

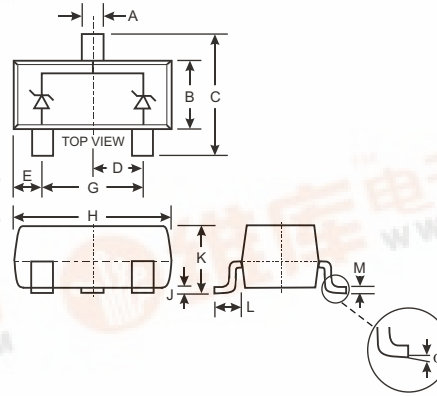


DZ23C2V7 - DZ23C51

300mW DUAL SURFACE MOUNT ZENER DIODE

Features

- Dual Zeners in Common Cathode Configuration
- 300 mW Power Dissipation
- Ideally Suited for Automatic Insertion
- V_Z For Both Diodes in One Case is $\pm 5\%$
- Common Anode Style Available
- See AZ Series
- Lead Free/RoHS Compliant (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability**



| SOT-23 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| E | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| | 0 | 8 |
| All Dimensions in mm | | |

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagram
- Marking: Marking Code (See Page 2)
- Weight: 0.008 grams (approximate)

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

| Characteristic | Symbol | Value | Unit |
|------------------------------------------------------|----------------|-------------|---------------------------|
| Power Dissipation (Note 1) | P_d | 300 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R_{JA} | 417 | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Note: 1. Mounted on FR4 PC Board with recommended pad layout which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

Ordering Information (Note 2)

| Device | Packaging | Shipping |
|-------------------|-----------|------------------|
| (Type Number)-7-F | SOT-23 | 3000/Tape & Reel |

* Add "-7-F" to the appropriate type number in Table on Page 2 example: 6.2V Zener = DZ23C6V2-7-F.

- Note: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
3. No purposefully added lead.



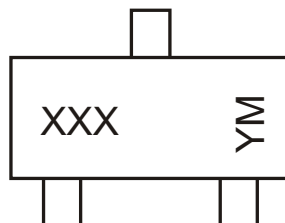
Electrical Characteristics

@T_A = 25°C unless otherwise noted

| Type Number | Marking Code | Zener Voltage Range (Note 4) | Maximum Zener Impedance (Note 5) | | Typical Temperature Coefficient | Min. Reverse Voltage (Note 4) |
|-------------|--------------|------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------|-------------------------------|
| | | @ I _{ZT} = 5.0mA | Z _{ZT} @ I _{ZT} = 5.0mA | Z _{ZK} @ I _{ZK} = 1.0mA | | @ I _R = 0.1µA |
| | | V _Z (Volts) | Ohms | Ohms | T _C (%/°C) | V _R (Volts) |
| DZ23C2V7 | KV1 | 2.5-2.9 | 83 | 500 | -0.065 | — |
| DZ23C3V0 | KV2 | 2.8-3.2 | 95 | 500 | -0.060 | — |
| DZ23C3V3 | KV3 | 3.1-3.5 | 95 | 500 | -0.055 | — |
| DZ23C3V6 | KV4 | 3.4-3.8 | 95 | 500 | -0.055 | — |
| DZ23C3V9 | KV5 | 3.7-4.1 | 95 | 500 | -0.050 | — |
| DZ23C4V3 | KV6 | 4.0-4.6 | 95 | 500 | -0.035 | — |
| DZ23C4V7 | KV7 | 4.4-5.0 | 78 | 500 | -0.015 | — |
| DZ23C5V1 | KV8 | 4.8-5.4 | 60 | 480 | +0.005 | 0.8 |
| DZ23C5V6 | KV9 | 5.2-6.0 | 40 | 400 | +0.020 | 1.0 |
| DZ23C6V2 | KVA | 5.8-6.6 | 10 | 200 | +0.030 | 2.0 |
| DZ23C6V8 | KVB | 6.4-7.2 | 8.0 | 150 | +0.045 | 3.0 |
| DZ23C7V5 | KVC | 7.0-7.9 | 7.0 | 50 | +0.050 | 5.0 |
| DZ23C8V2 | KVD | 7.7-8.7 | 7.0 | 50 | +0.055 | 6.0 |
| DZ23C9V1 | KVE | 8.5-9.6 | 10 | 50 | +0.065 | 7.0 |
| DZ23C10 | KVF | 9.4-10.6 | 15 | 70 | +0.065 | 7.5 |
| DZ23C11 | KVG | 10.4-11.6 | 20 | 70 | +0.070 | 8.5 |
| DZ23C12 | KVH | 11.4-12.7 | 20 | 90 | +0.075 | 9.0 |
| DZ23C13 | KVI | 12.4-14.1 | 25 | 110 | +0.080 | 10.0 |
| DZ23C15 | KVJ | 13.8-15.6 | 30 | 110 | +0.080 | 11.0 |
| DZ23C16 | KVK | 15.3-17.1 | 40 | 170 | +0.090 | 12.0 |
| DZ23C18 | KVL | 16.8-19.1 | 50 | 170 | +0.090 | 14.0 |
| DZ23C20 | KVM | 18.8-21.2 | 50 | 220 | +0.090 | 15.0 |
| DZ23C22 | KVN | 20.8-23.3 | 55 | 220 | +0.090 | 17.0 |
| DZ23C24 | KVO | 22.8-25.6 | 80 | 220 | +0.090 | 18.0 |
| DZ23C27 | KVP | 25.1-28.9 | 80 | 250 | +0.090 | 20.0 |
| DZ23C30 | KVQ | 28-32 | 80 | 250 | +0.090 | 22.5 |
| DZ23C33 | KVR | 31-35 | 80 | 250 | +0.090 | 25.0 |
| DZ23C36 | KVS | 34-38 | 90 | 250 | +0.090 | 27.0 |
| DZ23C39 | KVT | 37-41 | 90 | 300 | +0.110 | 29.0 |
| DZ23C43 | V30/KVU | 40-46 | 100 | 700 | +0.110 | 32.0 |
| DZ23C47 | V31/KVV | 44-50 | 100 | 750 | +0.110 | 35.0 |
| DZ23C51 | V32/KVW | 48-54 | 100 | 750 | +0.110 | 38.0 |

Note: 4. Short duration test pulse used to minimize self-heating effect.
5. f = 1KHz.

Marking Information



XXX = Product Type Marking Code
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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | J | K | L | M | N | 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 |

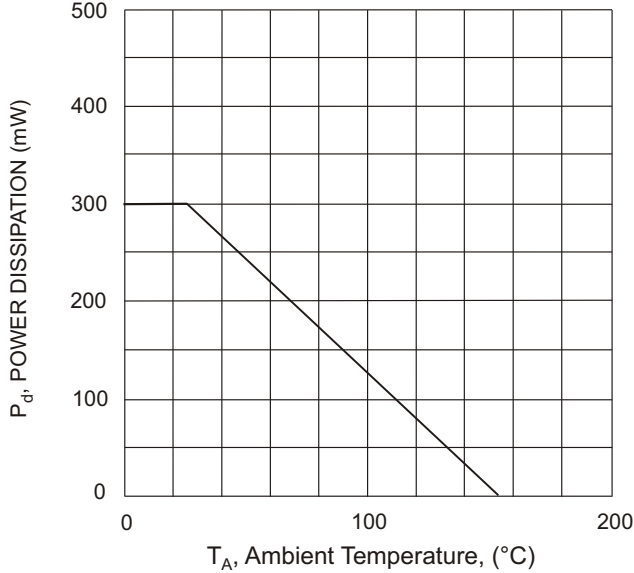


Fig. 1 Power Derating Curve

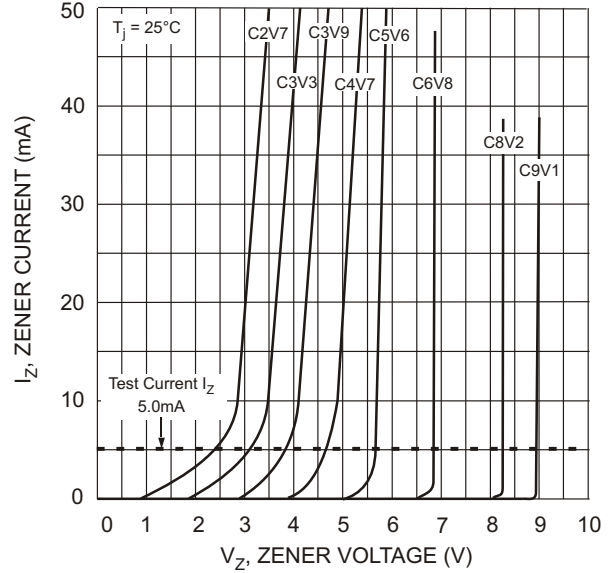


Fig. 2 Zener Breakdown Characteristics

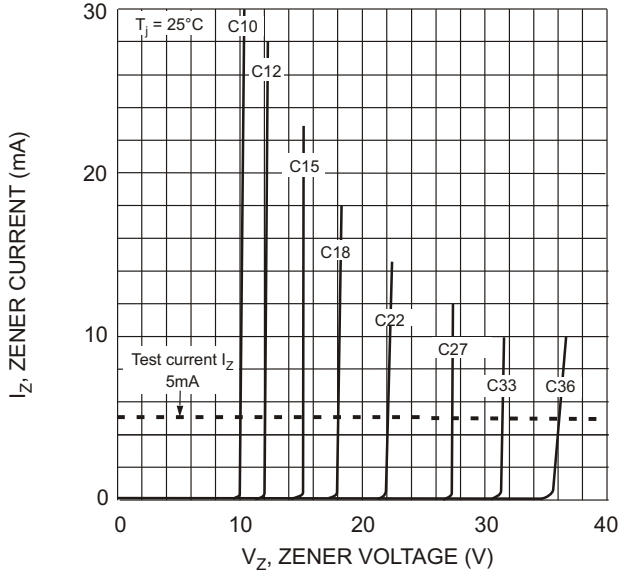


Fig. 3 Zener Breakdown Characteristics

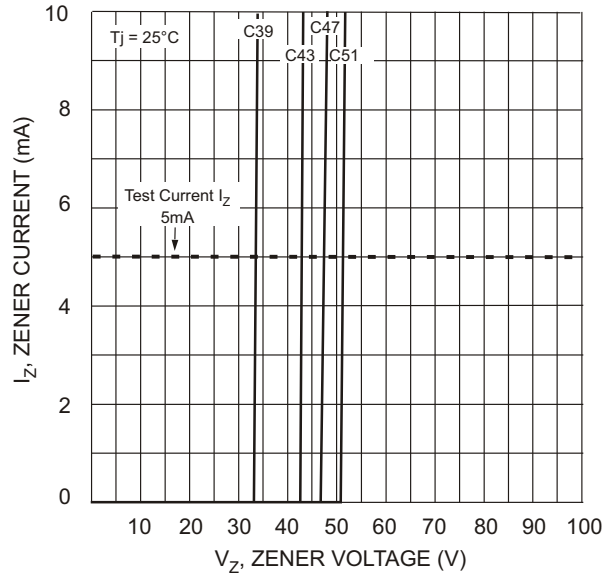


Fig. 4 Zener Breakdown Characteristics

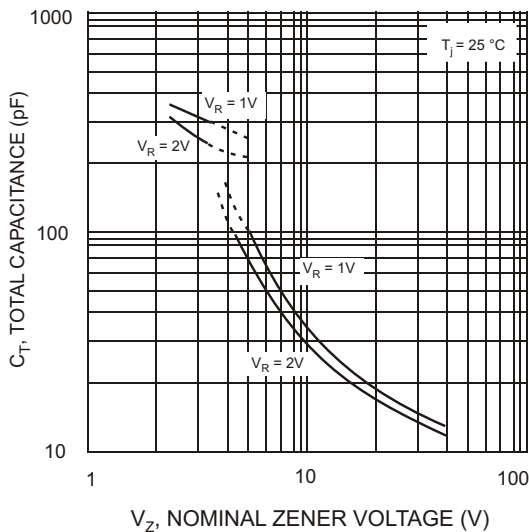


Fig. 5 Total Capacitance vs. Nominal Zener Voltage



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