

Features

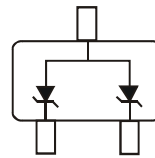
- Nominal Zener Voltages: 5.6V, 6.8V, 10V, 18V
- Ultra-Small Surface Mount Package
- Ideal For Transient Suppression
- Lead Free/RoHS Compliant (Note 4)**
- "Green" Device (Note 5 and 6)**

ESD Sensitivity Rating

- AEC-Q101, HBM - 8kV, MM - 400V (AZ23C5V6W - AZ23C18W)
- IEC 61000-4-2, Air - Exceeds 25kV, Contact - 8kV (AZ23C5V6W, AZ23C6V8W)
- IEC 61000-4-2, Air - Exceeds 15kV, Contact - 8kV (AZ23C10W, AZ23C18W)



Top View



Device Schematic

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 6. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: See Table Below & Page 2
- Ordering Information: See Page 2
- Weight: 0.006 grams (approximate)

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---------------------------------------|--------|-------|------|
| Forward Voltage @ $I_F = 10\text{mA}$ | V_F | 0.9 | V |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| 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 | $^\circ\text{C}$ |

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

| Type Number | Marking Code | Zener Voltage Range (Note 2) | | | Maximum Zener Impedance (Note 3) | | | | Maximum Reverse Current (Note 2) | | Temperature Coefficient of Zener Voltage @ $I_{ZT} = 5\text{mA}$ | |
|-------------|--------------|------------------------------|---------|---------|----------------------------------|-----|-------------------|-----|----------------------------------|------|--|------|
| | | $V_Z @ I_{ZT}$ | | | $Z_{ZT} @ I_{ZT}$ | | $Z_{ZK} @ I_{ZK}$ | | $I_R @ V_R$ | | $T_C (mV/^\circ\text{C})$ | |
| | | Nom (V) | Min (V) | Max (V) | Ω | mA | Ω | mA | μA | V | Min | Max |
| AZ23C5V6W | KD9 | 5.6 | 5.32 | 5.88 | 40 | 5.0 | 400 | 1.0 | 1.0 | 2.0 | -2.0 | 2.5 |
| AZ23C6V8W | KDB | 6.8 | 6.47 | 7.14 | 15 | 5.0 | 80 | 1.0 | 2.0 | 4.0 | 1.2 | 4.5 |
| AZ23C10W | KDF | 10 | 9.4 | 10.6 | 15 | 5.0 | 70 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 |
| AZ23C18W | KDL | 18 | 16.8 | 19.1 | 50 | 5.0 | 170 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 |

- Notes:
- Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 - Short duration pulse test used to minimize self-heating.
 - $f = 1\text{KHz}$.
 - No purposefully added lead.
 - Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - Product manufactured with date code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to date code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

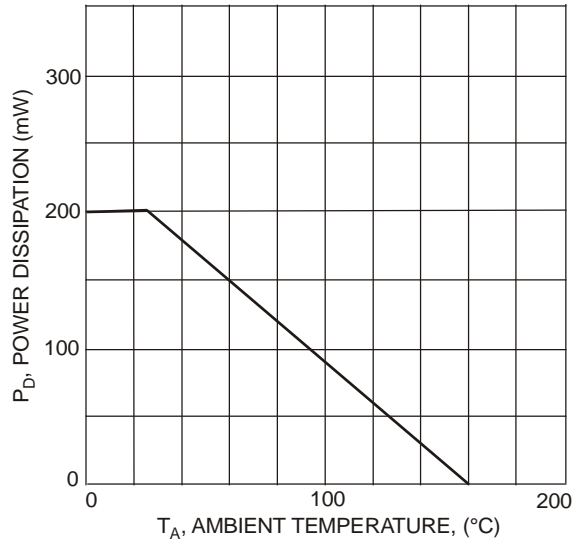


Fig. 1 Power Derating Curve

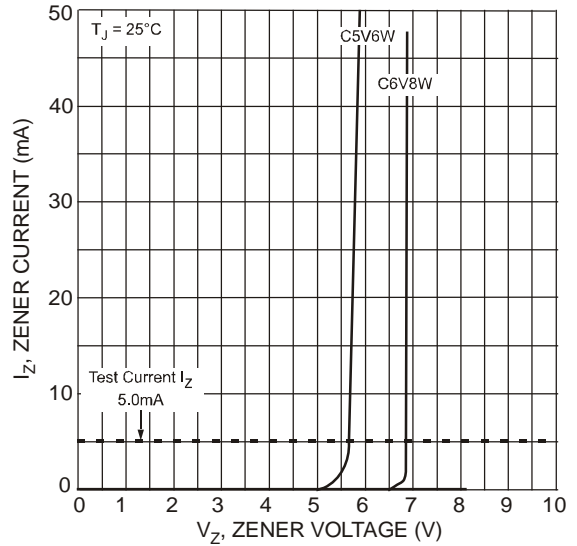


Fig. 2 Typical Zener Breakdown Characteristics

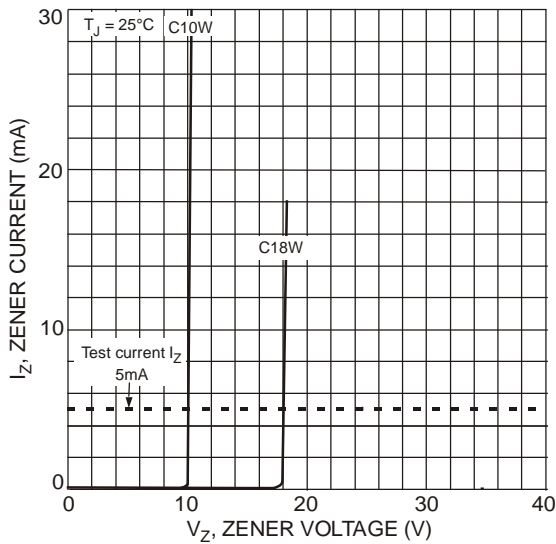


Fig. 3 Typical Zener Breakdown Characteristics

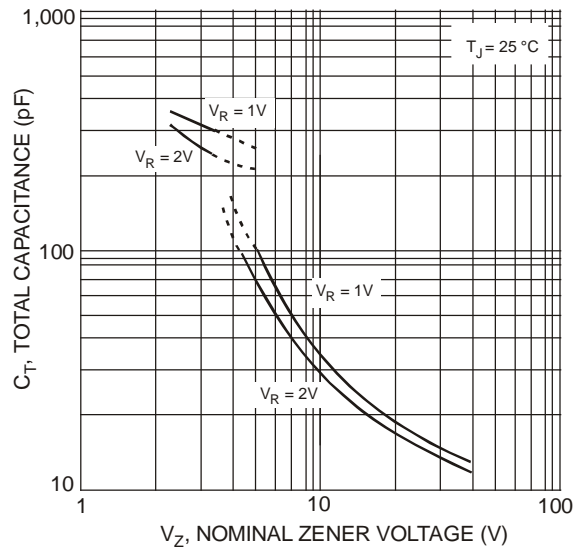


Fig. 4 Typical Total Capacitance vs. Nominal Zener Voltage

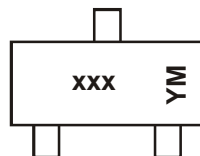
Ordering Information (Notes 6 & 7)

| Part Number | Case | Packaging |
|--------------------|---------|------------------|
| (Type Number)-7-F* | SOT-323 | 3000/Tape & Reel |

* Add "-7-F" to the appropriate type number in Electrical Characteristics Table from Page 1 example: 6.8V Zener = AZ23C6V8W-7-F.

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



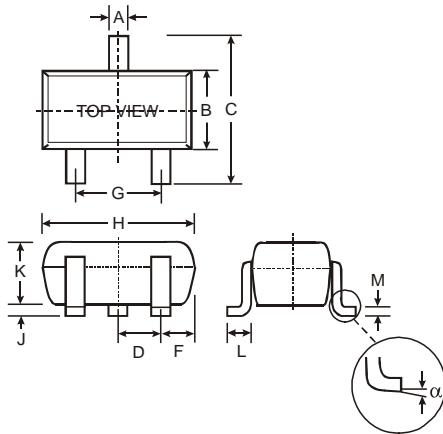
xxx = Product Type Marking Code
See Electrical Characteristics Table
YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2111 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | J | K | L | M | N | P | R | S | T | U | V | W | X | Y | Z |

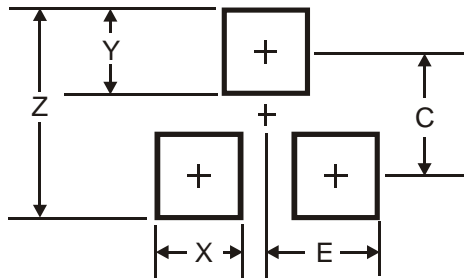
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Package Outline Dimensions



| SOT-323 | | |
|----------------------|--------------|------|
| Dim | Min | Max |
| A | 0.25 | 0.40 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Nominal | |
| F | 0.30 | 0.40 |
| G | 1.20 | 1.40 |
| H | 1.80 | 2.20 |
| J | 0.0 | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.18 |
| α | 0° | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.8 |
| X | 0.7 |
| Y | 0.9 |
| C | 1.9 |
| E | 1.0 |

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