


Features

- Small, Low Profile Surface Mount Package
- Very Sharp Breakdown Characteristics
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.002 grams (Approximate)



Top View

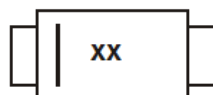
Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---------------------------|--------|-------------------|
| (Type Number)-7* (Note 5) | SOD523 | 3,000/Tape & Reel |

*Example: The part number for the 6.2 Volt device would be DDZ9691T-7.

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
 5. Dispensed in every other cavity of the tape.

Marking Information



xx = Product Type Marking Code
(See Electrical Characteristics Table)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--|----------------|-------|------|
| Forward Voltage @ I _F = 10mA | V _F | 0.9 | V |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 6) | P _D | 150 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 6) | R _{θJA} | 833 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Notes: 6. Device mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/products/packages.html>.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Type Number | Type Code | Zener Voltage Range (Note 7) | | | | Maximum Reverse Leakage Current (Note 8) | |
|-------------|-----------|----------------------------------|---------|---------|-----------------|--|------|
| | | V _Z @ I _{ZT} | | | I _{ZT} | I _R @ V _R | |
| | | Nom (V) | Min (V) | Max (V) | μA | μA | V |
| DDZ9689T | HH | 5.1 | 4.85 | 5.36 | 50 | 5 | 3 |
| DDZ9690T | HJ | 5.6 | 5.32 | 5.88 | 50 | 2 | 4 |
| DDZ9691T | HK | 6.2 | 5.89 | 6.51 | 50 | 1 | 5 |
| DDZ9692T | HL | 6.8 | 6.46 | 7.14 | 50 | 0.1 | 5.1 |
| DDZ9693T | HM | 7.5 | 7.13 | 7.88 | 50 | 0.1 | 5.7 |
| DDZ9694T | HN | 8.2 | 7.79 | 8.61 | 50 | 0.1 | 6.2 |
| DDZ9696T | HP | 9.1 | 8.65 | 9.56 | 50 | 0.1 | 6.9 |
| DDZ9697T | HQ | 10 | 9.50 | 10.50 | 50 | 0.1 | 7.6 |
| DDZ9698T | HR | 11 | 10.45 | 11.55 | 50 | 0.05 | 8.4 |
| DDZ9699T | HS | 12 | 11.40 | 12.60 | 50 | 0.05 | 9.1 |
| DDZ9700T | HT | 13 | 12.35 | 13.65 | 50 | 0.05 | 9.8 |
| DDZ9701T | HU | 14 | 13.30 | 14.70 | 50 | 0.05 | 10.6 |
| DDZ9702T | HV | 15 | 14.25 | 15.75 | 50 | 0.05 | 11.4 |
| DDZ9703T | HW | 16 | 15.20 | 16.80 | 50 | 0.05 | 12.1 |
| DDZ9705T | HY | 18 | 17.10 | 18.90 | 50 | 0.05 | 13.6 |
| DDZ9707T | MD | 20 | 19.00 | 21.00 | 50 | 0.05 | 15.2 |
| DDZ9708T | ME | 22 | 20.90 | 23.10 | 50 | 0.05 | 16.7 |
| DDZ9709T | MF | 24 | 22.80 | 25.20 | 50 | 0.05 | 18.2 |
| DDZ9711T | MH | 27 | 25.65 | 28.35 | 50 | 0.05 | 20.4 |
| DDZ9712T | MJ | 28 | 26.60 | 29.40 | 50 | 0.05 | 21.2 |
| DDZ9713T | MK | 30 | 28.50 | 31.50 | 50 | 0.05 | 22.8 |
| DDZ9714T | ML | 33 | 31.35 | 34.65 | 50 | 0.05 | 25.0 |
| DDZ9715T | MM | 36 | 34.20 | 37.80 | 50 | 0.05 | 27.3 |
| DDZ9716T | MN | 39 | 37.05 | 40.95 | 50 | 0.05 | 29.6 |
| DDZ9717T | MO | 43 | 40.85 | 45.15 | 50 | 0.05 | 32.6 |

Notes: 7. Nominal Zener voltage is measured with the device junction in thermal equilibrium at T_T = 30°C ±1°C.
8. Short duration pulse test used to minimize self-heating effect.

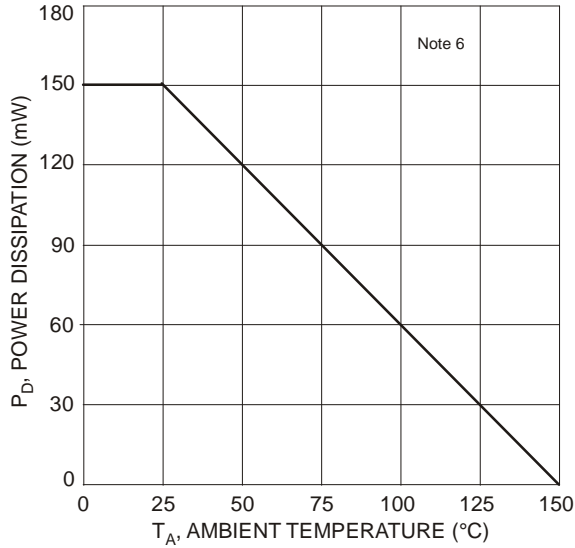


Fig. 1 Power Derating Curve

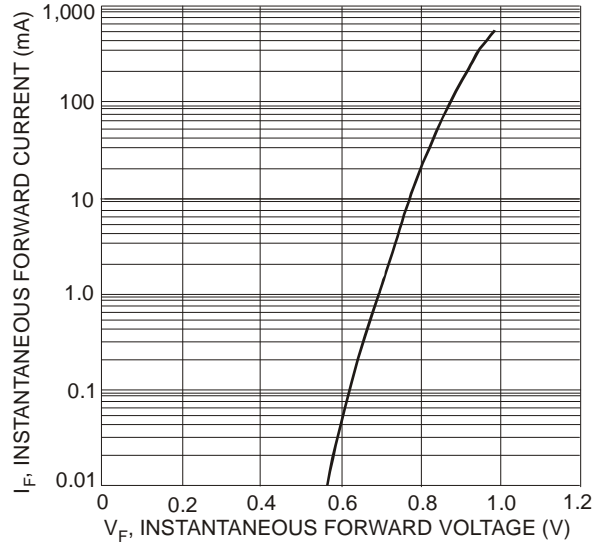


Fig. 2 Typical Forward Characteristics

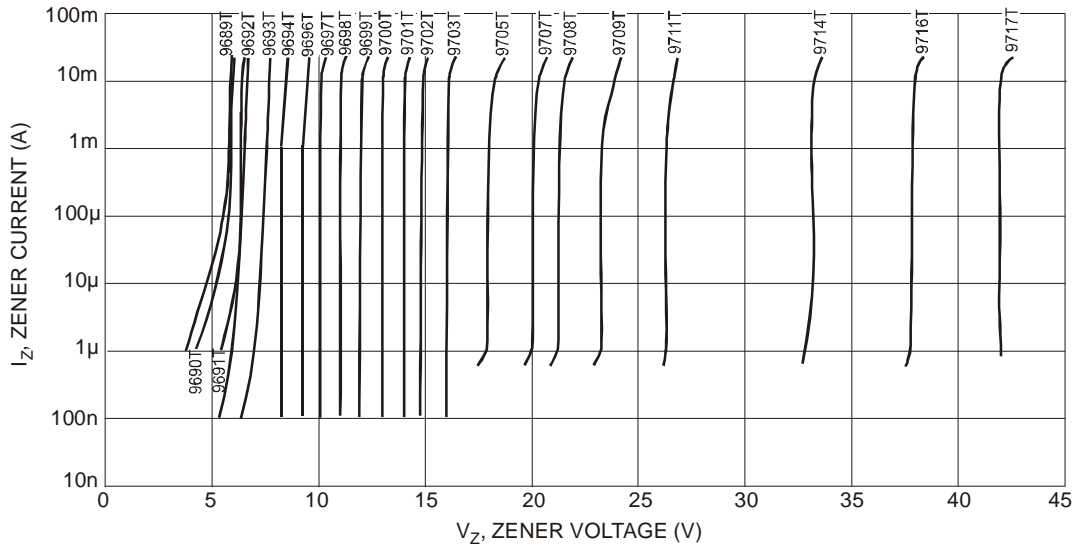


Fig. 3 Typical Zener Breakdown Characteristics

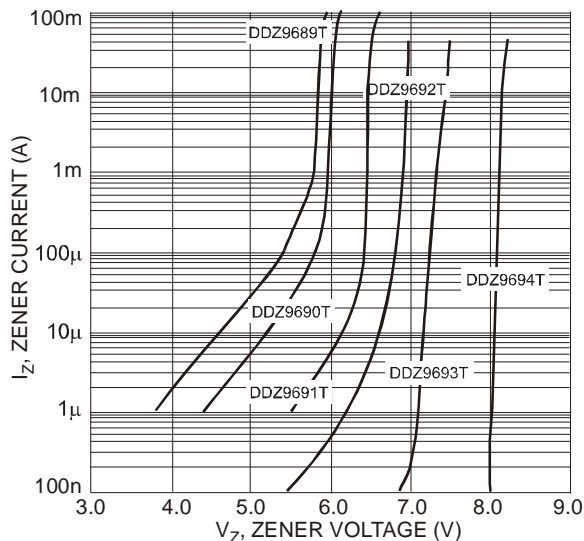


Fig. 4 Typical Zener Breakdown Characteristics, DDZ9692T - DDZ9694T

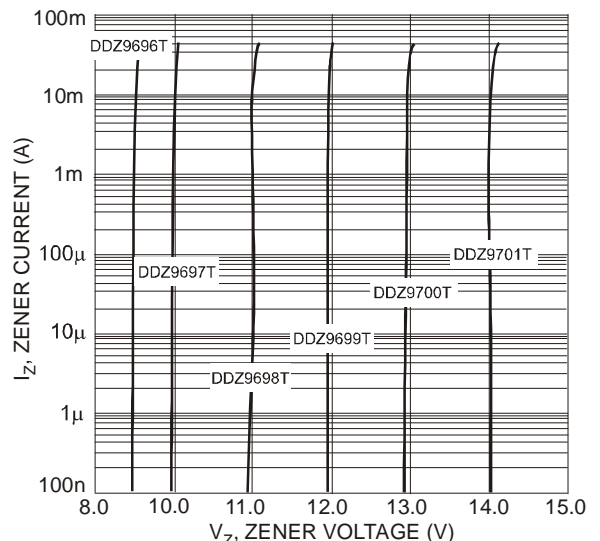


Fig. 5 Typical Zener Breakdown Characteristics, DDZ9696T - DDZ9701T

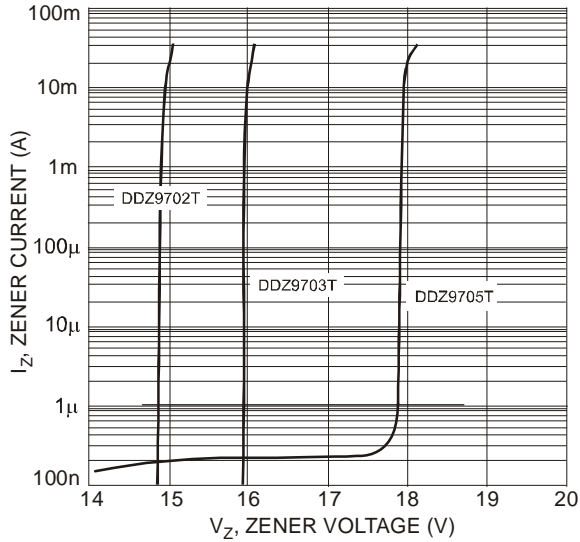


Fig. 6 Typical Zener Breakdown Characteristics, DDZ9702T - DDZ9705T

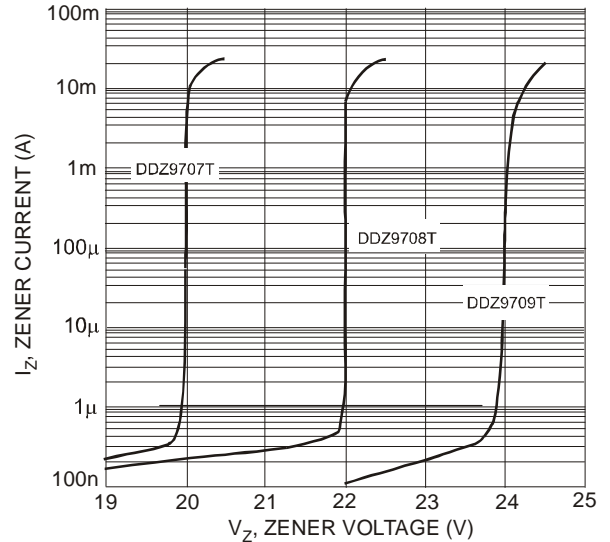


Fig. 7 Typical Zener Breakdown Characteristics, DDZ9707T - DDZ9709T

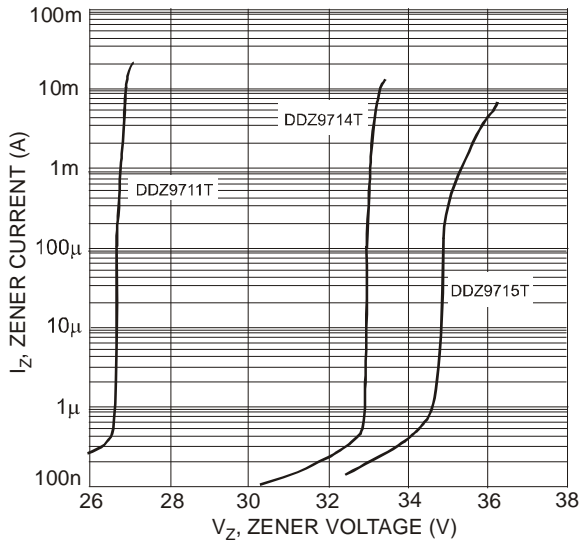


Fig. 8 Typical Zener Breakdown Characteristics, DDZ9711T - DDZ9715T

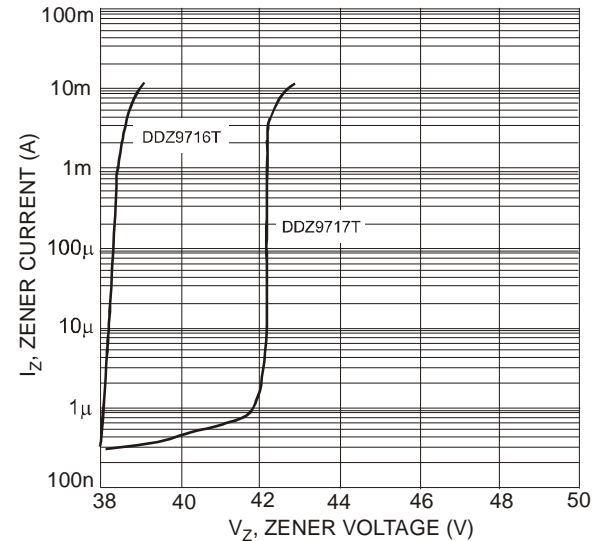


Fig. 9 Typical Zener Breakdown Characteristics, DDZ9716T - DDZ9717T

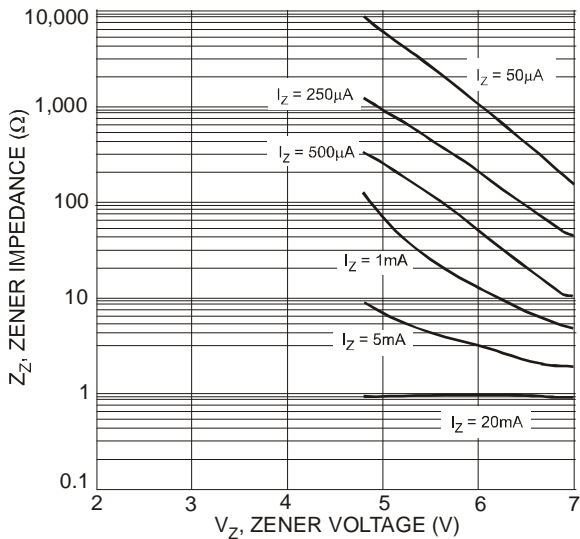


Fig. 10 Typical Zener Impedance Characteristics, DDZ9689T - DDZ9692T

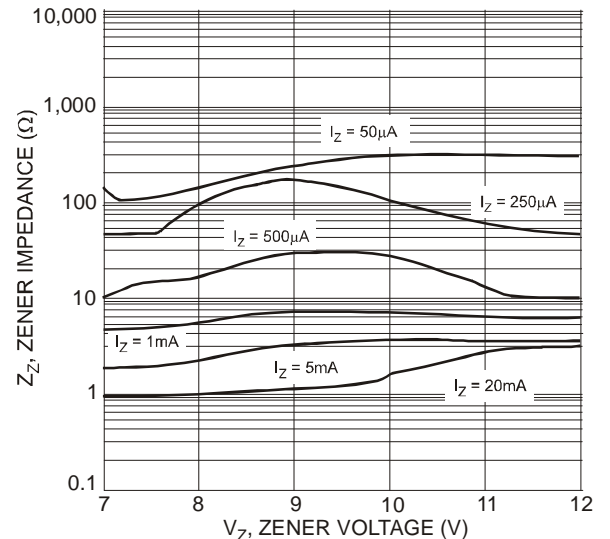


Fig. 11 Typical Zener Impedance Characteristics, DDZ9693T - DDZ9699T

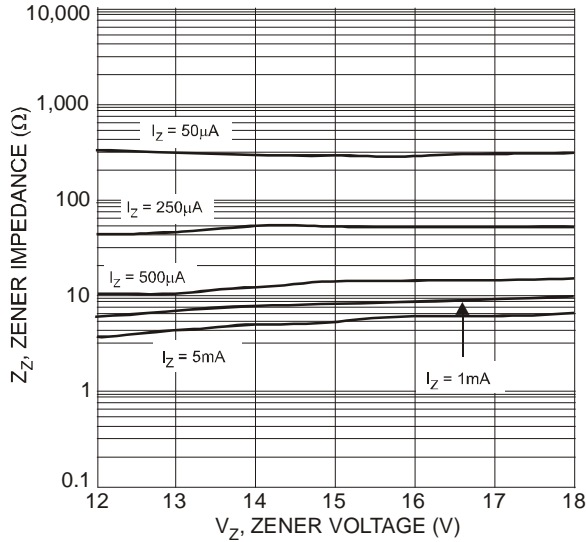


Fig. 12 Typical Zener Impedance Characteristics, DDZ9699T - DDZ9705T

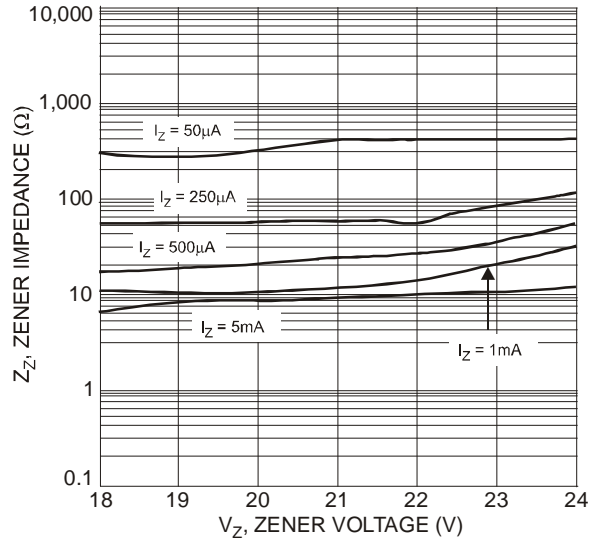


Fig. 13 Typical Zener Impedance Characteristics, DDZ9705T - DDZ9709T

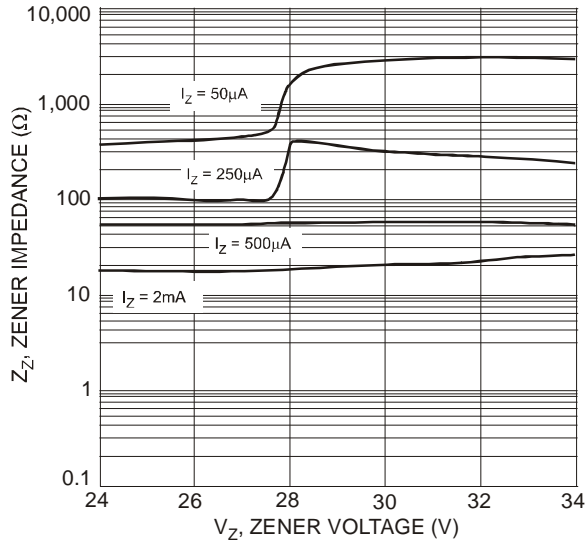


Fig. 14 Typical Zener Impedance Characteristics, DDZ9709T - DDZ9714T

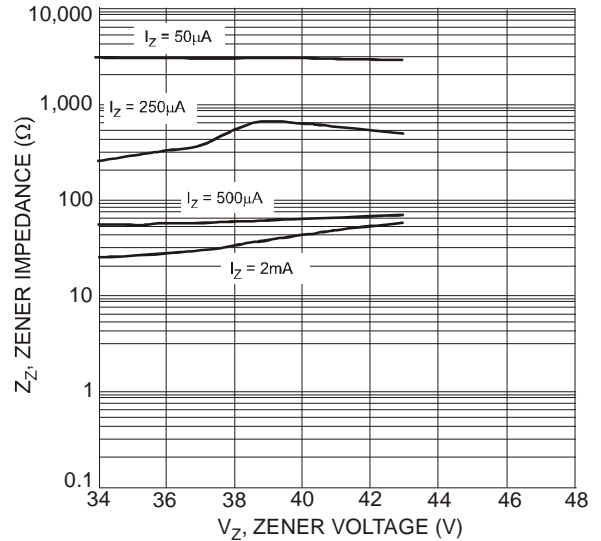


Fig. 15 Typical Zener Impedance Characteristics, DDZ9715T - DDZ9717T

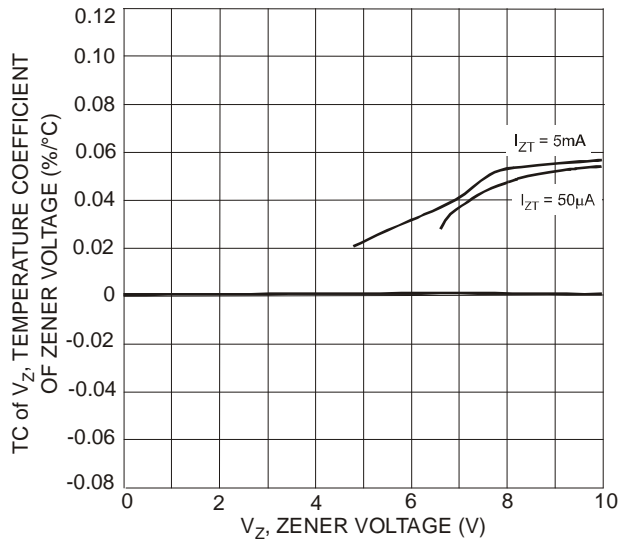


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ9694T - DDZ9697T

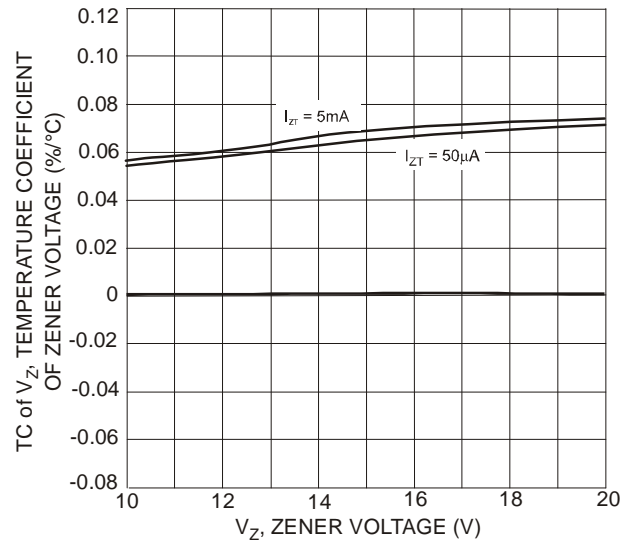


Fig. 17 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ9697T - DDZ9707T

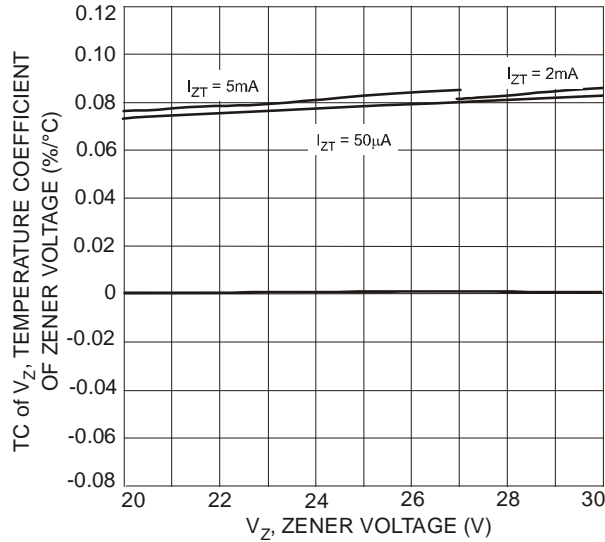


Fig. 18 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ9707T - DDZ9713T

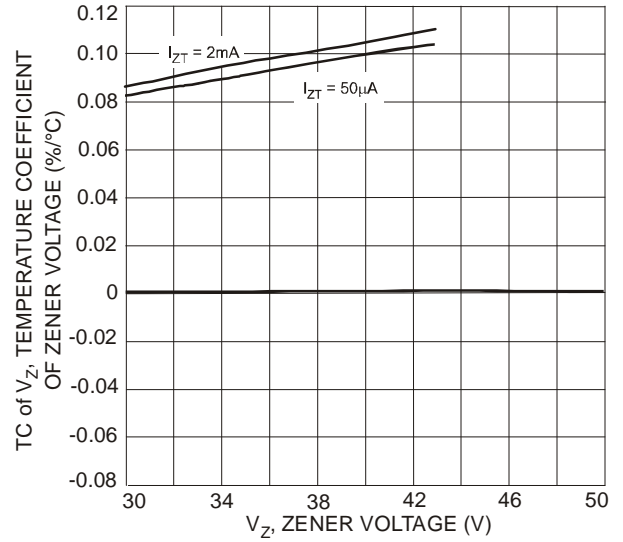
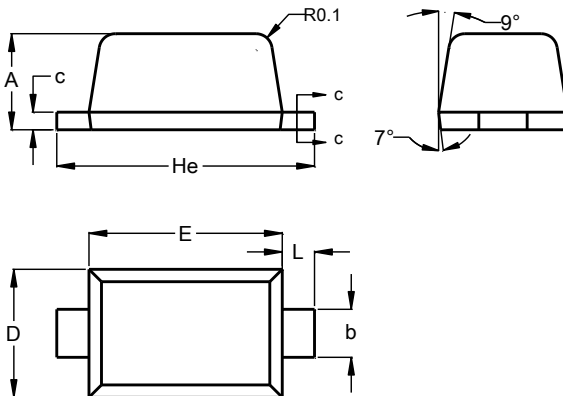


Fig. 19 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ9713T - DDZ9717T

Package Outline Dimensions

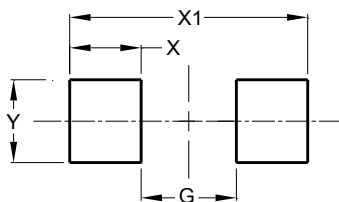
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SOD523 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.55 | 0.65 |
| b | 0.26 | 0.34 |
| c | 0.11 | 0.17 |
| D | 0.75 | 0.85 |
| E | 1.15 | 1.25 |
| He | 1.55 | 1.65 |
| L | 0.10 | 0.30 |
| All Dimensions in mm | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| G | 0.80 |
| X | 0.60 |
| X1 | 2.00 |
| Y | 0.70 |

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