

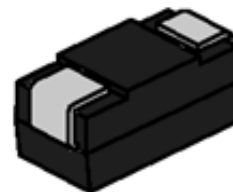


Zener Diodes with Surge Current Specification: SMAZHCxxAU

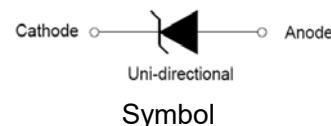
Rev.1.4

FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 1000mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 6.8V to 100V with $\pm 5\%$ for SMAZHCxxAU 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.



SMA



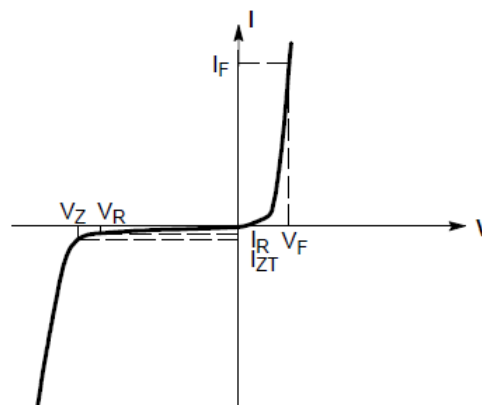
ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

| Parameter | Symbol | Max Value | Unit |
|--|-----------------|------------|------|
| Total power dissipation @75°C | P_D | 1000 | mW |
| Thermal resistance junction to ambient (Note1) | $R_{\theta JA}$ | 120 | °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 |

Notes1: Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch

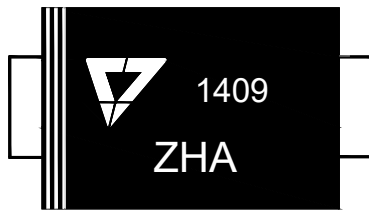
ELECTRICAL CHARACTERISTICS($T_A=25^\circ\text{C}$)

| 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



ZHA: Device Marking Code
1409: In ninth week, 2014

SMAZHCxxAU ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)Maximum $V_F=1.2\text{V}$ at $I_F=200\text{mA}$

| 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) | |
| SMAZHC6V8AU | 6.8 | 6.46 | 7.14 | 37 | 3.5 | 700 | 1.0 | 10 | 4 | ZHA |
| SMAZHC7V5AU | 7.5 | 7.13 | 7.88 | 34 | 4.0 | 700 | 0.5 | 10 | 5 | ZHB |
| SMAZHC8V2AU | 8.2 | 7.79 | 8.61 | 31 | 4.5 | 700 | 0.5 | 10 | 6 | ZHC |
| SMAZHC9V1AU | 9.1 | 8.65 | 9.56 | 28 | 5.0 | 700 | 0.5 | 10 | 7 | ZHD |
| SMAZHC10AU | 10 | 9.5 | 10.5 | 25 | 7.0 | 700 | 0.25 | 10 | 7.6 | ZHE |
| SMAZHC11AU | 11 | 10.5 | 11.6 | 23 | 8.0 | 700 | 0.25 | 5 | 8.4 | ZHF |
| SMAZHC12AU | 12 | 11.4 | 12.6 | 21 | 9.0 | 700 | 0.25 | 1 | 9.1 | ZHG |
| SMAZHC13AU | 13 | 12.4 | 13.7 | 19 | 10 | 700 | 0.25 | 1 | 9.9 | ZHH |
| SMAZHC15AU | 15 | 14.3 | 15.8 | 17 | 14 | 700 | 0.25 | 1 | 11.4 | ZHI |
| SMAZHC16AU | 16 | 15.2 | 16.8 | 15.5 | 16 | 700 | 0.25 | 1 | 12.2 | ZHJ |
| SMAZHC18AU | 18 | 17.1 | 18.9 | 14 | 20 | 750 | 0.25 | 1 | 13.7 | ZHK |
| SMAZHC20AU | 20 | 19.0 | 21.0 | 12.5 | 22 | 750 | 0.25 | 1 | 15.2 | ZHL |
| SMAZHC22AU | 22 | 20.9 | 23.1 | 11.5 | 23 | 750 | 0.25 | 1 | 16.7 | ZHM |
| SMAZHC24AU | 24 | 22.8 | 25.2 | 10.5 | 25 | 750 | 0.25 | 1 | 18.2 | ZHN |
| SMAZHC27AU | 27 | 25.7 | 28.4 | 9.5 | 35 | 750 | 0.25 | 1 | 20.6 | ZHO |
| SMAZHC30AU | 30 | 28.5 | 31.5 | 8.5 | 40 | 1000 | 0.25 | 1 | 22.8 | ZHP |
| SMAZHC33AU | 33 | 31.4 | 34.7 | 7.5 | 45 | 1000 | 0.25 | 1 | 25.1 | ZHQ |
| SMAZHC36AU | 36 | 34.2 | 37.8 | 7.0 | 50 | 1000 | 0.25 | 1 | 27.4 | ZHR |
| SMAZHC39AU | 39 | 37.1 | 41.0 | 6.5 | 60 | 1000 | 0.25 | 1 | 29.7 | ZHS |
| SMAZHC43AU | 43 | 40.9 | 45.2 | 6.0 | 70 | 1500 | 0.25 | 1 | 32.7 | ZHT |
| SMAZHC47AU | 47 | 44.7 | 49.4 | 5.5 | 80 | 1500 | 0.25 | 1 | 35.8 | ZHU |
| SMAZHC51AU | 51 | 48.5 | 53.6 | 5.0 | 95 | 1500 | 0.25 | 1 | 38.8 | ZHV |
| SMAZHC56AU | 56 | 53.2 | 58.8 | 4.5 | 110 | 2000 | 0.25 | 1 | 42.6 | ZHW |
| SMAZHC62AU | 62 | 58.9 | 65.1 | 4.0 | 125 | 2000 | 0.25 | 1 | 47.1 | ZHX |
| SMAZHC68AU | 68 | 64.6 | 71.4 | 3.7 | 150 | 2000 | 0.25 | 1 | 51.7 | ZHY |
| SMAZHC75AU | 75 | 71.3 | 78.8 | 3.3 | 175 | 2000 | 0.25 | 1 | 56.0 | ZHZ |
| SMAZHC82AU | 82 | 77.9 | 86.1 | 3.0 | 200 | 3000 | 0.25 | 1 | 62.2 | ZIA |

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

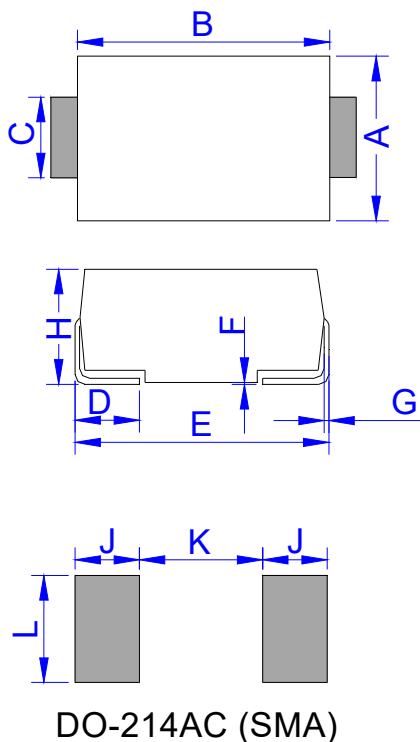
Maximum $V_F=1.2V$ at $I_F=200mA$

| 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) | |
| SMAZHC91AU | 91 | 86.5 | 95.6 | 2.8 | 250 | 3000 | 0.25 | 1 | 69.2 | ZIB |
| SMAZHC100AU | 100 | 95 | 105 | 2.5 | 350 | 3000 | 0.25 | 1 | 76.0 | ZIC |

ORDERING INFORMATION

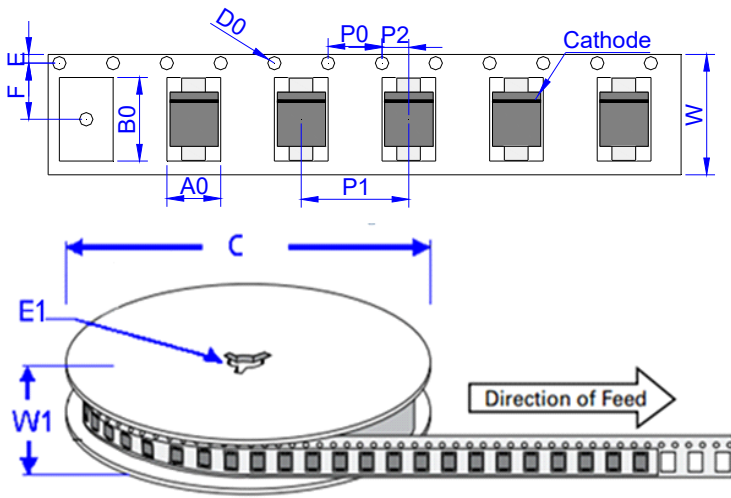
| | | | | |
|---|-----------------|--|---------------------------------------|--|
| <p>SMAZ</p> <p>Zener Diode Series</p> <p>$P_D:1000mW$</p> | <p>H</p> | <p>C</p> <p>C:5% V_z Voltage tolerance</p> | <p>9V1</p> <p>Voltage:9.1V</p> | <p>AU</p> <p>AEC-Q101 qualified</p> |
|---|-----------------|--|---------------------------------------|--|

PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | |
|------|-------------|-------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 2.60 | 3.00 | 0.102 | 0.118 |
| B | 4.15 | 4.65 | 0.163 | 0.183 |
| C | 1.25 | 1.65 | 0.049 | 0.065 |
| D | 0.95 | 1.52 | 0.037 | 0.060 |
| E | 4.90 | 5.30 | 0.193 | 0.209 |
| F | 0.051 | 0.203 | 0.002 | 0.008 |
| G | 0.15 | 0.31 | 0.006 | 0.012 |
| H | 2.00 | 2.44 | 0.079 | 0.096 |
| J | 2.00 | | 0.079 | |
| K | | 2.30 | | 0.091 |
| L | 1.80 | | 0.071 | |

TAPE AND REEL SPECIFICATION-SMA



| Ref. | Dimensions | |
|------|-------------|---------------|
| | Millimeters | Inches |
| A0 | 2.79 ± 0.3 | 0.110 ± 0.012 |
| B0 | 5.33 ± 0.3 | 0.210 ± 0.012 |
| C | 330.0 | 13.0 |
| 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 | 5.5 ± 0.2 | 0.217 ± 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 | 12.0 ± 0.2 | 0.472 ± 0.008 |
| W1 | 15.7 ± 2.0 | 0.618 ± 0.079 |

| PART No. | UNIT WEIGHT (g/PCS) typ. | REEL (PCS) | PER CARTON (PCS) | DESCRIPTION |
|------------|--------------------------|------------|------------------|-------------------|
| SMAZHCxxAU | 0.066 | 7,500 | 120,000 | 13 inch reel pack |

RATINGS AND CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

Fig.1 Power dissipation vs lead temperature

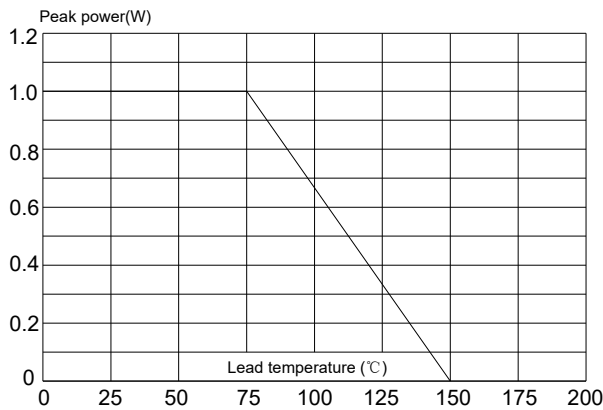


Fig.2 Zener breakdown characteristics

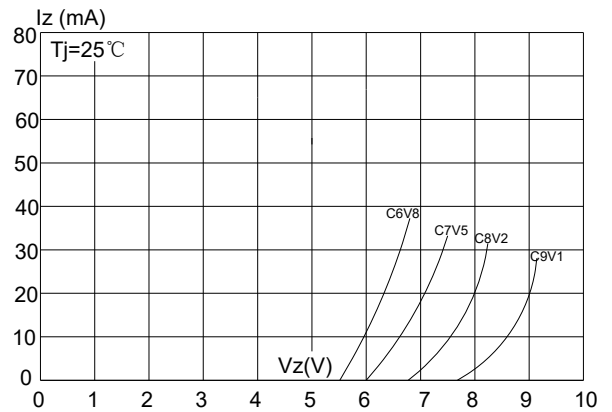


Fig.3 Zener breakdown characteristics

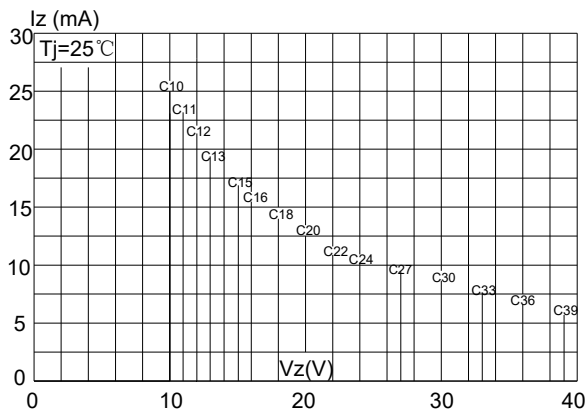
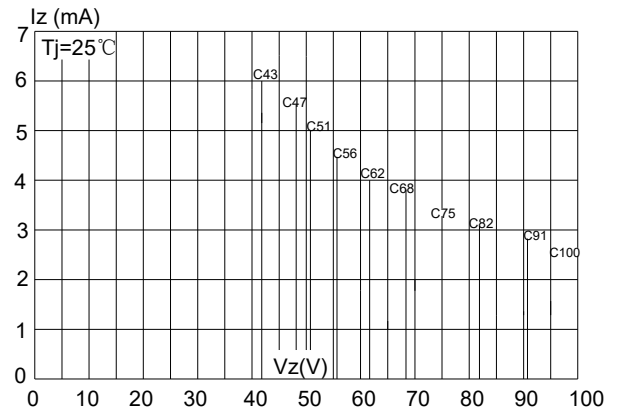


Fig.4 Zener breakdown characteristics



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