

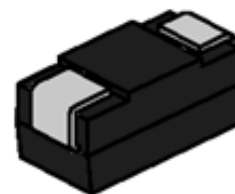


## Zener Diodes with Surge Current Specification: SMAZKCxxAU

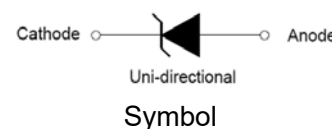
Rev.1.6

### FEATURE

- ✧ Silicon power zener diodes.
- ✧ Low zener impedance.
- ✧ 1500mW rating on FR-4 or FR-5 board.
- ✧ Voltage range includes breakdown voltages from 9.1V to 200V with  $\pm 5\%$  for SMAZKCxxAU series.
- ✧ Low profile surface-mount package.
- ✧ Zener and surge current specification.
- ✧ For use in stabilizing and clamping circuits with high power rating.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ AEC-Q101 qualified.



SMA



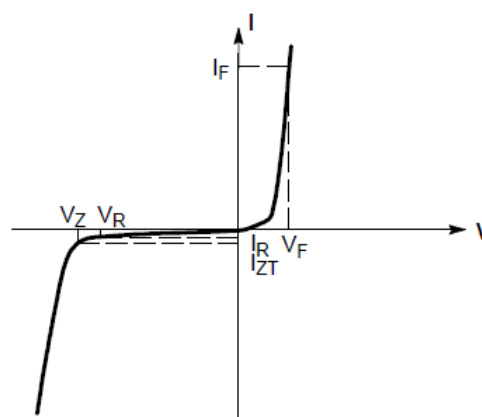
### ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

| Parameter                                          | Symbol          | Max Value  | Unit |
|----------------------------------------------------|-----------------|------------|------|
| Total power dissipation @75°C                      | $P_D$           | 1500       | mW   |
| Thermal resistance junction to ambient (Note1)     | $R_{\theta JA}$ | 250        | °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 | $P_{PP}$        | 300        | W    |

Note1: Mounted on minimum recommended pad layout

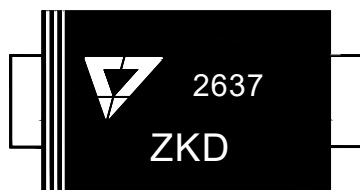
### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

| 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



ZKD: Device Marking Code  
2637: the 37th week, 2026

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

Maximum  $V_F=1.2\text{V}$  at  $I_F=200\text{mA}$

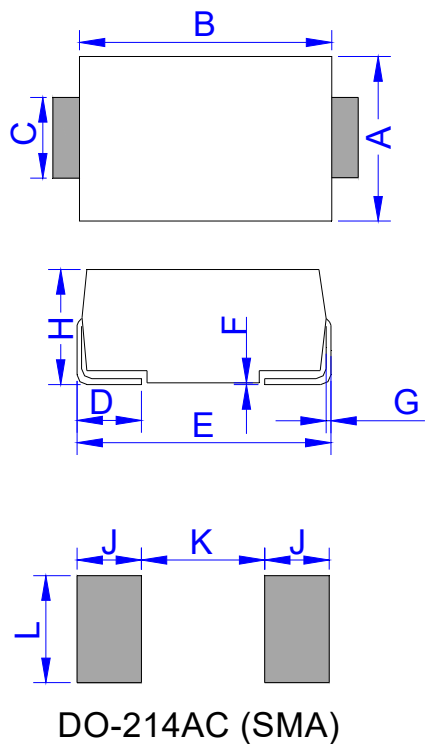
| Type number | Zener voltage range at $I_{zt}$ |             |             |               | Maximum zener impedance |                       |               | Maximum reverse leakage current |               | Marking code |
|-------------|---------------------------------|-------------|-------------|---------------|-------------------------|-----------------------|---------------|---------------------------------|---------------|--------------|
|             | Nom (Volts)                     | Min (Volts) | Max (Volts) | $I_{zt}$ (mA) | $Z_{zt}$ ( $\Omega$ )   | $Z_{zk}$ ( $\Omega$ ) | $I_{zk}$ (mA) | $I_R$ ( $\mu\text{A}$ )         | $V_R$ (Volts) |              |
| SMAZKC9V1AU | 9.1                             | 8.65        | 9.56        | 41.2          | 5.0                     | 700                   | 0.5           | 10                              | 7.0           | ZKD          |
| SMAZKC10AU  | 10                              | 9.5         | 10.5        | 37.5          | 5.0                     | 700                   | 0.25          | 10                              | 8.0           | ZKE          |
| SMAZKC11AU  | 11                              | 10.5        | 11.6        | 34.1          | 5.5                     | 550                   | 0.25          | 5                               | 8.4           | ZKF          |
| SMAZKC12AU  | 12                              | 11.4        | 12.6        | 31.2          | 6.5                     | 550                   | 0.25          | 1                               | 9.1           | ZKG          |
| SMAZKC13AU  | 13                              | 12.4        | 13.7        | 28.8          | 7.0                     | 550                   | 0.25          | 1                               | 9.9           | ZKH          |
| SMAZKC15AU  | 15                              | 14.3        | 15.8        | 25.0          | 9.0                     | 600                   | 0.25          | 1                               | 11.4          | ZKI          |
| SMAZKC16AU  | 16                              | 15.2        | 16.8        | 23.4          | 10                      | 600                   | 0.25          | 1                               | 12.2          | ZKJ          |
| SMAZKC18AU  | 18                              | 17.1        | 18.9        | 20.8          | 12                      | 650                   | 0.25          | 1                               | 13.7          | ZKK          |
| SMAZKC20AU  | 20                              | 19          | 21          | 18.7          | 14                      | 650                   | 0.25          | 1                               | 15.2          | ZKL          |
| SMAZKC22AU  | 22                              | 20.9        | 23.1        | 17.0          | 17.5                    | 650                   | 0.25          | 1                               | 16.7          | ZKM          |
| SMAZKC24AU  | 24                              | 22.8        | 25.2        | 15.6          | 19                      | 700                   | 0.25          | 1                               | 18.2          | ZKN          |
| SMAZKC27AU  | 27                              | 25.7        | 28.4        | 13.9          | 23                      | 700                   | 0.25          | 1                               | 20.5          | ZKO          |
| SMAZKC30AU  | 30                              | 28.5        | 31.5        | 12.5          | 28                      | 750                   | 0.25          | 1                               | 22.8          | ZKP          |
| SMAZKC33AU  | 33                              | 31.4        | 34.7        | 11.4          | 33                      | 800                   | 0.25          | 1                               | 25.1          | ZKQ          |
| SMAZKC36AU  | 36                              | 34.2        | 37.8        | 10.4          | 38                      | 850                   | 0.25          | 1                               | 27.4          | ZKR          |
| SMAZKC39AU  | 39                              | 37.1        | 41.0        | 9.6           | 45                      | 900                   | 0.25          | 1                               | 29.7          | ZKS          |
| SMAZKC43AU  | 43                              | 40.9        | 45.2        | 8.7           | 53                      | 950                   | 0.25          | 1                               | 32.7          | ZKT          |
| SMAZKC47AU  | 47                              | 44.7        | 49.4        | 8.0           | 67                      | 1000                  | 0.25          | 1                               | 35.8          | ZKU          |
| SMAZKC51 AU | 51                              | 48.5        | 53.6        | 7.3           | 70                      | 1100                  | 0.25          | 1                               | 38.8          | ZKV          |
| SMAZKC56AU  | 56                              | 53.2        | 58.8        | 6.7           | 86                      | 1300                  | 0.25          | 1                               | 42.6          | ZKW          |
| SMAZKC62AU  | 62                              | 58.9        | 65.1        | 6.0           | 100                     | 1500                  | 0.25          | 1                               | 47.1          | ZKX          |
| SMAZKC68AU  | 68                              | 64.6        | 71.4        | 5.5           | 120                     | 1700                  | 0.25          | 1                               | 51.7          | ZKY          |
| SMAZKC75AU  | 75                              | 71.3        | 78.8        | 5.0           | 140                     | 2000                  | 0.25          | 1                               | 57.0          | ZKZ          |
| SMAZKC82AU  | 82                              | 77.9        | 86.1        | 4.6           | 160                     | 2500                  | 0.25          | 1                               | 62.3          | ZLA          |
| SMAZKC91AU  | 91                              | 86.5        | 95.6        | 4.1           | 200                     | 3000                  | 0.25          | 1                               | 69.2          | ZLB          |
| SMAZKC100AU | 100                             | 95.0        | 105         | 3.8           | 250                     | 3100                  | 0.25          | 1                               | 76.0          | ZLC          |
| SMAZKC120AU | 120                             | 114         | 126         | 3.1           | 380                     | 4500                  | 0.25          | 1                               | 91.2          | ZLD          |

**SMAZKCxxAU ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise noted, continued)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) | $Z_{zt}$ ( $\Omega$ )   | $Z_{zk}$ ( $\Omega$ ) | $I_{zk}$ (mA) | $I_R$ ( $\mu\text{A}$ )         | $V_R$ (Volts) |              |
| SMAZKC130AU | 130                             | 124         | 137         | 2.9           | 450                     | 5000                  | 0.25          | 1                               | 98.8          | ZLE          |
| SMAZKC150AU | 150                             | 143         | 158         | 2.5           | 600                     | 6000                  | 0.25          | 1                               | 114           | ZLF          |
| SMAZKC160AU | 160                             | 152         | 168         | 2.3           | 700                     | 6500                  | 0.25          | 1                               | 122           | ZLG          |
| SMAZKC180AU | 180                             | 171         | 189         | 2.1           | 900                     | 7000                  | 0.25          | 1                               | 137           | ZLH          |
| SMAZKC200AU | 200                             | 190         | 210         | 1.9           | 1200                    | 8000                  | 0.25          | 1                               | 152           | ZLI          |

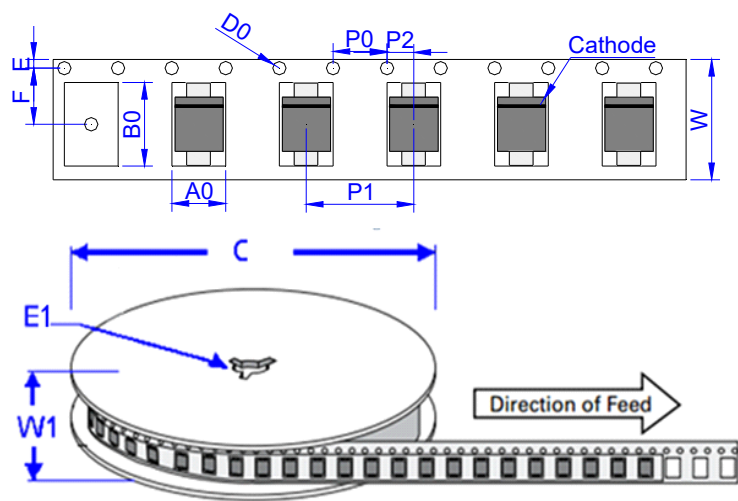
**ORDERING INFORMATION**

|                    |           |                           |              |                    |
|--------------------|-----------|---------------------------|--------------|--------------------|
| <b>SMAZ</b>        | <b>K</b>  | <b>C</b>                  | <b>9V1</b>   | <b>AU</b>          |
| Zener Diode Series |           |                           | Voltage:9.1V | AEC-Q101 qualified |
|                    | Pd:1500mW | C:5% Vz Voltage tolerance |              |                    |

**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   | $2.79 \pm 0.3$ | $0.110 \pm 0.012$ |
| B0   | $5.33 \pm 0.3$ | $0.210 \pm 0.012$ |
| C    | 330.0          | 13.0              |
| D0   | $1.55 \pm 0.1$ | $0.061 \pm 0.004$ |
| E    | $1.75 \pm 0.2$ | $0.069 \pm 0.008$ |
| E1   | $13.3 \pm 0.3$ | $0.524 \pm 0.012$ |
| F    | $5.5 \pm 0.2$  | $0.217 \pm 0.008$ |
| P0   | $4.00 \pm 0.2$ | $0.157 \pm 0.008$ |
| P1   | $4.00 \pm 0.2$ | $0.157 \pm 0.008$ |
| P2   | $2.00 \pm 0.2$ | $0.079 \pm 0.008$ |
| W    | $12.0 \pm 0.2$ | $0.472 \pm 0.008$ |
| W1   | $15.7 \pm 2.0$ | $0.618 \pm 0.079$ |

| PART No.   | UNIT WEIGHT<br>(g/PCS) typ. | REEL<br>(PCS) | PER CARTON<br>(PCS) | DESCRIPTION       |
|------------|-----------------------------|---------------|---------------------|-------------------|
| SMAZKCxxAU | 0.07                        | 7,500         | 120,000             | 13 inch reel pack |

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

Fig.1 Power dissipation vs lead temperature

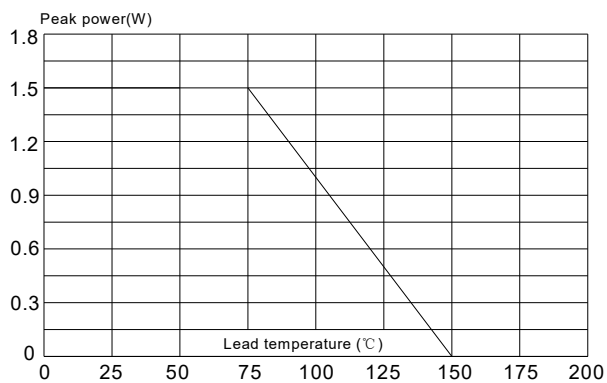


Fig.2 Zener breakdown characteristics

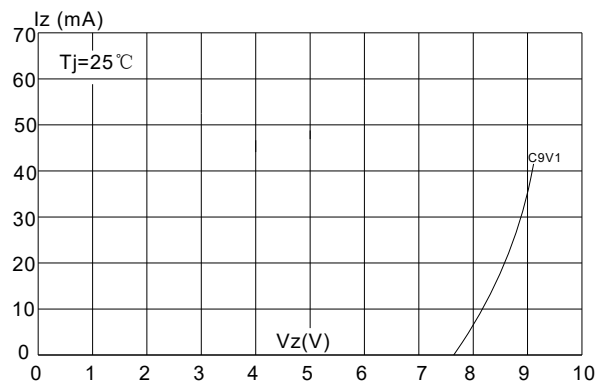


Fig.3 Zener breakdown characteristics

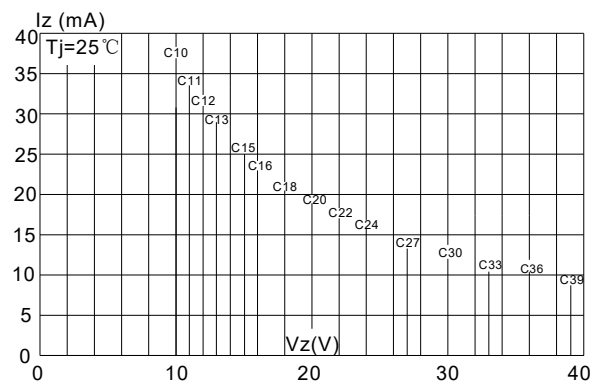


Fig.4 Zener breakdown characteristics

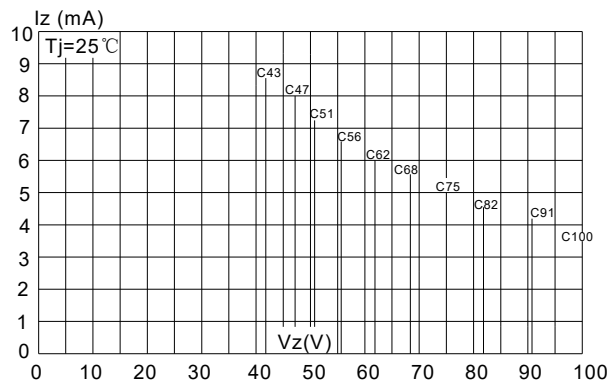
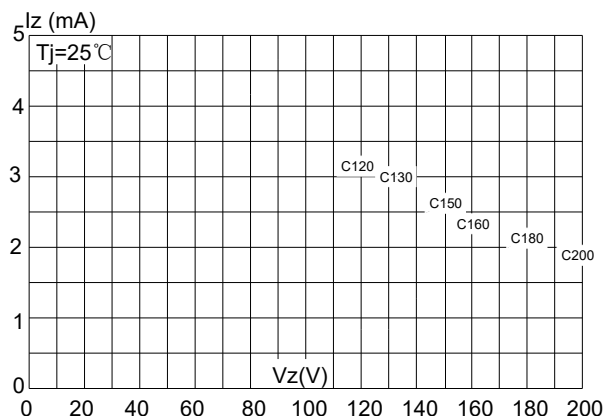


Fig.5 Zener breakdown characteristics



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