | 6.2 |
| DDZX9696TS | HP | 9.1 | 8.65 | 9.56 | 50 | 0.1 | 6.9 |
| DDZX9697TS | HQ | 10 | 9.50 | 10.50 | 50 | 0.1 | 7.6 |
| DDZX9698TS | HR | 11 | 10.45 | 11.55 | 50 | 0.05 | 8.4 |
| DDZX9699TS | HS | 12 | 11.40 | 12.60 | 50 | 0.05 | 9.1 |
| DDZX9700TS | HT | 13 | 12.35 | 13.65 | 50 | 0.05 | 9.8 |
| DDZX9701TS | HU | 14 | 13.30 | 14.70 | 50 | 0.05 | 10.6 |
| DDZX9702TS | HV | 15 | 14.25 | 15.75 | 50 | 0.05 | 11.4 |
| DDZX9703TS | HW | 16 | 15.20 | 16.80 | 50 | 0.05 | 12.1 |
| DDZX9705TS | HY | 18 | 17.10 | 18.90 | 50 | 0.05 | 13.6 |
| DDZX9707TS | MD | 20 | 19.00 | 21.00 | 50 | 0.05 | 15.2 |
| DDZX9708TS | ME | 22 | 20.90 | 23.10 | 50 | 0.05 | 16.7 |
| DDZX9709TS | MF | 24 | 22.80 | 25.20 | 50 | 0.05 | 18.2 |
| DDZX9711TS | MH | 27 | 25.65 | 28.35 | 50 | 0.05 | 20.4 |
| DDZX9712TS | MJ | 28 | 26.60 | 29.40 | 50 | 0.05 | 21.2 |
| DDZX9713TS | MK | 30 | 28.50 | 31.50 | 50 | 0.05 | 22.8 |
| DDZX9714TS | ML | 33 | 31.35 | 34.65 | 50 | 0.05 | 25.0 |
| DDZX9715TS | MM | 36 | 34.20 | 37.80 | 50 | 0.05 | 27.3 |
| DDZX9716TS | MN | 39 | 37.05 | 40.95 | 50 | 0.05 | 29.6 |
| DDZX9717TS | MO | 43 | 40.85 | 45.15 | 50 | 0.05 | 32.6 |

- Notes:
- Nominal Zener voltage is measured with the device junction in thermal equilibrium at $T_J = 30^\circ\text{C} \pm 1^\circ\text{C}$.
 - Short duration pulse test used to minimize self-heating effect.

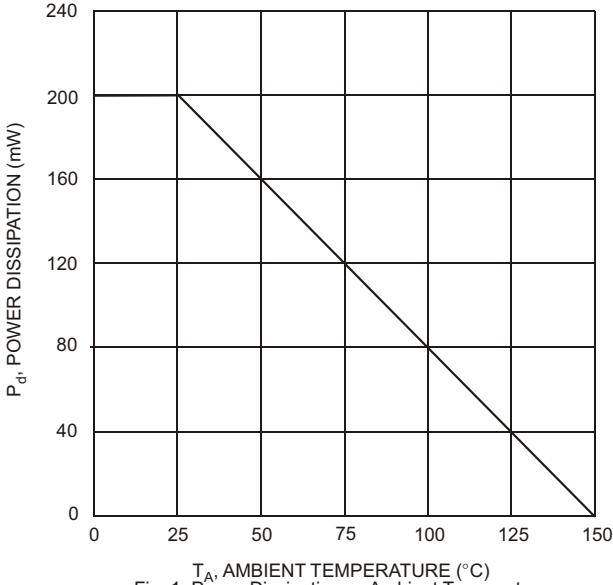


Fig. 1 Power Dissipation vs Ambient Temperature

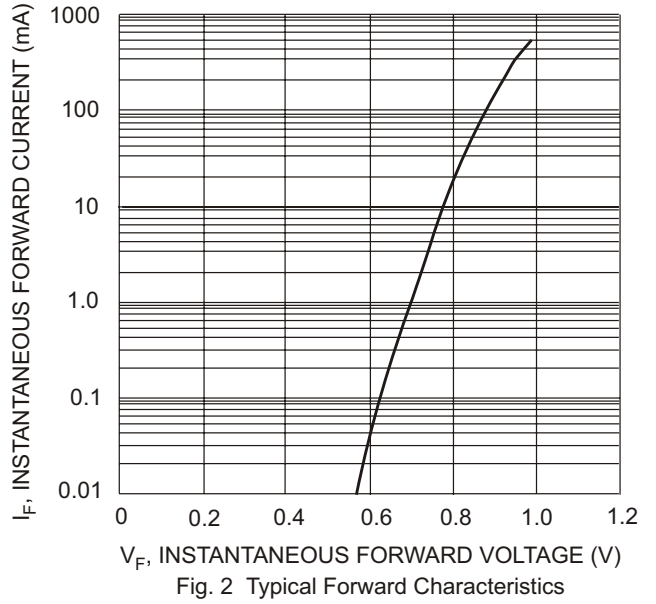


Fig. 2 Typical Forward Characteristics

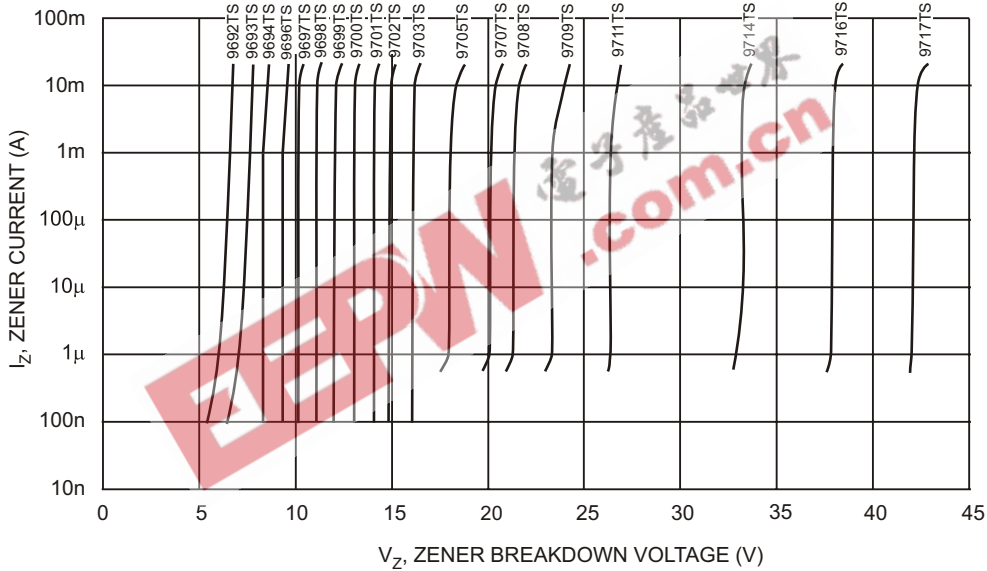


Fig. 3 Typical Reverse Characteristics

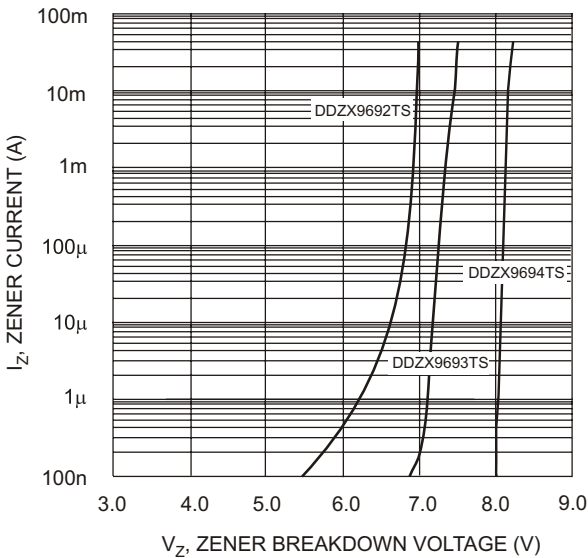


Fig. 4 Typical Reverse Characteristics, DDZX9692TS - DDZX9694TS

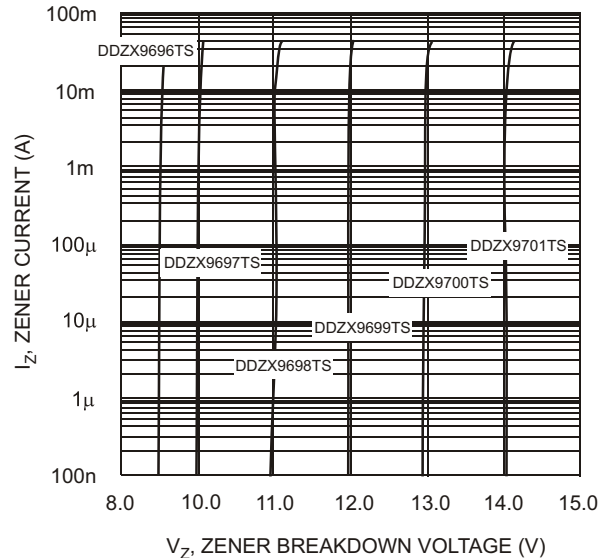


Fig. 5 Typical Reverse Characteristics, DDZX9696TS - DDZX9701TS

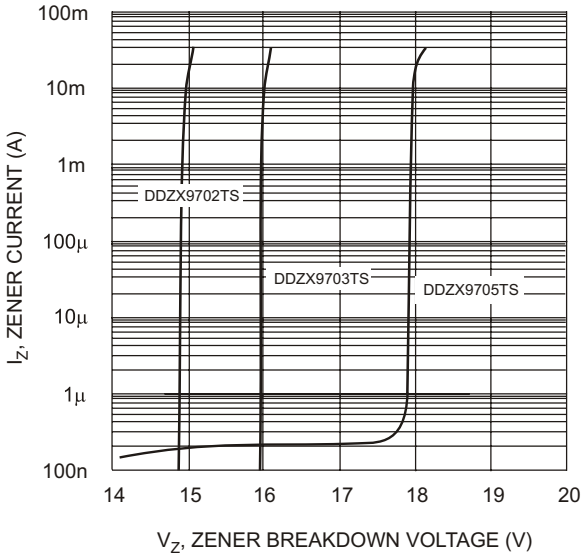


Fig. 6 Typical Reverse Characteristics, DDZX9702TS - DDZX9705TS

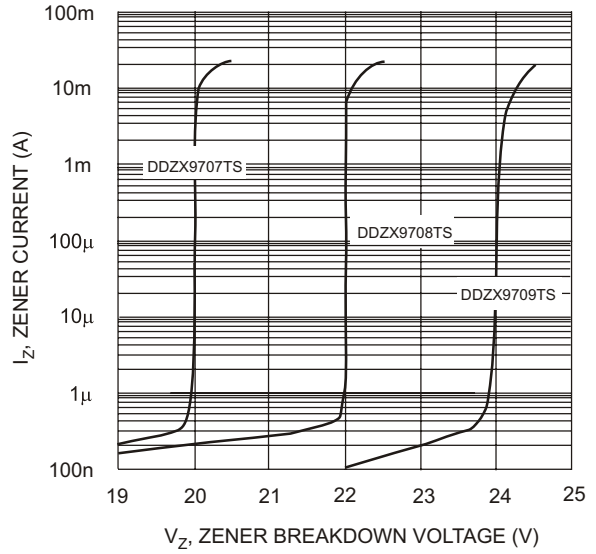


Fig. 7 Typical Reverse Characteristics, DDZX9707TS - DDZX9709TS

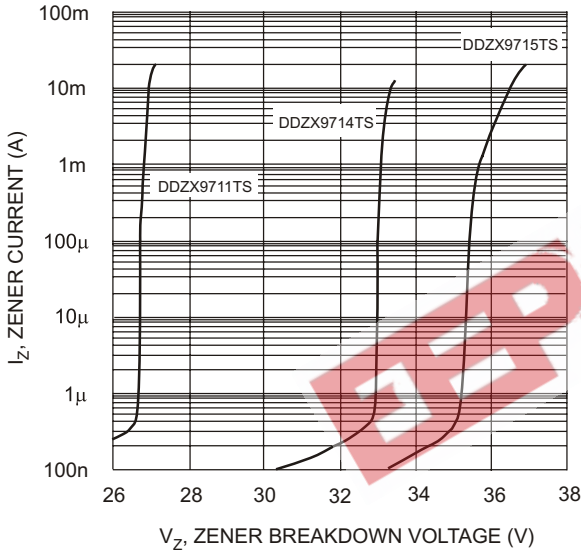


Fig. 8 Typical Reverse Characteristics, DDZX9711TS - DDZX9715TS

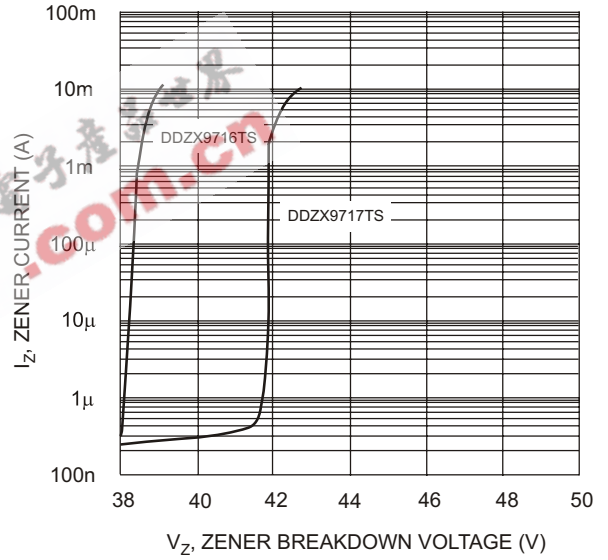


Fig. 9 Typical Reverse Characteristics, DDZX9716TS - DDZX9717TS

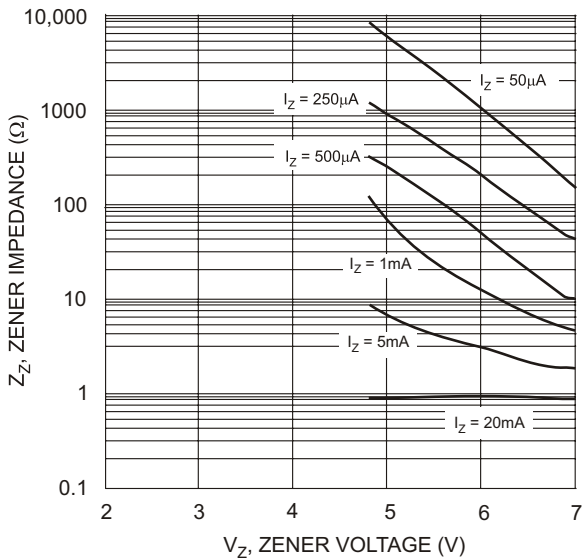


Fig. 10 Typical Zener Impedance Characteristics, DDZX9689TS - DDZX9692TS

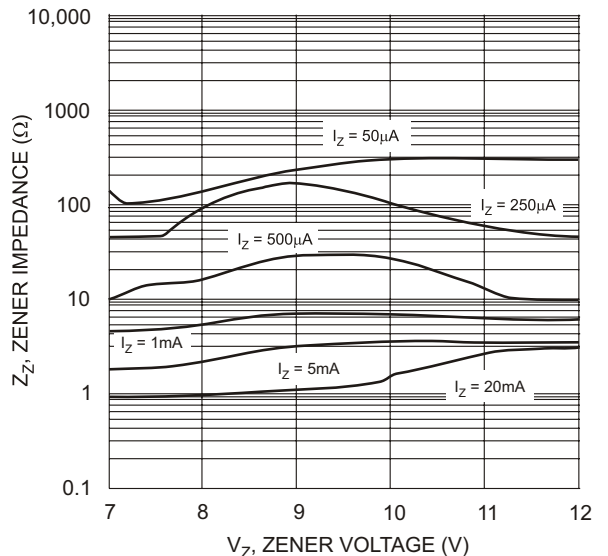


Fig. 11 Typical Zener Impedance Characteristics, DDZX9693TS - DDZX9699TS

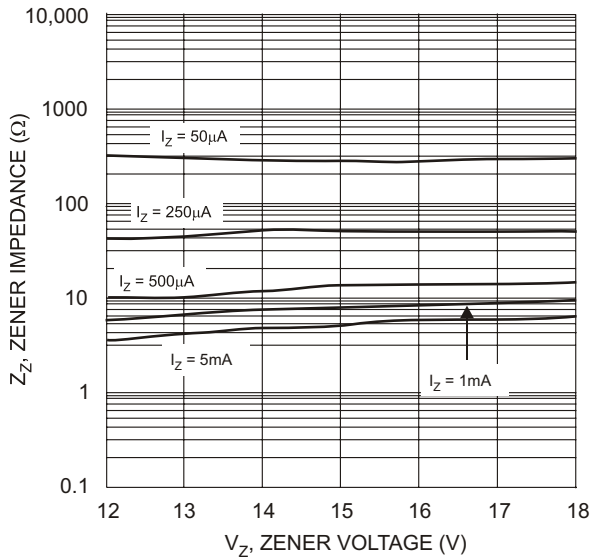


Fig. 12 Typical Zener Impedance Characteristics, DDZX9699TS - DDZX9705TS

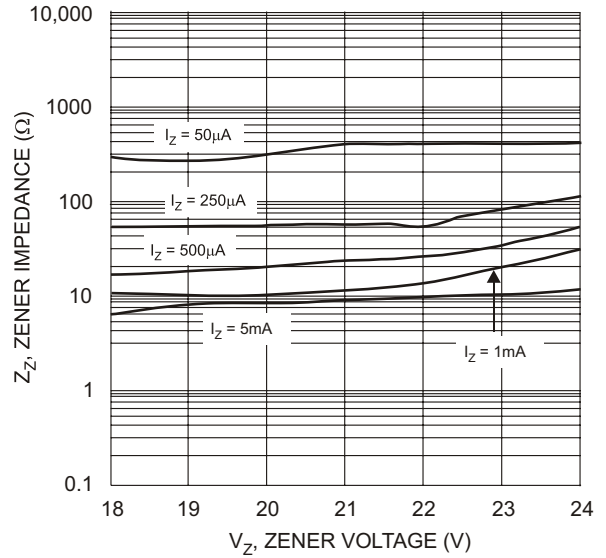


Fig. 13 Typical Zener Impedance Characteristics, DDZX9705TS - DDZX9709TS

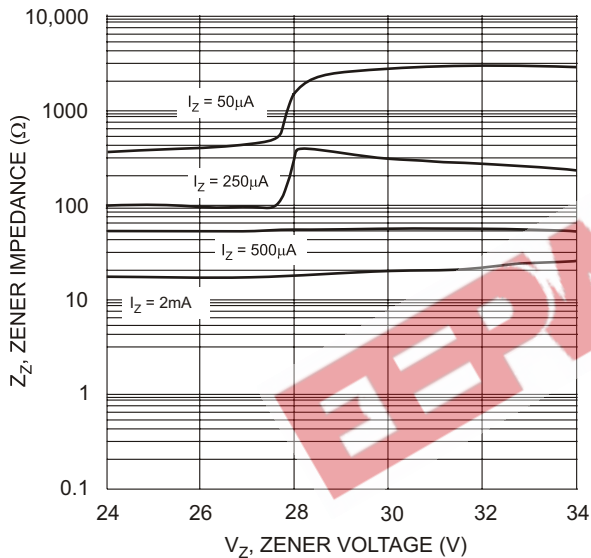


Fig. 14 Typical Zener Impedance Characteristics, DDZX9709TS - DDZX9714TS

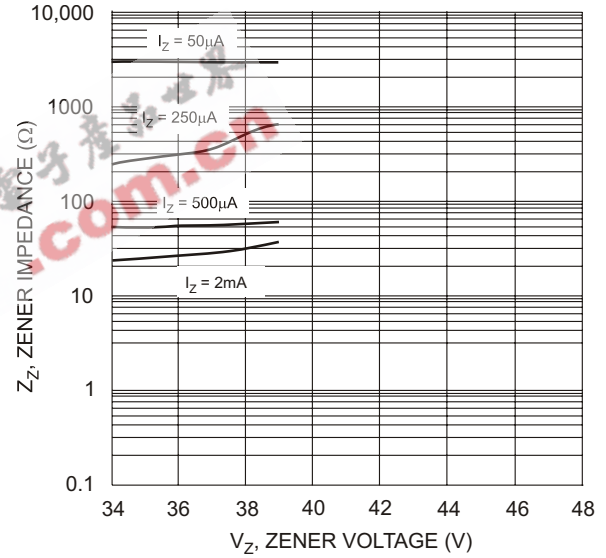


Fig. 15 Typical Zener Impedance Characteristics, DDZX9715TS - DDZX9717TS

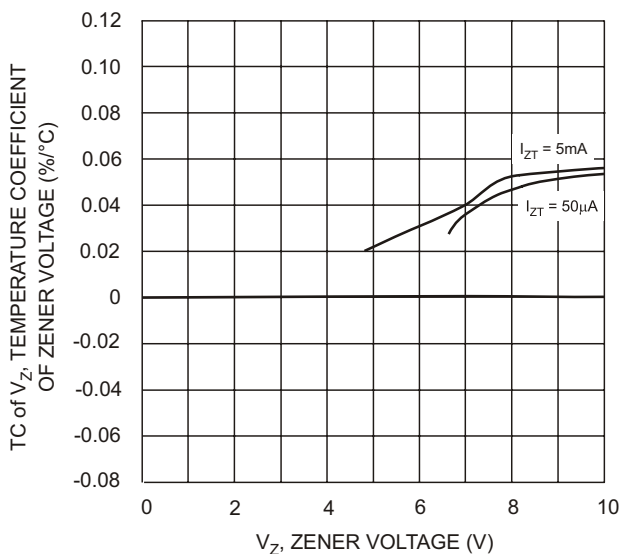


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX9692TS - DDZX9697TS

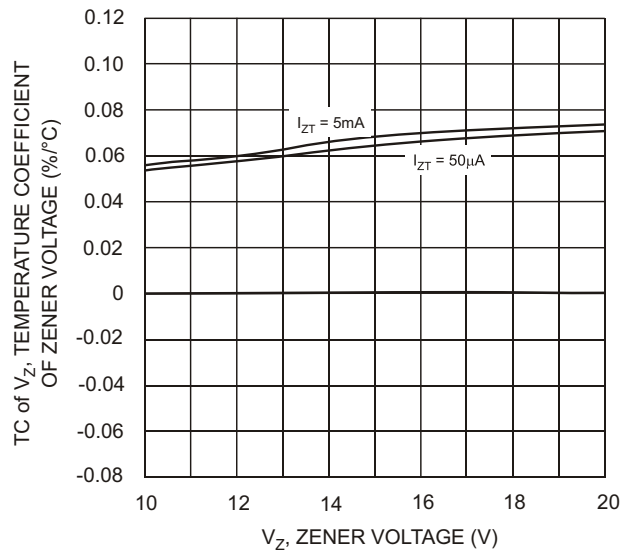


Fig. 17 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX9697TS - DDZX9707TS

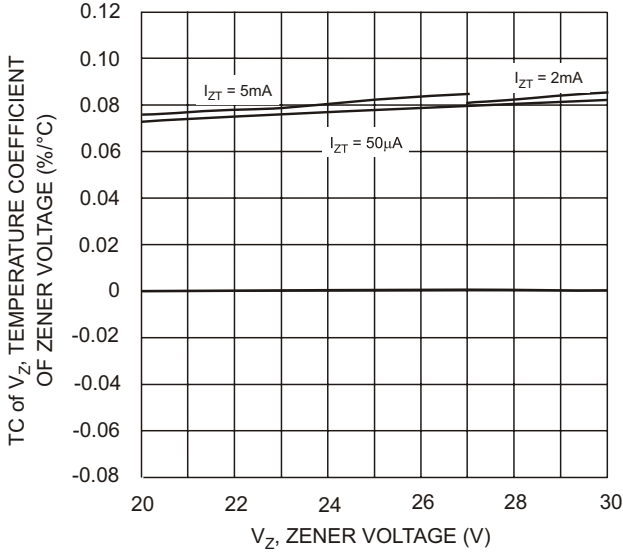


Fig. 18 Typical Temperature Coefficient of Zener Voltage, DDZX9707TS - DDZX9713TS

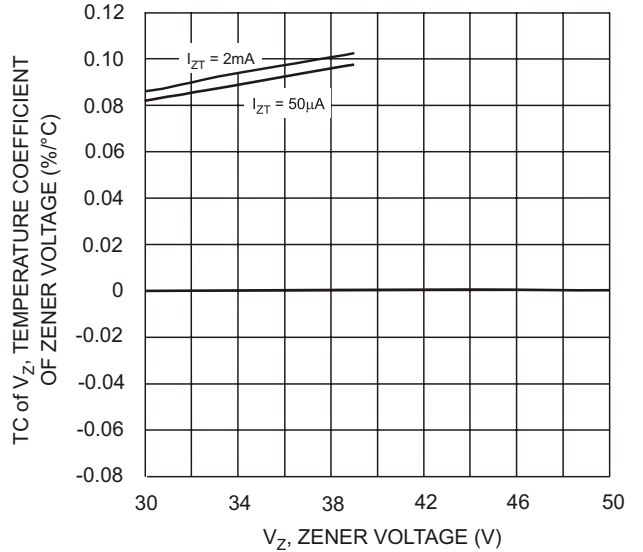


Fig. 19 Typical Temperature Coefficient of Zener Voltage, DDZ9713S - DDZ9716S

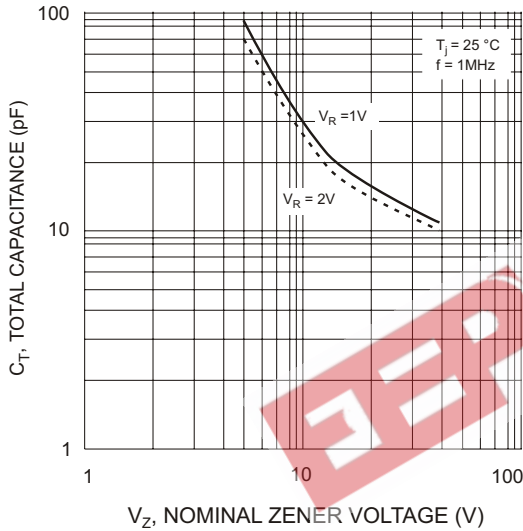


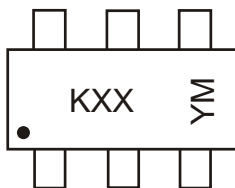
Fig. 20 Total Capacitance vs Nominal Zener Voltage

Ordering Information (Note 4)

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

* Example: The part number for the 6.2 Volt device would be DDZX9691TS-7.
 Note : 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 5. No purposefully added lead.

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 |