

Features

- 300mW Power Dissipation on FR-4 PCB
- Very Tight Tolerance on Vz
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DDZX5V6AQ - DDZX12CQ are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

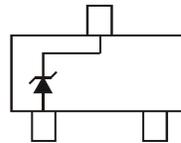
Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SOT23



Top View



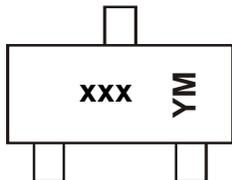
Device Schematic

Ordering Information (Note 4)

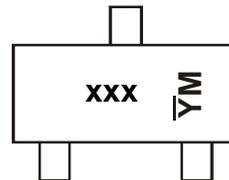
| Part Number | Package | Packing | |
|-------------|---------|---------|-------------|
| | | Qty. | Carrier |
| DDZX5V6AQ-7 | SOT23 | 3000 | Tape & Reel |
| DDZX12CQ-7 | SOT23 | 3000 | Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



xxx = Product Type Marking Code (See *Electrical Characteristics Table*)
 YM = Date Code Marking for Shanghai Assembly/Test Site
 Y = Year (ex: L = 2024)
 M = Month (ex: 3 = March)



xxx = Product Type Marking Code (See *Electrical Characteristics Table*)
 YM = Date Code Marking for Chengdu Assembly/Test Site
 Y = Year (ex: L = 2024)
 M = Month (ex: 3 = March)

Date Code Key

| Year | 2020 | - | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|------|------|---|------|------|------|------|------|------|------|------|------|------|
| Code | H | - | L | M | N | P | R | S | T | U | V | W |

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

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 5) | P _D | 300 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 5) | R _{θJA} | 417 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

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

| Part Number | Marking Code | Zener Voltage Range (Note 6) | | | Maximum Zener Impedance f = 1kHz | | | Maximum Reverse Current (Note 7) | | |
|-------------|--------------|----------------------------------|---------|-----------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------|------------------|
| | | V _Z @ I _{ZT} | | I _{ZT} | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | I _{ZK} | I _R | @ V _R |
| | | Min (V) | Max (V) | mA | mA | Ω | Ω | mA | μA | V |
| DDZX5V6AQ-7 | KZ2 | 5.28 | 5.55 | 20 | 20 | 80 | 460 | 1 | 7.0 | 2.0 |
| | | 5.15 | 5.45 | 5 | | | | | | |
| DDZX12CQ-7 | KYV | 11.74 | 12.35 | 10 | 10 | 12 | 110 | 0.5 | 0.1 | 9.1 |

- Notes:
5. Device mounted on FR-4 PCB with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. The zener voltage is measured < 40ms after power is supplied.
 7. Short duration pulse test used to minimize self-heating effect.

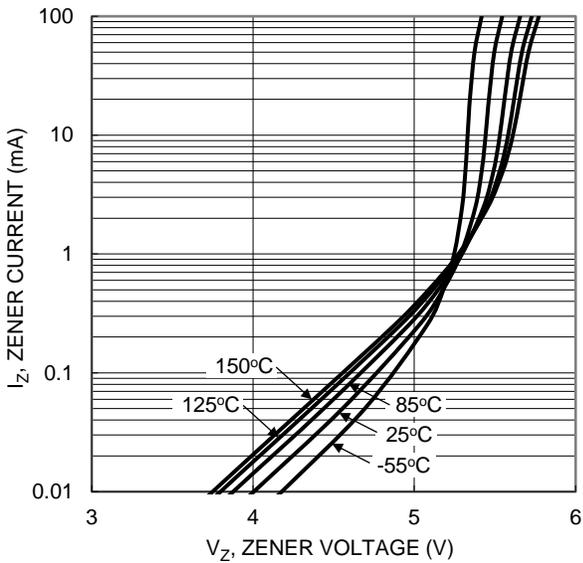
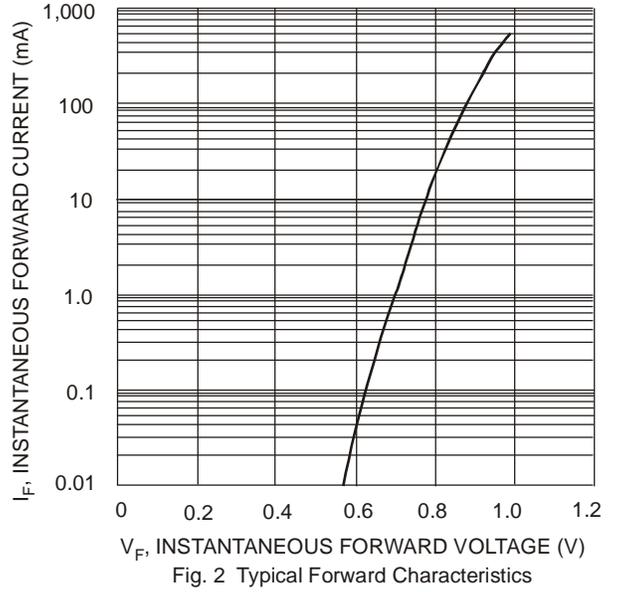
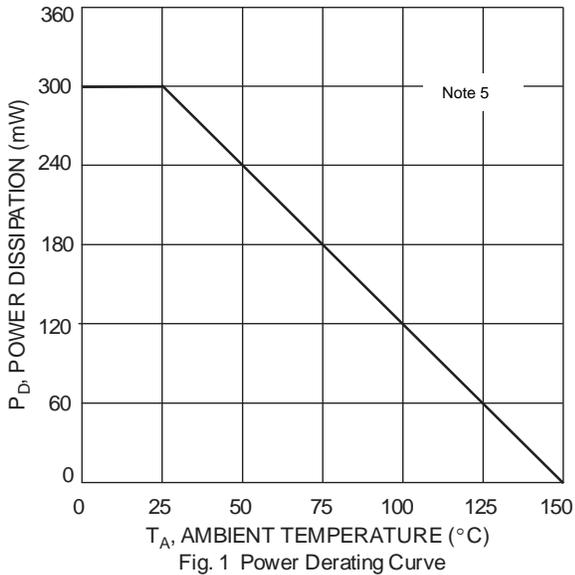


Fig. 3 Typical Reverse Characteristics
DDZX5V6AQ

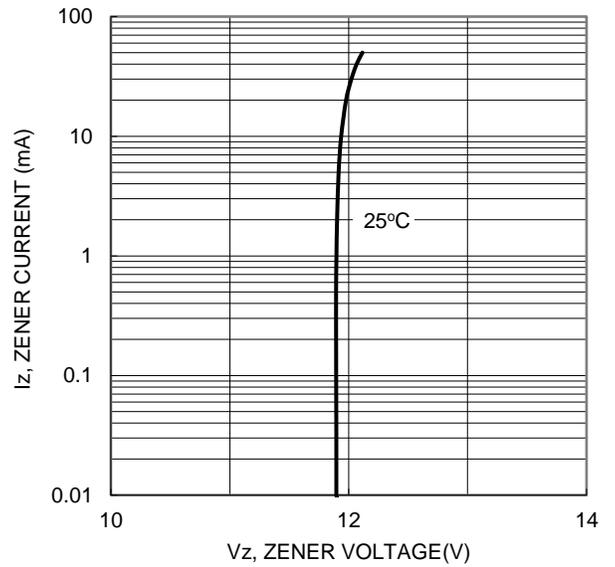


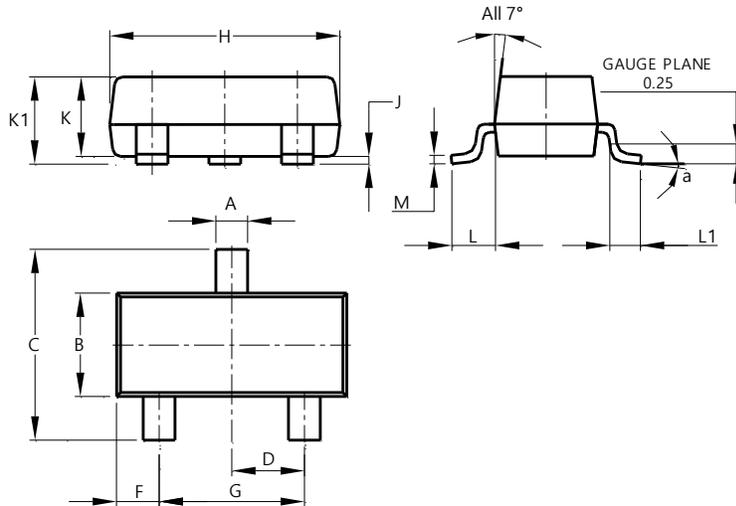
Fig. 4 Typical Reverse Characteristics
DDZX12CQ

Note: 5. Device mounted on FR-4 PCB with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.

Package Outline Dimensions

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

SOT23

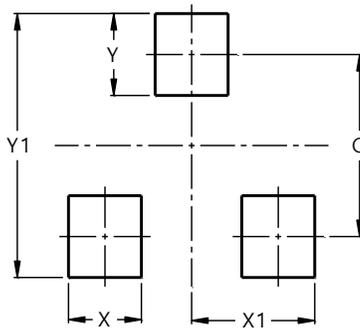


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.890 | 1.00 | 0.975 |
| K1 | 0.903 | 1.10 | 1.025 |
| L | 0.45 | 0.61 | 0.55 |
| L1 | 0.25 | 0.55 | 0.40 |
| M | 0.085 | 0.150 | 0.110 |
| a | 0° | 8° | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

SOT23



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.0 |
| X | 0.8 |
| X1 | 1.35 |
| Y | 0.9 |
| Y1 | 2.9 |

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