

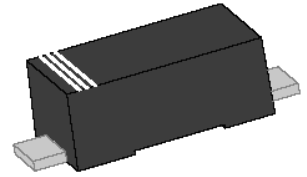


Zener Diodes with Surge Current Specification: BZD52CxxAU

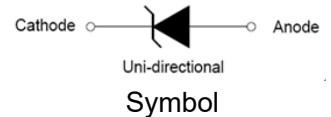
Rev.1.6

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 100V with $\pm 5\%$ for BZD52CxxAU series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.
- ✧ AEC-Q101 qualified.



SOD-123FL



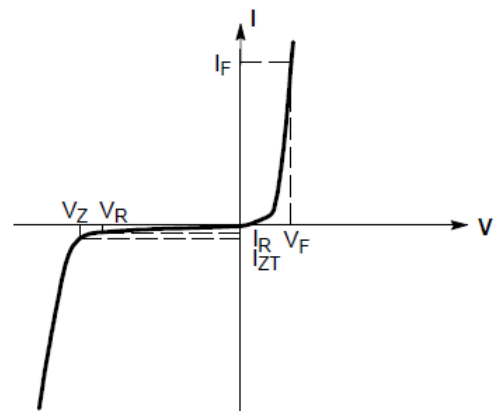
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

| Parameter | Symbol | Max Value | Unit |
|--|-----------------|-------------|------|
| Total power dissipation @ 75°C | P_D | 500 | mW |
| Thermal resistance junction to ambient (Note1) | $R_{\theta JA}$ | 330 | °C/W |
| Junction temperature | T_J | 150 | °C |
| Storage temperature range | T_S | -55 to +150 | °C |
| Operating temperature range | T_{OP} | -55 to +150 | °C |
| Peak pulse power dissipation at 10/1000µs waveform | P_{PP} | 200 | W |

Note1: 1. Device mounted on FR-4 PCB with minimum recommended pad layout

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

| Symbol | Parameter |
|----------|-----------------------------------|
| V_Z | Reverse zener voltage at I_{ZT} |
| I_{ZT} | Reverse current |
| I_R | Reverse leakage current at V_R |
| V_R | Reverse voltage |
| I_F | Forward current |
| V_F | Forward voltage at I_F |



Zener voltage regulator

MARKING



ZWD: Device Marking Code

BZD52CxxAU ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)Maximum $V_F=0.9\text{V}$ at $I_F=10\text{mA}$

| Type number | Zener voltage range at I_{zt} | | | | Maximum zener impedance | | | Maximum reverse leakage current | | Marking code |
|-------------|---------------------------------|-------------|-------------|---------------|-------------------------|-----------------------|---------------|---------------------------------|---------------|--------------|
| | Nom (Volts) | Min (Volts) | Max (Volts) | I_{zt} (mA) | Z_{zt} (Ω) | Z_{zk} (Ω) | I_{zk} (mA) | I_R (μA) | V_R (Volts) | |
| BZD52C6V8AU | 6.8 | 6.46 | 7.14 | 5.0 | 15 | 80 | 1.0 | 2 | 4.0 | ZWD |
| BZD52C7V5AU | 7.5 | 7.13 | 7.88 | 5.0 | 15 | 80 | 1.0 | 1 | 5.0 | ZWE |
| BZD52C8V2AU | 8.2 | 7.79 | 8.61 | 5.0 | 15 | 80 | 1.0 | 0.7 | 5.0 | ZWF |
| BZD52C9V1AU | 9.1 | 8.65 | 9.56 | 5.0 | 15 | 100 | 1.0 | 0.5 | 6.0 | ZWG |
| BZD52C10AU | 10 | 9.5 | 10.5 | 5.0 | 20 | 150 | 1.0 | 0.2 | 7.0 | ZWH |
| BZD52C11AU | 11 | 10.5 | 11.6 | 5.0 | 20 | 150 | 1.0 | 0.1 | 8.0 | ZWI |
| BZD52C12AU | 12 | 11.4 | 12.6 | 5.0 | 25 | 150 | 1.0 | 0.1 | 8.0 | ZWJ |
| BZD52C13AU | 13 | 12.4 | 13.7 | 5.0 | 30 | 170 | 1.0 | 0.1 | 8.0 | ZWK |
| BZD52C15AU | 15 | 14.3 | 15.8 | 5.0 | 30 | 200 | 1.0 | 0.1 | 10.5 | ZWL |
| BZD52C16AU | 16 | 15.2 | 16.8 | 5.0 | 40 | 200 | 1.0 | 0.1 | 11.2 | ZWM |
| BZD52C18AU | 18 | 17.1 | 18.9 | 5.0 | 45 | 225 | 1.0 | 0.1 | 12.6 | ZWN |
| BZD52C20AU | 20 | 19.0 | 21.0 | 5.0 | 55 | 225 | 1.0 | 0.1 | 14.0 | ZWO |
| BZD52C22AU | 22 | 20.9 | 23.1 | 5.0 | 55 | 250 | 1.0 | 0.1 | 15.4 | ZWP |
| BZD52C24AU | 24 | 22.8 | 25.2 | 5.0 | 70 | 250 | 1.0 | 0.1 | 16.8 | ZWQ |
| BZD52C27AU | 27 | 25.7 | 28.4 | 2.0 | 80 | 300 | 0.5 | 0.1 | 18.9 | ZWR |
| BZD52C30AU | 30 | 28.5 | 31.5 | 2.0 | 80 | 300 | 0.5 | 0.1 | 21.0 | ZWS |
| BZD52C33AU | 33 | 31.4 | 34.7 | 2.0 | 80 | 325 | 0.5 | 0.1 | 23.1 | ZWT |
| BZD52C36AU | 36 | 34.2 | 37.8 | 2.0 | 90 | 350 | 0.5 | 0.1 | 25.2 | ZWU |
| BZD52C39AU | 39 | 37.1 | 41.0 | 2.0 | 130 | 350 | 0.5 | 0.1 | 27.3 | ZWV |
| BZD52C43AU | 43 | 40.9 | 45.2 | 2.0 | 100 | 700 | 0.5 | 0.1 | 32.0 | ZWW |
| BZD52C47AU | 47 | 44.7 | 49.4 | 2.0 | 100 | 750 | 0.5 | 0.1 | 35.0 | ZWX |
| BZD52C51AU | 51 | 48.5 | 53.6 | 2.0 | 100 | 750 | 0.5 | 0.1 | 38.0 | ZWY |
| BZD52C56AU | 56 | 53.2 | 58.8 | 2.0 | 150 | 1000 | 0.5 | 0.1 | 39.2 | ZNA |
| BZD52C62AU | 62 | 58.9 | 65.1 | 1.0 | 150 | 1000 | 0.5 | 0.1 | 43.4 | ZNB |
| BZD52C68AU | 68 | 64.6 | 71.4 | 1.0 | 200 | 1000 | 0.5 | 0.1 | 47.6 | ZNC |
| BZD52C75AU | 75 | 71.3 | 78.8 | 1.0 | 250 | 1500 | 0.5 | 0.1 | 52.5 | ZND |

BZD52CxxAU ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted, continued)

Maximum $V_F=0.9\text{V}$ at $I_F=10\text{mA}$

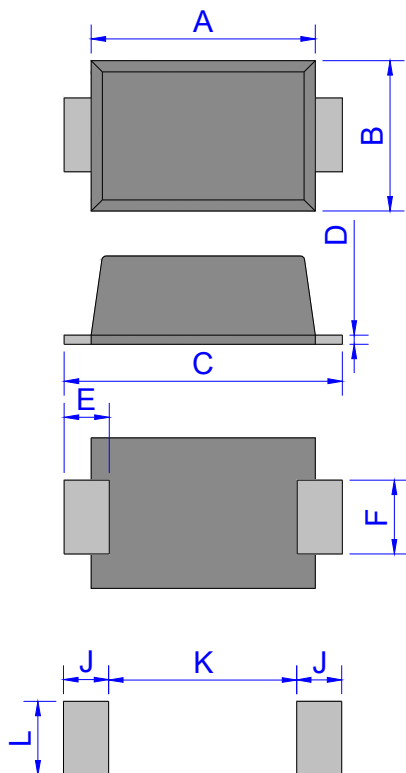
| Type number | Zener voltage range at I_{zt} | | | | Maximum zener impedance | | | Maximum reverse leakage current | | Marking code |
|-------------|---------------------------------|-------------|-------------|---------------|-------------------------|-----------------------|---------------|---------------------------------|---------------|--------------|
| | Nom (Volts) | Min (Volts) | Max (Volts) | I_{zt} (mA) | Z_{zt} (Ω) | Z_{zk} (Ω) | I_{zk} (mA) | I_R (μA) | V_R (Volts) | |
| BZD52C82AU | 82 | 77.9 | 86.1 | 0.5 | 250 | 1500 | 0.25 | 0.1 | 57.4 | ZNE |
| BZD52C91AU | 91 | 86.5 | 95.6 | 0.5 | 300 | 1700 | 0.25 | 0.1 | 63.7 | ZNF |
| BZD52C100AU | 100 | 95 | 105 | 0.5 | 300 | 1700 | 0.25 | 0.1 | 70.0 | ZNG |

Notes: Zener voltage tolerance of standard BZD52CxxAU series is $\pm 5\%$

ORDERING INFORMATION

| | | | | |
|---|--|---|--|--|
| <p>BZD</p> <p>Zener Diode Series</p> | <p>52</p> <p>$P_D: 500\text{mW}$</p> | <p>C</p> <p>C: 5% V_Z Voltage tolerance</p> | <p>9V1</p> <p>Voltage: 9.1V</p> | <p>AU</p> <p>AEC-Q101 qualified</p> |
|---|--|---|--|--|

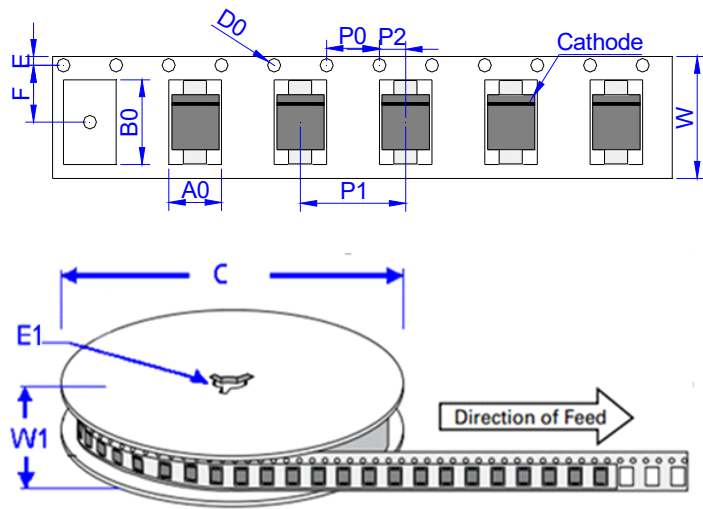
PACKAGE MECHANICAL DATA



SOD-123FL

| Ref. | Dimensions | | | |
|------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 2.60 | 3.00 | 0.102 | 0.118 |
| B | 1.60 | 2.00 | 0.063 | 0.079 |
| C | 3.45 | 3.95 | 0.136 | 0.156 |
| D | 0.10 | 0.25 | 0.004 | 0.01 |
| E | 0.3 | 0.9 | 0.012 | 0.035 |
| F | 0.80 | 1.20 | 0.031 | 0.047 |
| G | 0.95 | 1.35 | 0.037 | 0.053 |
| J | 1.30 | | 0.051 | |
| K | | 1.70 | | 0.067 |
| L | 1.30 | | 0.051 | |

TAPE AND REEL SPECIFICATION-SOD-123FL



| Ref. | Dimensions | |
|------|-------------|---------------|
| | Millimeters | Inches |
| A0 | 1.95 ± 0.3 | 0.077± 0.012 |
| B0 | 3.95 ± 0.3 | 0.156 ± 0.012 |
| C | 178 | 7.0 |
| D0 | 1.55 ± 0.1 | 0.061 ± 0.004 |
| E | 1.75 ± 0.2 | 0.069 ± 0.008 |
| E1 | 13.3 ± 0.3 | 0.524± 0.012 |
| F | 3.50 ± 0.2 | 0.138 ± 0.008 |
| P0 | 4.00 ± 0.2 | 0.157 ± 0.008 |
| P1 | 4.00 ± 0.2 | 0.157 ± 0.008 |
| P2 | 2.00 ± 0.2 | 0.079 ± 0.008 |
| W | 8.0± 0.2 | 0.315 ± 0.008 |
| W1 | 11.5 ± 1.0 | 0.453 ± 0.039 |

| PART No. | UNIT WEIGHT (g/PCS) typ. | REEL (PCS) | PER CARTON (PCS) | DESCRIPTION |
|------------|-----------------------------|---------------|---------------------|------------------|
| BZD52CxxAU | 0.0144 | 3,000 | 150,000 | 7 inch reel pack |

RATINGS AND CHARACTERISTICS CURVES ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

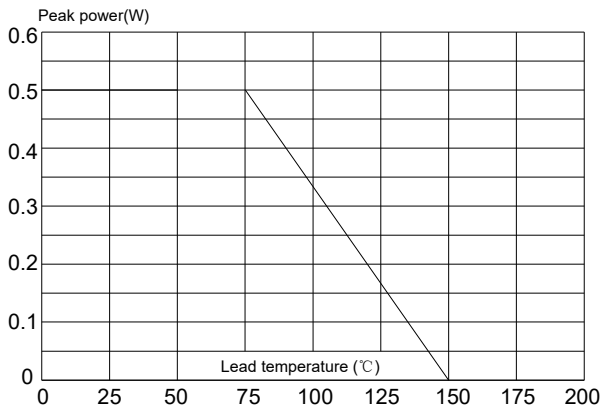


Fig.2 Zener breakdown characteristics

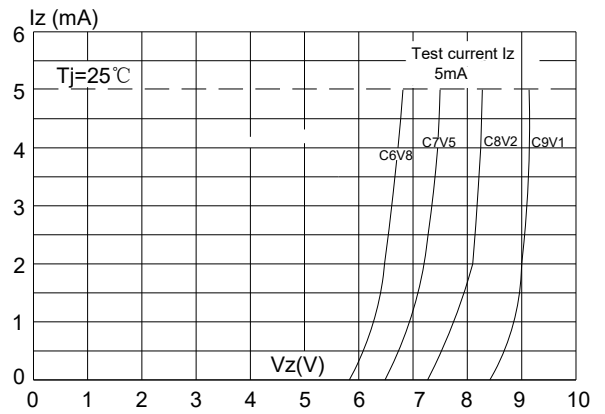


Fig.3 Zener breakdown characteristics

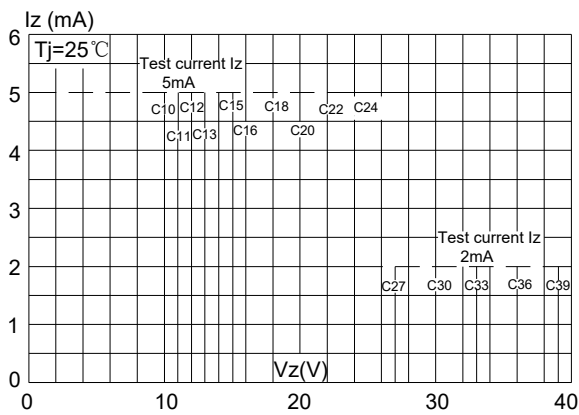
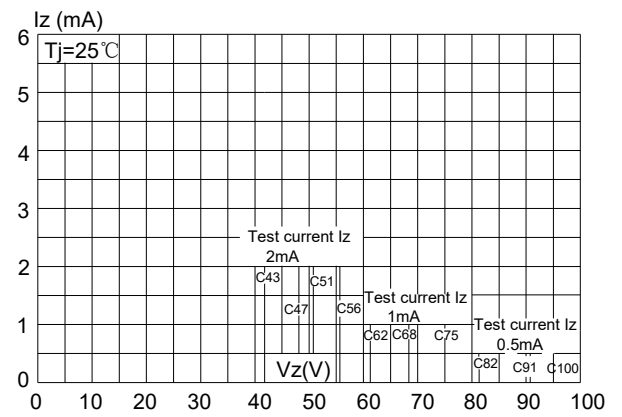


Fig.4 Zener breakdown characteristics




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