

# SMD Zener Diode



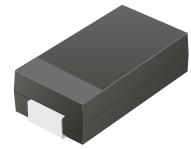
SMD Diodes Specialist

## CZRA5920B-G Thru CZRA5956B-G

Voltage: 6.2 to 200 Volts

Power: 1.5 Watts

RoHS Device

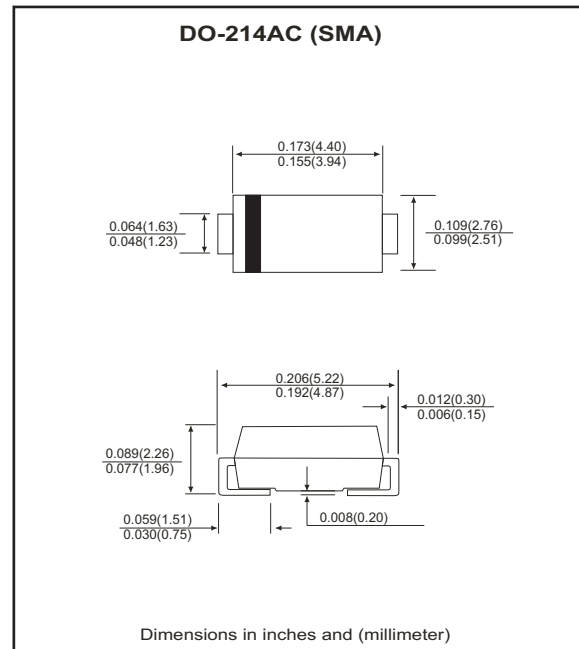


### Features

- Glass passivated chip.
- Low leakage.
- Built-in strain relief.
- Low inductance.
- High peak reverse power dissipa.
- Lead(Pb)-free component.
- For use in stabilizing and clipping circuits with high power.

### Mechanical data

- Case: DO-214AC(SMA), Molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode.
- Mounting position: Any.



### Maximum Rating AND Electrical Characteristics

| Parameter                                                   | Symbol         | Value       | Unit             |
|-------------------------------------------------------------|----------------|-------------|------------------|
| Maximum Power Dissipation, $T_L = 50^\circ\text{C}$ (Note1) | $P_D$          | 1.5         | W                |
| Maximun Forward voltage at $I_F=200\text{mA}$               | $V_F$          | 1.2         | V                |
| Operating Junction and Storage Temperature Range            | $T_J, T_{STG}$ | -55 to +175 | $^\circ\text{C}$ |

(1)  $T_L$  = Lead temperature at 3/8" (9.5mm) from body.

## RATING AND CHARACTERISTIC CURVES (CZRA5920B-G Thru CZRA5956B-G)

Fig.1 Typical thermal resistance v.s. lead length

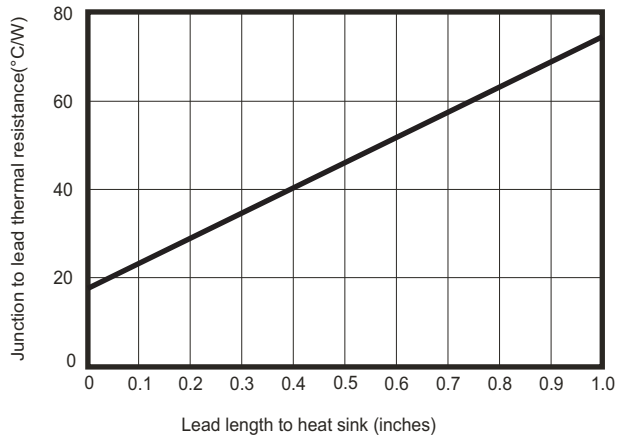


Fig.2 Maximum surge power

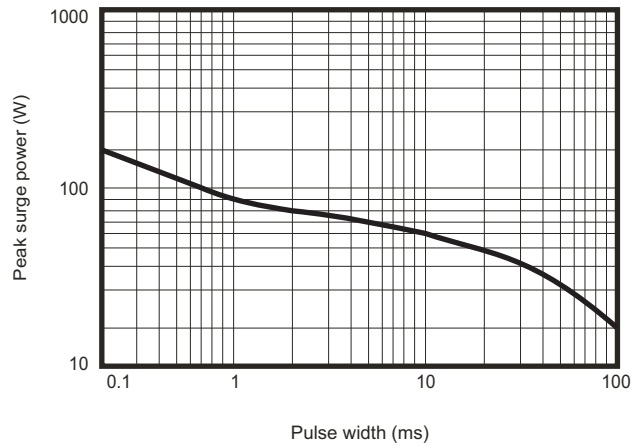


Fig.3 Temperature coefficients v.s. zener voltage

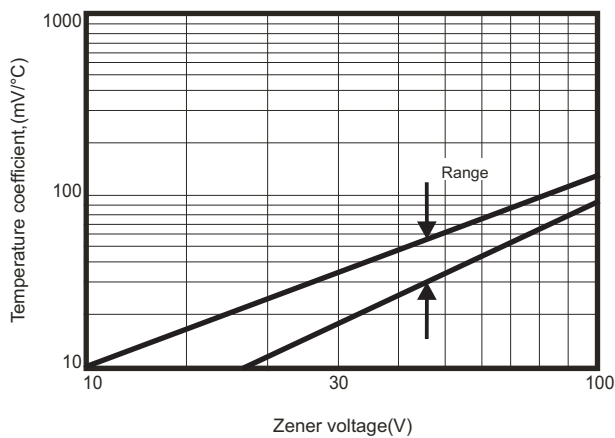


Fig.4 Power temperature derating current

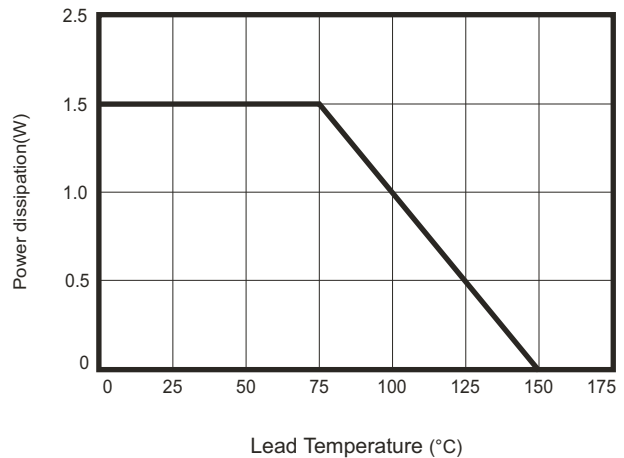
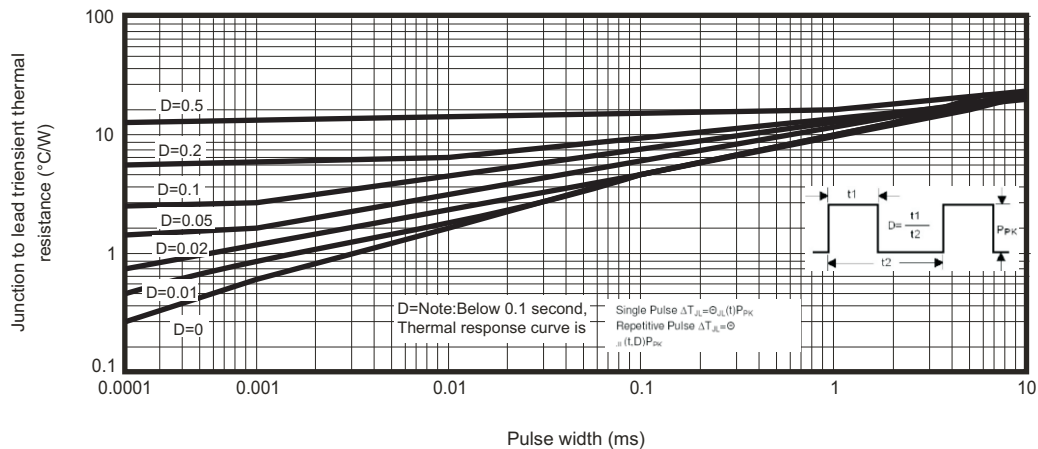


Fig.5 Typical thermal response L, lead length=3/8 inch



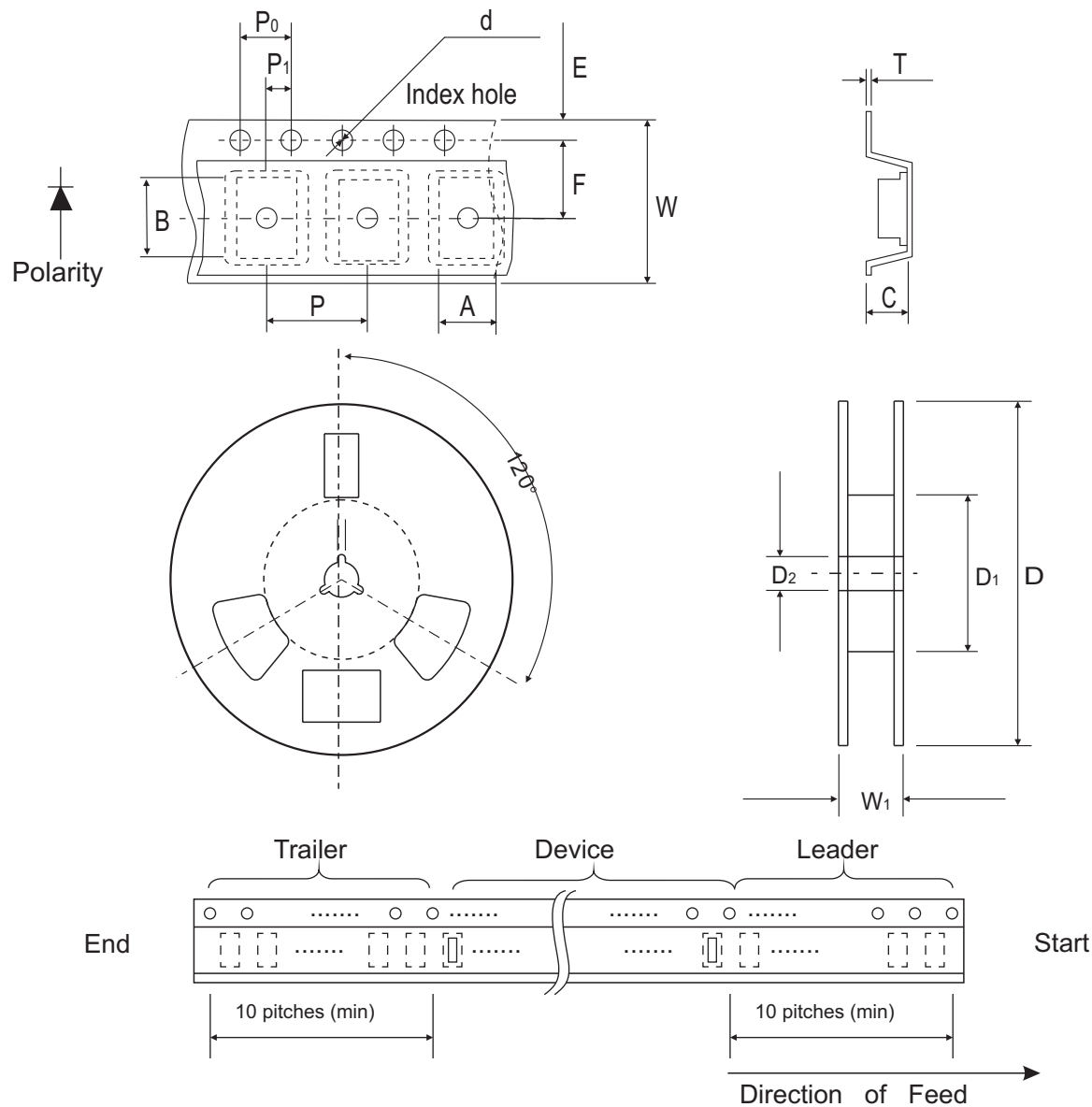
## Electrical Characteristics(Ta = 25°C)

| Part Number | Nominal Zener Voltage |      | Maximum Zener Impedance |           |      | Maximum Reverse Leakage Current |       | Maximum DC Zener Current | Marking Code |
|-------------|-----------------------|------|-------------------------|-----------|------|---------------------------------|-------|--------------------------|--------------|
|             | VZ @ IZT              | IZT  | ZZT @ IZT               | ZZK @ IZK | IZK  | IR @ VR                         |       | IZM                      |              |
|             | (V)                   | (mA) | (Ohm)                   | (Ohm)     | (mA) | (uA)                            | (V)   | (mA)                     |              |
| CZRA5920B-G | 6.2                   | 60.5 | 2.0                     | 200       | 1.0  | 5.0                             | 4.0   | 241                      | 920B         |
| CZRA5921B-G | 6.8                   | 55.1 | 2.5                     | 200       | 1.0  | 5.0                             | 5.2   | 440                      | 921B         |
| CZRA5922B-G | 7.5                   | 50.0 | 3.0                     | 400       | 0.5  | 5.0                             | 6.0   | 400                      | 922B         |
| CZRA5923B-G | 8.2                   | 45.7 | 3.5                     | 400       | 0.5  | 5.0                             | 6.5   | 364                      | 923B         |
| CZRA5924B-G | 9.1                   | 41.2 | 4.0                     | 500       | 0.5  | 5.0                             | 7.0   | 328                      | 924B         |
| CZRA5925B-G | 10                    | 37.5 | 4.5                     | 500       | 0.25 | 5.0                             | 8.0   | 300                      | 925B         |
| CZRA5926B-G | 11                    | 34.1 | 5.5                     | 550       | 0.25 | 5.0                             | 8.4   | 272                      | 926B         |
| CZRA5927B-G | 12                    | 31.2 | 6.5                     | 550       | 0.25 | 1.0                             | 9.1   | 250                      | 927B         |
| CZRA5928B-G | 13                    | 28.8 | 7.0                     | 550       | 0.25 | 1.0                             | 9.9   | 230                      | 928B         |
| CZRA5929B-G | 15                    | 25.0 | 9.0                     | 600       | 0.25 | 1.0                             | 11.4  | 200                      | 929B         |
| CZRA5930B-G | 16                    | 23.4 | 10                      | 600       | 0.25 | 1.0                             | 12.2  | 186                      | 930B         |
| CZRA5931B-G | 18                    | 20.8 | 12                      | 650       | 0.25 | 1.0                             | 13.7  | 166                      | 931B         |
| CZRA5932B-G | 20                    | 18.7 | 14                      | 650       | 0.25 | 1.0                             | 15.2  | 150                      | 932B         |
| CZRA5933B-G | 22                    | 17.0 | 18                      | 650       | 0.25 | 1.0                             | 16.7  | 136                      | 933B         |
| CZRA5934B-G | 24                    | 15.6 | 19                      | 700       | 0.25 | 1.0                             | 18.2  | 124                      | 934B         |
| CZRA5935B-G | 27                    | 13.9 | 23                      | 700       | 0.25 | 1.0                             | 20.6  | 110                      | 935B         |
| CZRA5936B-G | 30                    | 12.5 | 26                      | 750       | 0.25 | 1.0                             | 22.8  | 100                      | 936B         |
| CZRA5937B-G | 33                    | 11.4 | 33                      | 800       | 0.25 | 1.0                             | 25.1  | 90                       | 937B         |
| CZRA5938B-G | 36                    | 10.4 | 38                      | 850       | 0.25 | 1.0                             | 27.4  | 82                       | 938B         |
| CZRA5939B-G | 39                    | 9.6  | 45                      | 900       | 0.25 | 1.0                             | 29.7  | 76                       | 939B         |
| CZRA5940B-G | 43                    | 8.7  | 53                      | 950       | 0.25 | 1.0                             | 32.7  | 68                       | 940B         |
| CZRA5941B-G | 47                    | 8.0  | 67                      | 1000      | 0.25 | 1.0                             | 35.8  | 62                       | 941B         |
| CZRA5942B-G | 51                    | 7.3  | 70                      | 1100      | 0.25 | 1.0                             | 38.8  | 58                       | 942B         |
| CZRA5943B-G | 56                    | 6.7  | 86                      | 1300      | 0.25 | 1.0                             | 42.6  | 52                       | 943B         |
| CZRA5944B-G | 62                    | 6.0  | 100                     | 1500      | 0.25 | 1.0                             | 47.1  | 48                       | 944B         |
| CZRA5945B-G | 68                    | 5.5  | 120                     | 1700      | 0.25 | 1.0                             | 51.7  | 44                       | 945B         |
| CZRA5946B-G | 75                    | 5.0  | 140                     | 2000      | 0.25 | 1.0                             | 56.0  | 40                       | 946B         |
| CZRA5947B-G | 82                    | 4.6  | 160                     | 2500      | 0.25 | 1.0                             | 62.2  | 36                       | 947B         |
| CZRA5948B-G | 91                    | 4.1  | 200                     | 3000      | 0.25 | 1.0                             | 69.2  | 32                       | 948B         |
| CZRA5949B-G | 100                   | 3.7  | 250                     | 3100      | 0.25 | 1.0                             | 76.0  | 30                       | 949B         |
| CZRA5950B-G | 110                   | 3.4  | 300                     | 4000      | 0.25 | 1.0                             | 83.6  | 13                       | 950B         |
| CZRA5951B-G | 120                   | 3.1  | 380                     | 4500      | 0.25 | 1.0                             | 91.2  | 12                       | 951B         |
| CZRA5952B-G | 130                   | 2.9  | 450                     | 5000      | 0.25 | 1.0                             | 98.8  | 11                       | 952B         |
| CZRA5953B-G | 150                   | 2.5  | 600                     | 6000      | 0.25 | 1.0                             | 114.0 | 10                       | 953B         |
| CZRA5954B-G | 160                   | 2.3  | 700                     | 6500      | 0.25 | 1.0                             | 121.6 | 9                        | 954B         |
| CZRA5955B-G | 180                   | 2.1  | 900                     | 7000      | 0.25 | 1.0                             | 136.8 | 8                        | 955B         |
| CZRA5956B-G | 200                   | 1.9  | 1900                    | 9990      | 0.25 | 1.0                             | 152.0 | 7                        | 956B         |

### Notes:

- (1) The type number listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
- (2) The reverse surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on IZT per JEDEC Method.

## Reel Taping Specification

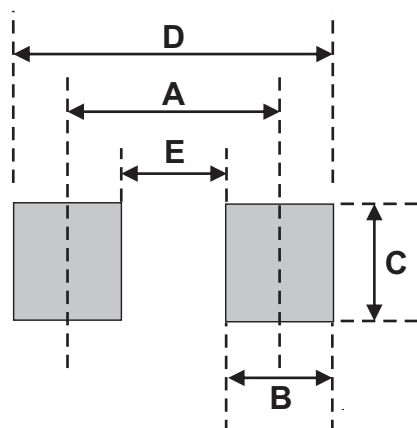


| SMA<br>(DO-214AC) | SYMBOL | A           | B           | C           | d             | D     | D <sub>1</sub> | D <sub>2</sub> |
|-------------------|--------|-------------|-------------|-------------|---------------|-------|----------------|----------------|
|                   | (mm)   | 2.70 (max)  | 5.30 (max)  | 2.66 (max)  | 1.50 ± 0.10   | 330   | 50.0 MIN.      | 13.5 ± 1.00    |
|                   | (inch) | 0.106 (max) | 0.209 (max) | 0.105 (max) | 0.059 ± 0.004 | 12.99 | 1.969 MIN.     | 0.531 ± 0.039  |

| SMA<br>(DO-214AC) | SYMBOL | E             | F             | P             | P <sub>0</sub> | P <sub>1</sub> | W             | W <sub>1</sub> |
|-------------------|--------|---------------|---------------|---------------|----------------|----------------|---------------|----------------|
|                   | (mm)   | 1.75 ± 0.10   | 5.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10    | 2.00 ± 0.05    | 12.0 ± 0.20   | 18.4 (max)     |
|                   | (inch) | 0.689 ± 0.004 | 0.217 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.002  | 0.472 ± 0.008 | 0.724 (max)    |

## Suggested PAD Layout

| SIZE | DO-214AC(SMA) |        |
|------|---------------|--------|
|      | (mm)          | (inch) |
| A    | 3.80          | 0.150  |
| B    | 1.60          | 0.063  |
| C    | 2.80          | 0.110  |
| D    | 5.40          | 0.213  |
| E    | 2.20          | 0.087  |



## Standard Package

| Case Type      | Qty per Reel | Reel Size |
|----------------|--------------|-----------|
|                | (Pcs)        | (inch)    |
| DO-214AC (SMA) | 5000         | 13        |