

## CZRB3005-G Thru CZRB3200-G

Voltage: 6.2 to 200 Volts

Power: 3 Watts

RoHS Device

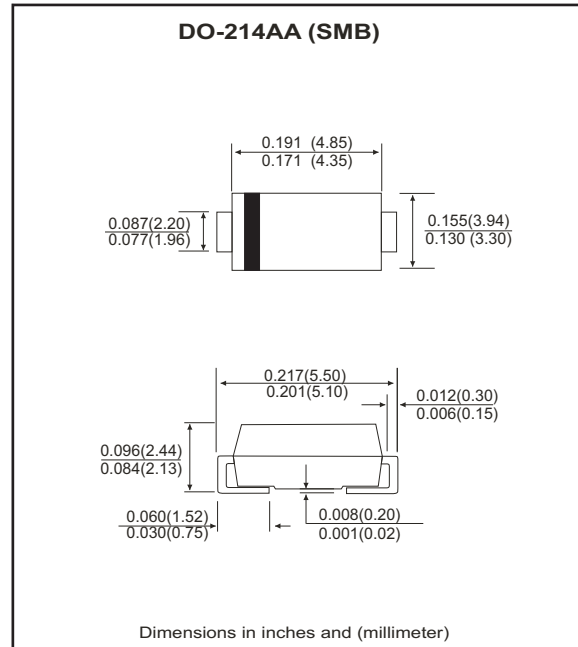


### Features

- Glass passivated chip
- Low leakage
- Built-in strain relief
- Low inductance
- High peak reverse power dissipation
- For use in stabilizing and clipping with high power rating.

### Mechanical data

- Epoxy: UL 94V-0 rate flame retardant
- Case: DO-214AA(SMB), Molded plastic,
- Lead: Solderable per MIL-STD-750, method 2026 guaranteed.
- Polarity: Color band denotes cathode end.
- Mounting position: Any
- Weight: 0.1 grams



### Ratings AND Electrical Characteristics

| Parameter   | Symbol    | Value       | Unit             |
|---|-----------|-------------|------------------|
| Forward Voltage Drop at $I_F = 200 \text{ mA}$            | $V_F$     | 1.5         | V                |
| DC Power Dissipation at $T_L = 50^\circ\text{C}$ (Note 1) | $P_D$     | 3           | W                |
| Junction temperature range                                | $T_J$     | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range                                 | $T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |

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

## 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)                     |              |
| CZRB3005-G  | 6.2                   | 121.0 | 1.5                     | 700       | 1.0  | 50.0                            | 3.0  | 435                      | 3A0          |
| CZRB3006-G  | 6.8                   | 110.0 | 2.0                     | 700       | 1.0  | 50.0                            | 4.0  | 393                      | 3A1          |
| CZRB3007-G  | 7.5                   | 100.0 | 2.0                     | 700       | 0.5  | 50.0                            | 5.0  | 360                      | 3A2          |
| CZRB3008-G  | 8.2                   | 91.0  | 2.3                     | 700       | 0.5  | 50.0                            | 6.0  | 330                      | 3A3          |
| CZRB3009-G  | 9.1                   | 82.0  | 2.4                     | 700       | 0.5  | 50.0                            | 7.0  | 297                      | 3A4          |
| CZRB3010-G  | 10.0                  | 75.0  | 3.5                     | 700       | 0.25 | 50.0                            | 7.6  | 270                      | 3A5          |
| CZRB3011-G  | 11.0                  | 68.0  | 4.0                     | 700       | 0.25 | 50.0                            | 8.4  | 225                      | 3A6          |
| CZRB3012-G  | 12.0                  | 63.0  | 4.5                     | 700       | 0.25 | 1.0                             | 9.1  | 246                      | 3A7          |
| CZRB3013-G  | 13.0                  | 58.0  | 4.5                     | 700       | 0.25 | 0.5                             | 9.9  | 208                      | 3A8          |
| CZRB3014-G  | 14.0                  | 53.0  | 5.0                     | 700       | 0.25 | 0.5                             | 10.6 | 193                      | 3A9          |
| CZRB3015-G  | 15.0                  | 50.0  | 5.5                     | 700       | 0.25 | 0.5                             | 11.4 | 180                      | 3B0          |
| CZRB3016-G  | 16.0                  | 47.0  | 5.5                     | 700       | 0.25 | 0.5                             | 12.2 | 169                      | 3B1          |
| CZRB3017-G  | 17.0                  | 44.0  | 6.0                     | 750       | 0.25 | 0.5                             | 13.0 | 159                      | 3B2          |
| CZRB3018-G  | 18.0                  | 42.0  | 6.0                     | 750       | 0.25 | 0.5                             | 13.7 | 150                      | 3B3          |
| CZRB3019-G  | 19.0                  | 40.0  | 7.0                     | 750       | 0.25 | 0.5                             | 14.4 | 142                      | 3B4          |
| CZRB3020-G  | 20.0                  | 37.0  | 7.0                     | 750       | 0.25 | 0.5                             | 15.2 | 135                      | 3B5          |
| CZRB3022-G  | 22.0                  | 34.0  | 8.0                     | 750       | 0.25 | 0.5                             | 16.7 | 123                      | 3B6          |
| CZRB3024-G  | 24.0                  | 31.0  | 9.0                     | 750       | 0.25 | 0.5                             | 18.2 | 112                      | 3B7          |
| CZRB3027-G  | 27.0                  | 28.0  | 10.0                    | 750       | 0.25 | 0.5                             | 20.6 | 100                      | 3B8          |
| CZRB3028-G  | 28.0                  | 27.0  | 12.0                    | 750       | 0.25 | 0.5                             | 21.0 | 96                       | 3B9          |
| CZRB3030-G  | 30.0                  | 25.0  | 16.0                    | 1000      | 0.25 | 0.5                             | 22.5 | 90                       | 3C0          |
| CZRB3033-G  | 33.0                  | 23.0  | 20.0                    | 1000      | 0.25 | 0.5                             | 25.1 | 82                       | 3C1          |
| CZRB3036-G  | 36.0                  | 21.0  | 22.0                    | 1000      | 0.25 | 0.5                             | 27.4 | 75                       | 3C2          |
| CZRB3039-G  | 39.0                  | 19.0  | 28.0                    | 1000      | 0.25 | 0.5                             | 29.7 | 69                       | 3C3          |
| CZRB3043-G  | 43.0                  | 17.0  | 33.0                    | 1500      | 0.25 | 0.5                             | 32.7 | 63                       | 3C4          |
| CZRB3047-G  | 47.0                  | 16.0  | 38.0                    | 1500      | 0.25 | 0.5                             | 35.6 | 57                       | 3C5          |
| CZRB3051-G  | 51.0                  | 15.0  | 45.0                    | 1500      | 0.25 | 0.5                             | 38.8 | 53                       | 3C6          |
| CZRB3056-G  | 56.0                  | 13.0  | 50.0                    | 2000      | 0.25 | 0.5                             | 42.6 | 48                       | 3C7          |
| CZRB3062-G  | 62.0                  | 12.0  | 55.0                    | 2000      | 0.25 | 0.5                             | 47.1 | 44                       | 3C8          |
| CZRB3068-G  | 68.0                  | 11.0  | 70.0                    | 2000      | 0.25 | 0.5                             | 51.7 | 40                       | 3C9          |
| CZRB3075-G  | 75.0                  | 10.0  | 85.0                    | 2000      | 0.25 | 0.5                             | 56.0 | 36                       | 3F0          |
| CZRB3082-G  | 82.0                  | 9.1   | 95.0                    | 3000      | 0.25 | 0.5                             | 62.2 | 33                       | 3F1          |
| CZRB3091-G  | 91.0                  | 8.2   | 115.0                   | 3000      | 0.25 | 0.5                             | 69.2 | 30                       | 3F2          |
| CZRB3100-G  | 100.0                 | 7.5   | 160.0                   | 3000      | 0.25 | 0.5                             | 76.0 | 27                       | 3F3          |

**Notes:**

- (1) The type number listed have a standard tolerance on th 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.

## 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)                     |              |
| CZRB3110-G  | 110.0                 | 6.8  | 225.0                   | 4000      | 0.25 | 0.5                             | 83.6  | 25                       | 3F4          |
| CZRB3120-G  | 120.0                 | 6.3  | 300.0                   | 4500      | 0.25 | 0.5                             | 91.2  | 22                       | 3F5          |
| CZRB3130-G  | 130.0                 | 5.8  | 375.0                   | 5000      | 0.25 | 0.5                             | 98.8  | 21                       | 3F6          |
| CZRB3140-G  | 140.0                 | 5.3  | 475.0                   | 5000      | 0.25 | 0.5                             | 106.4 | 19                       | 3F7          |
| CZRB3150-G  | 150.0                 | 5.0  | 550.0                   | 6000      | 0.25 | 0.5                             | 114.0 | 18                       | 3F8          |
| CZRB3160-G  | 160.0                 | 4.7  | 625.0                   | 6500      | 0.25 | 0.5                             | 121.6 | 17                       | 3F9          |
| CZRB3170-G  | 170.0                 | 4.4  | 650.0                   | 7000      | 0.25 | 0.5                             | 130.4 | 16                       | 3G1          |
| CZRB3180-G  | 180.0                 | 4.2  | 700.0                   | 7000      | 0.25 | 0.5                             | 136.8 | 15                       | 3G2          |
| CZRB3190-G  | 190.0                 | 4.0  | 800.0                   | 8000      | 0.25 | 0.5                             | 144.8 | 14                       | 3G3          |
| CZRB3200-G  | 200.0                 | 3.7  | 875.0                   | 8000      | 0.25 | 0.5                             | 152.0 | 13                       | 3G4          |

**Notes:**

- (1) The type number listed have a standard tolerance on th 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.

## RATING AND CHARACTERISTIC CURVES (CZRB3005-G Thru CZRB3200B-G)

Fig.1 Power temperature derating current

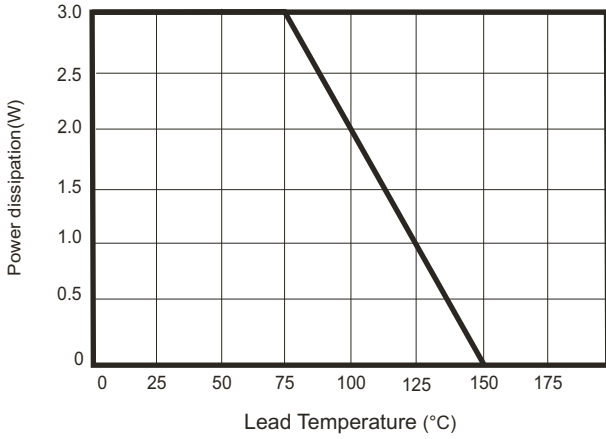


Fig.2 Temperature Coefficients v.s. Zener Voltage

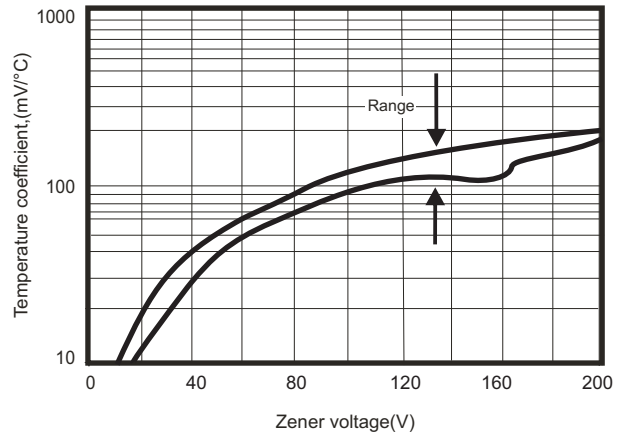


Fig.3 Typical thermal resistance v.s. lead length

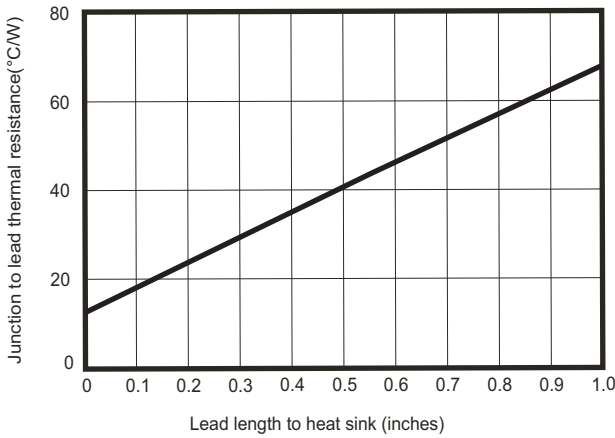


Fig.4 Maximum surge power

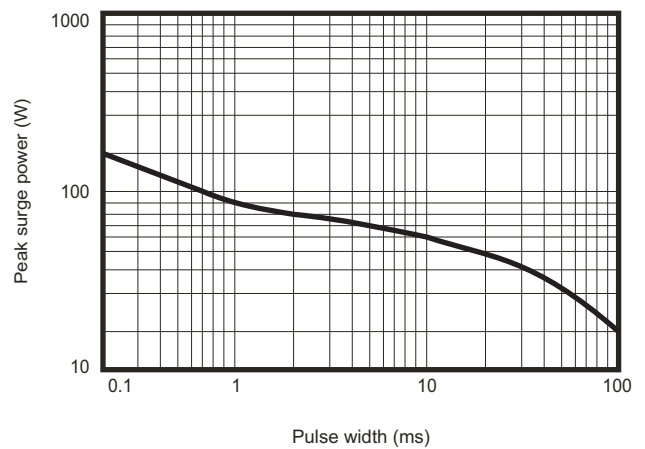
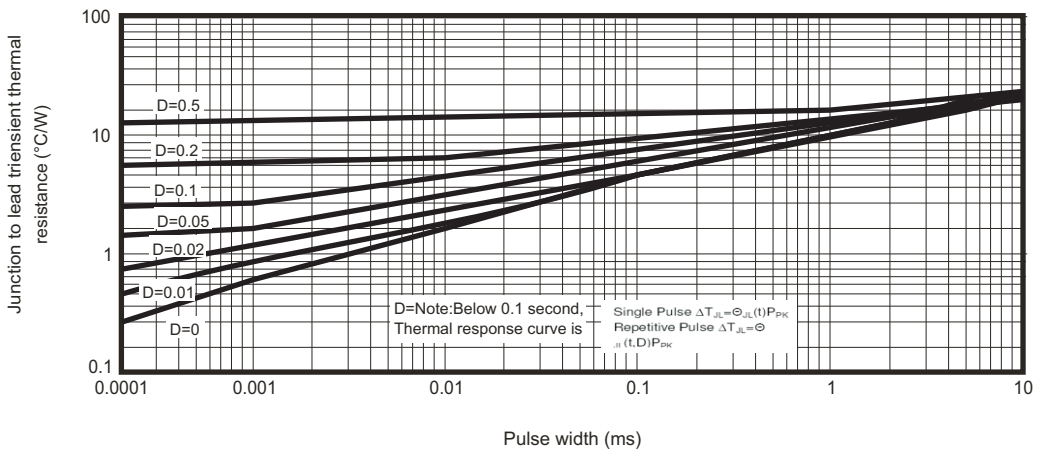
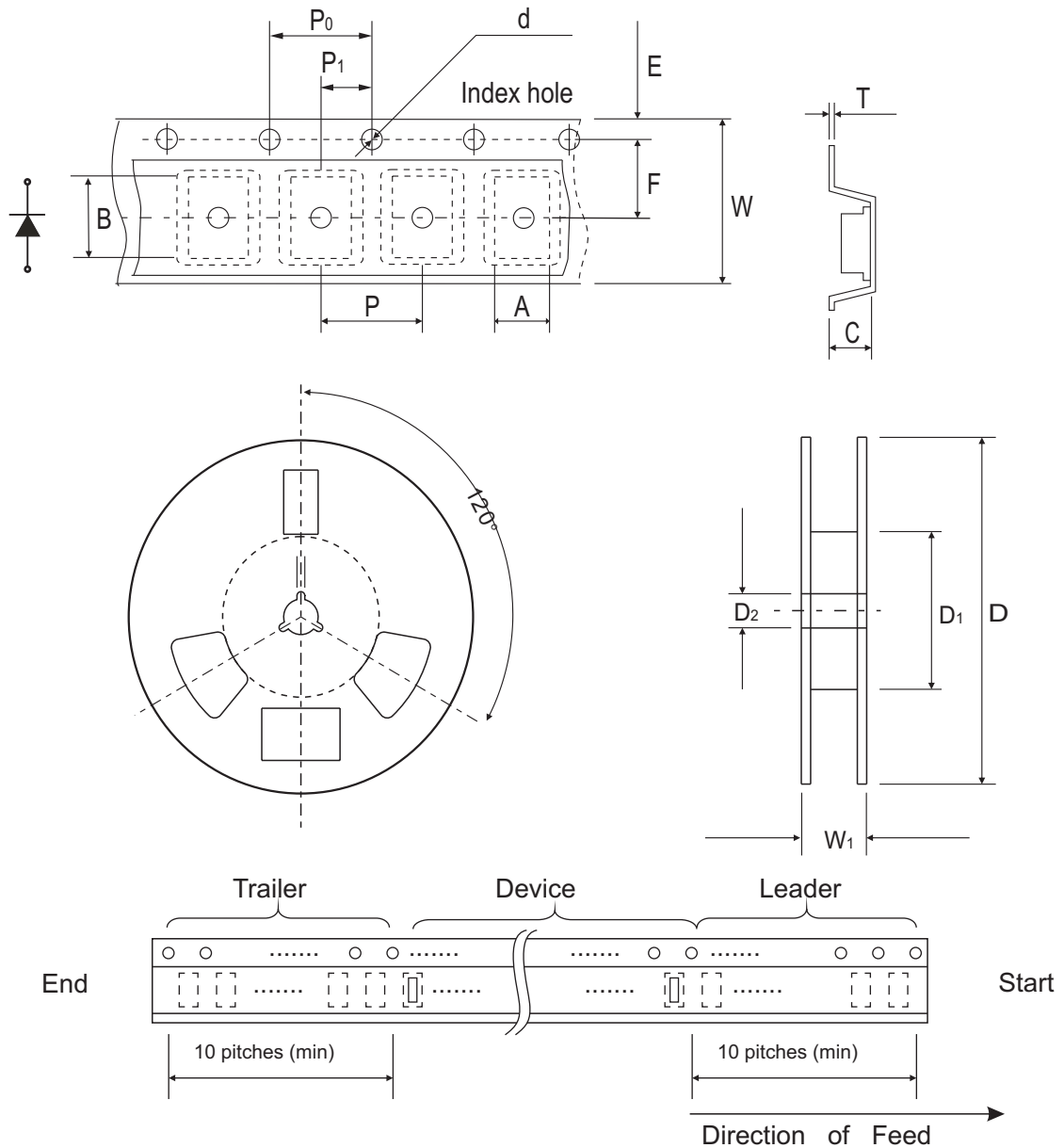


Fig.5 Typical thermal response L, lead length=3/8 inch



## Reel Taping Specification



| DO-214AA<br>(SMB) | SYMBOL | A             | B             | C             | d             | D             | D1         | D2            |
|-------------------|--------|---------------|---------------|---------------|---------------|---------------|------------|---------------|
|                   | (mm)   | 3.67 ± 0.10   | 5.69 ± 0.10   | 2.67 ± 0.10   | 1.55 ± 0.10   | 330 ± 2.00    | 50.0 MIN.  | 13.0 ± 0.20   |
|                   | (inch) | 0.144 ± 0.004 | 0.224 ± 0.004 | 0.105 ± 0.004 | 0.061 ± 0.004 | 12.99 ± 0.079 | 1.969 MIN. | 0.512 ± 0.008 |

| DO-214AA<br>(SMB) | SYMBOL | E             | F             | P             | P0            | P1            | t           | W             | W1          |
|-------------------|--------|---------------|---------------|---------------|---------------|---------------|-------------|---------------|-------------|
|                   | (mm)   | 1.75 ± 0.10   | 5.50 ± 0.05   | 8.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 0.40(MAX)   | 12.0 ± 0.30   | 18.4 (max)  |
|                   | (inch) | 0.069 ± 0.004 | 0.217 ± 0.002 | 0.315 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.016 (max) | 0.472 ± 0.012 | 0.724 (max) |

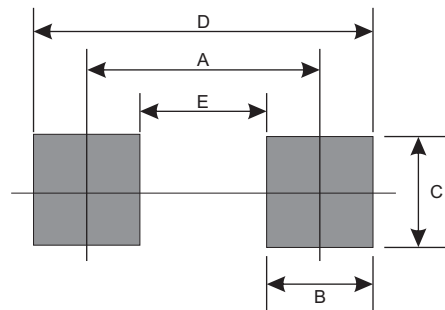
## Marking Code



1. XXX : Marking code(see Page. 2~3)
2. : Cathod Band

## Suggested PAD Layout

| SIZE | SMB  |        |
|------|------|--------|
|      | (mm) | (inch) |
| A    | 4.50 | 0.177  |
| B    | 1.50 | 0.059  |
| C    | 3.60 | 0.142  |
| D    | 6.00 | 0.236  |
| E    | 3.00 | 0.118  |



## Standard Packaging

| Case Type | Qty Per Reel | Reel Size |
|-----------|--------------|-----------|
|           | (Pcs)        | (inch)    |
| SMB       | 3,000        | 13        |