



**THE DATASHEET OF**  
**AZ23C5V6W-7-F**



## Features

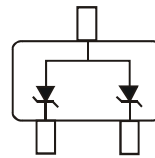
- Nominal Zener Voltages: 5.6V, 6.8V, 10V, 18V
- Ultra-Small Surface Mount Package
- Ideal For Transient Suppression
- **Lead Free/RoHS Compliant (Note 4)**
- **"Green" Device (Note 5 and 6)**

## 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) | $\Omega$                         | mA  | $\Omega$          | mA  | $\mu\text{A}$                    | 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:
1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. Short duration pulse test used to minimize self-heating.
  3.  $f = 1\text{KHz}$ .
  4. No purposefully added lead.
  5. Diodes Inc.'s "Green" Policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  6. 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.

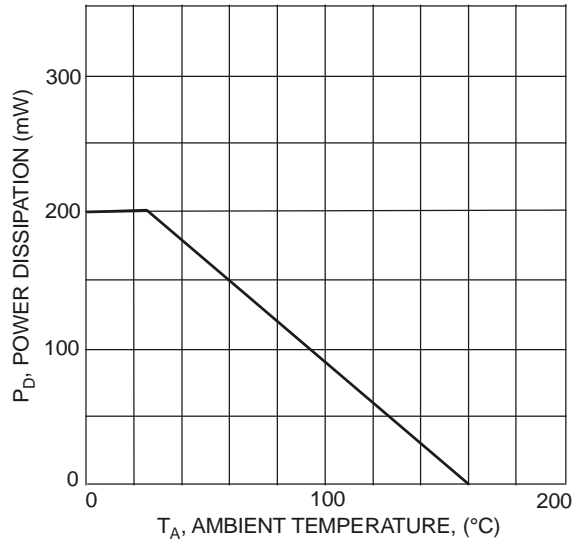


Fig. 1 Power Derating Curve

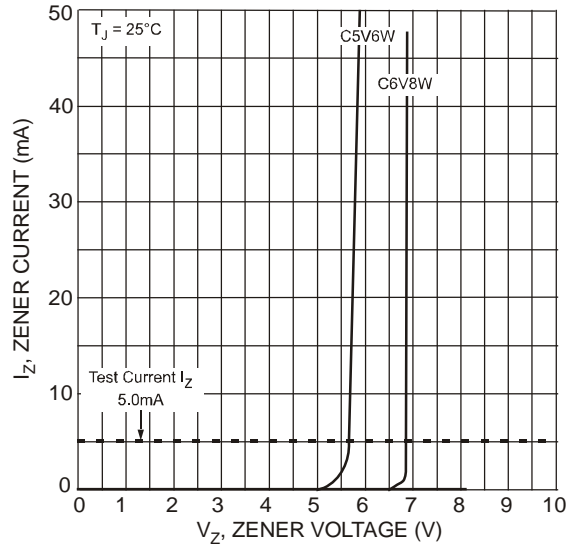


Fig. 2 Typical Zener Breakdown Characteristics

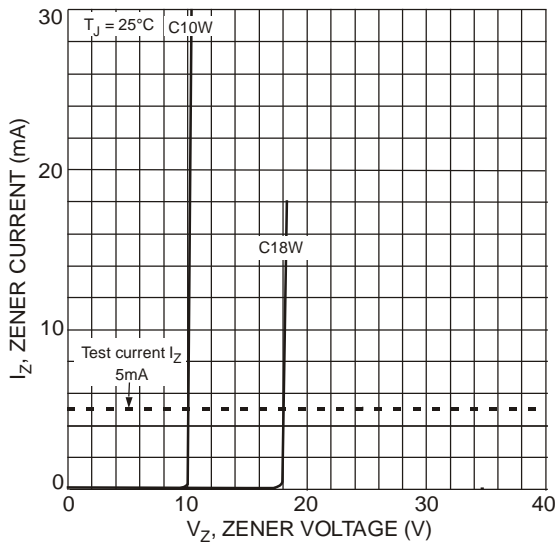


Fig. 3 Typical Zener Breakdown Characteristics

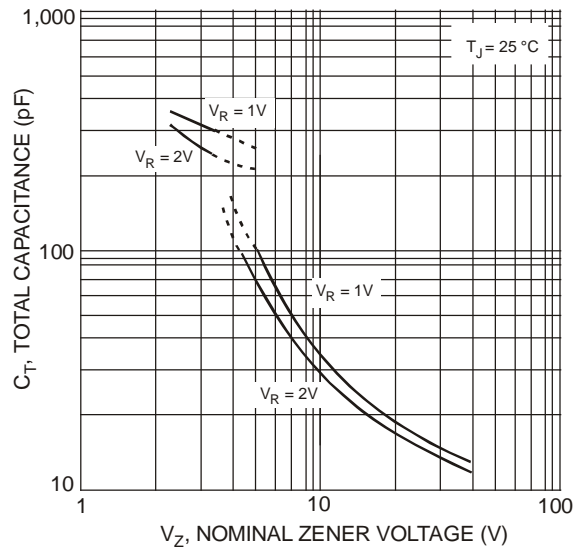


Fig. 4 Typical Total Capacitance vs. Nominal Zener Voltage

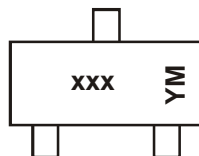
### Ordering Information (Notes 6 & 7)

| 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)

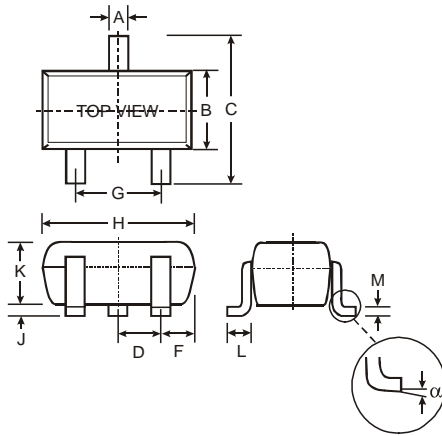
Date Code Key

| 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    |

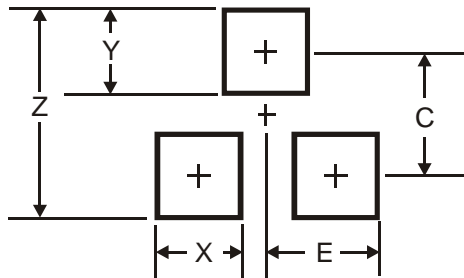
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

### 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 |
| $\alpha$             | 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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