

# Surface Mount Zener Diodes



SMD Diodes Specialist

## CZRL5225-G Thru. CZRL5267-G

Voltage: 3.0 ~ 75V

Power Dissipation: 500mW

RoHS Device

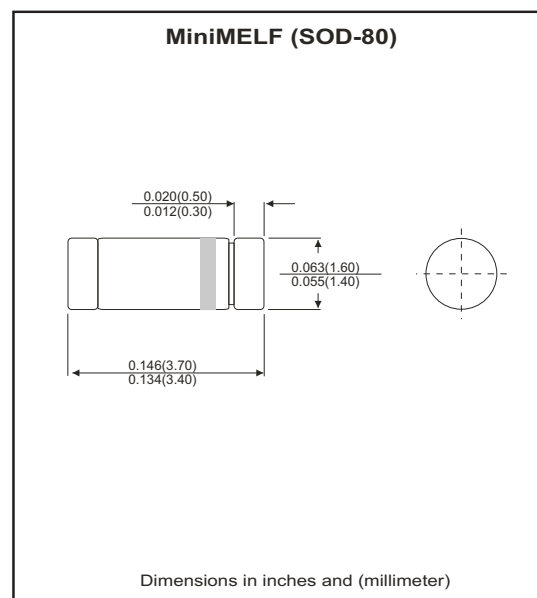


### Features

- Silicon planar power Zener diodes.
- For use in stabilizing and clipping circuits with higher power rating.
- Standard Zener voltage tolerance is  $\pm 5\%$  with a "B" suffix.

### Mechanical Data:

- Case: MiniMELF glass case (SOD-80)
- Weight: approx. 0.05g



### Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter                                   | Symbol           | Value              | Unit               |
|---------------------------------------------|------------------|--------------------|--------------------|
| Zener current (See table "Characteristics") |                  |                    |                    |
| Power dissipation at $T_A=25^\circ\text{C}$ | $P_{\text{tot}}$ | 500 <sup>(1)</sup> | mW                 |
| Thermal resistance, junction to ambient air | $R_{\theta JA}$  | 300 <sup>(1)</sup> | $^\circ\text{C/W}$ |
| Junction temperature                        | $T_J$            | 175                | $^\circ\text{C}$   |
| Storage temperature range                   | $T_{\text{STG}}$ | -65 to +150        | $^\circ\text{C}$   |

Note: Valid provided that electrodes are kept at ambient temperature.

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## ELECTRICAL CHARACTERISTIC (CZRL5225-G Thru. CZRL5267-G)

Max VF=1.25V at IF=200mA, At TA=25°C unless otherwise specified.

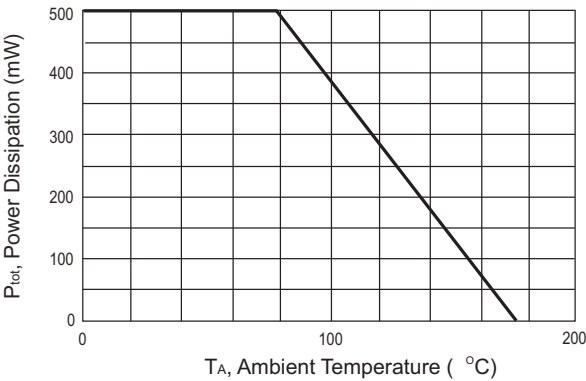
| Type NO.    | Nominal Zener Voltage at IZT<br>VZ(V)<br>(Note 3) | Test Current<br>IZT (mA) | Maximum Zener Impedance<br>(Note 2) |                           | Typical Temperature Coefficient<br>VZ (%/°C) | Max reverse Leakage Current |           | Maximum Regulator Current<br>IZM (mA)<br>(Note 2.) |
|-------------|---------------------------------------------------|--------------------------|-------------------------------------|---------------------------|----------------------------------------------|-----------------------------|-----------|----------------------------------------------------|
|             |                                                   |                          | at IZT<br>ZZT(ohm)                  | at IZK=0.25mA<br>ZZK(ohm) |                                              | IR<br>(uA)                  | VR<br>(V) |                                                    |
| CZRL5225B-G | 3                                                 | 20                       | 29                                  | 1600                      | -0.075                                       | 50                          | 1         | 152                                                |
| CZRL5226B-G | 3.3                                               | 20                       | 28                                  | 1600                      | -0.07                                        | 25                          | 1         | 138                                                |
| CZRL5227B-G | 3.6                                               | 20                       | 24                                  | 1700                      | -0.065                                       | 15                          | 1         | 126                                                |
| CZRL5228B-G | 3.9                                               | 20                       | 23                                  | 1900                      | -0.06                                        | 10                          | 1         | 115                                                |
| CZRL5229B-G | 4.3                                               | 20                       | 22                                  | 2000                      | -0.055                                       | 5                           | 1         | 106                                                |
| CZRL5230B-G | 4.7                                               | 20                       | 19                                  | 1900                      | ±0.030                                       | 5                           | 2         | 97                                                 |
| CZRL5231B-G | 5.1                                               | 20                       | 17                                  | 1600                      | ±0.030                                       | 5                           | 2         | 89                                                 |
| CZRL5232B-G | 5.6                                               | 20                       | 11                                  | 1600                      | 0.038                                        | 5                           | 3         | 81                                                 |
| CZRL5233B-G | 6                                                 | 20                       | 7                                   | 1600                      | 0.038                                        | 5                           | 3.5       | 76                                                 |
| CZRL5234B-G | 6.2                                               | 20                       | 7                                   | 1000                      | 0.045                                        | 5                           | 4         | 73                                                 |
| CZRL5235B-G | 6.8                                               | 20                       | 5                                   | 750                       | 0.05                                         | 3                           | 5         | 67                                                 |
| CZRL5236B-G | 7.5                                               | 20                       | 6                                   | 500                       | 0.058                                        | 3                           | 6         | 61                                                 |
| CZRL5237B-G | 8.2                                               | 20                       | 8                                   | 500                       | 0.062                                        | 3                           | 6.5       | 55                                                 |
| CZRL5238B-G | 8.7                                               | 20                       | 8                                   | 600                       | 0.065                                        | 3                           | 6.5       | 52                                                 |
| CZRL5239B-G | 9.1                                               | 20                       | 10                                  | 600                       | 0.068                                        | 3                           | 7         | 50                                                 |
| CZRL5240B-G | 10                                                | 20                       | 17                                  | 600                       | 0.075                                        | 3                           | 8         | 45                                                 |
| CZRL5241B-G | 11                                                | 20                       | 22                                  | 600                       | 0.076                                        | 2                           | 8.4       | 41                                                 |
| CZRL5242B-G | 12                                                | 20                       | 30                                  | 600                       | 0.077                                        | 1                           | 9.1       | 38                                                 |
| CZRL5243B-G | 13                                                | 9.5                      | 13                                  | 600                       | 0.079                                        | 0.5                         | 9.9       | 35                                                 |
| CZRL5244B-G | 14                                                | 9                        | 15                                  | 600                       | 0.082                                        | 0.1                         | 10        | 32                                                 |
| CZRL5245B-G | 15                                                | 8.5                      | 16                                  | 600                       | 0.082                                        | 0.1                         | 11        | 30                                                 |
| CZRL5246B-G | 16                                                | 7.8                      | 17                                  | 600                       | 0.083                                        | 0.1                         | 12        | 28                                                 |
| CZRL5247B-G | 17                                                | 7.4                      | 19                                  | 600                       | 0.084                                        | 0.1                         | 13        | 27                                                 |
| CZRL5248B-G | 18                                                | 7                        | 21                                  | 600                       | 0.085                                        | 0.1                         | 14        | 25                                                 |
| CZRL5249B-G | 19                                                | 6.6                      | 23                                  | 600                       | 0.086                                        | 0.1                         | 14        | 24                                                 |
| CZRL5250B-G | 20                                                | 6.2                      | 25                                  | 600                       | 0.086                                        | 0.1                         | 15        | 23                                                 |
| CZRL5251B-G | 22                                                | 5.6                      | 29                                  | 600                       | 0.087                                        | 0.1                         | 17        | 21                                                 |
| CZRL5252B-G | 24                                                | 5.2                      | 33                                  | 600                       | 0.087                                        | 0.1                         | 18        | 19.1                                               |
| CZRL5253B-G | 25                                                | 5                        | 35                                  | 600                       | 0.089                                        | 0.1                         | 19        | 18.2                                               |
| CZRL5254B-G | 27                                                | 4.6                      | 41                                  | 600                       | 0.09                                         | 0.1                         | 21        | 16.8                                               |
| CZRL5255B-G | 28                                                | 4.5                      | 44                                  | 600                       | 0.091                                        | 0.1                         | 21        | 16.2                                               |
| CZRL5256B-G | 30                                                | 4.2                      | 49                                  | 600                       | 0.091                                        | 0.1                         | 23        | 15.1                                               |
| CZRL5257B-G | 33                                                | 3.8                      | 58                                  | 700                       | 0.092                                        | 0.1                         | 25        | 13.8                                               |
| CZRL5258B-G | 36                                                | 3.4                      | 70                                  | 700                       | 0.093                                        | 0.1                         | 27        | 12.6                                               |
| CZRL5259B-G | 39                                                | 3.2                      | 80                                  | 800                       | 0.094                                        | 0.1                         | 30        | 11.6                                               |
| CZRL5260B-G | 43                                                | 3                        | 93                                  | 900                       | 0.095                                        | 0.1                         | 33        | 10.6                                               |
| CZRL5261B-G | 47                                                | 2.7                      | 105                                 | 1000                      | 0.095                                        | 0.1                         | 36        | 9.7                                                |
| CZRL5262B-G | 51                                                | 2.5                      | 125                                 | 1100                      | 0.096                                        | 0.1                         | 39        | 8.9                                                |
| CZRL5263B-G | 56                                                | 2.2                      | 150                                 | 1300                      | 0.096                                        | 0.1                         | 43        | --                                                 |
| CZRL5264B-G | 60                                                | 2.1                      | 170                                 | 1400                      | 0.097                                        | 0.1                         | 46        | --                                                 |
| CZRL5265B-G | 62                                                | 2                        | 185                                 | 1400                      | 0.097                                        | 0.1                         | 47        | --                                                 |
| CZRL5266B-G | 68                                                | 1.8                      | 230                                 | 1600                      | 0.097                                        | 0.1                         | 52        | --                                                 |
| CZRL5267B-G | 75                                                | 1.7                      | 270                                 | 1700                      | 0.098                                        | 0.1                         | 56        | --                                                 |

### Notes:

- (1) The Zener impedance is derived from the 1KHZ AC volt age which results when an AC current having an RMS value equal to 10% of the Zener current (IZTor IZK) is superim posed on IZT or IZK. Zener impedance is m easured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.
- (2) Valid provided that electrodes at a distance of 10mm from case are kept at ambient temperature.
- (3) Tested under thermal equilibrium and DC test conditions.

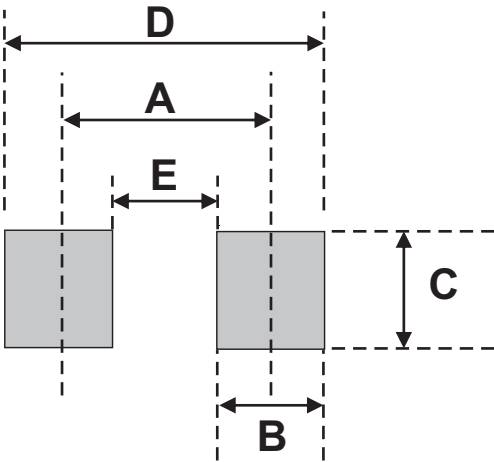
RATING AND CHARACTERISTIC CURVES (CZRL5225-G Thru. CZRL5267-G)

Fig.1 Admissible power dissipation vs. ambient temperature



Suggested PAD Layout

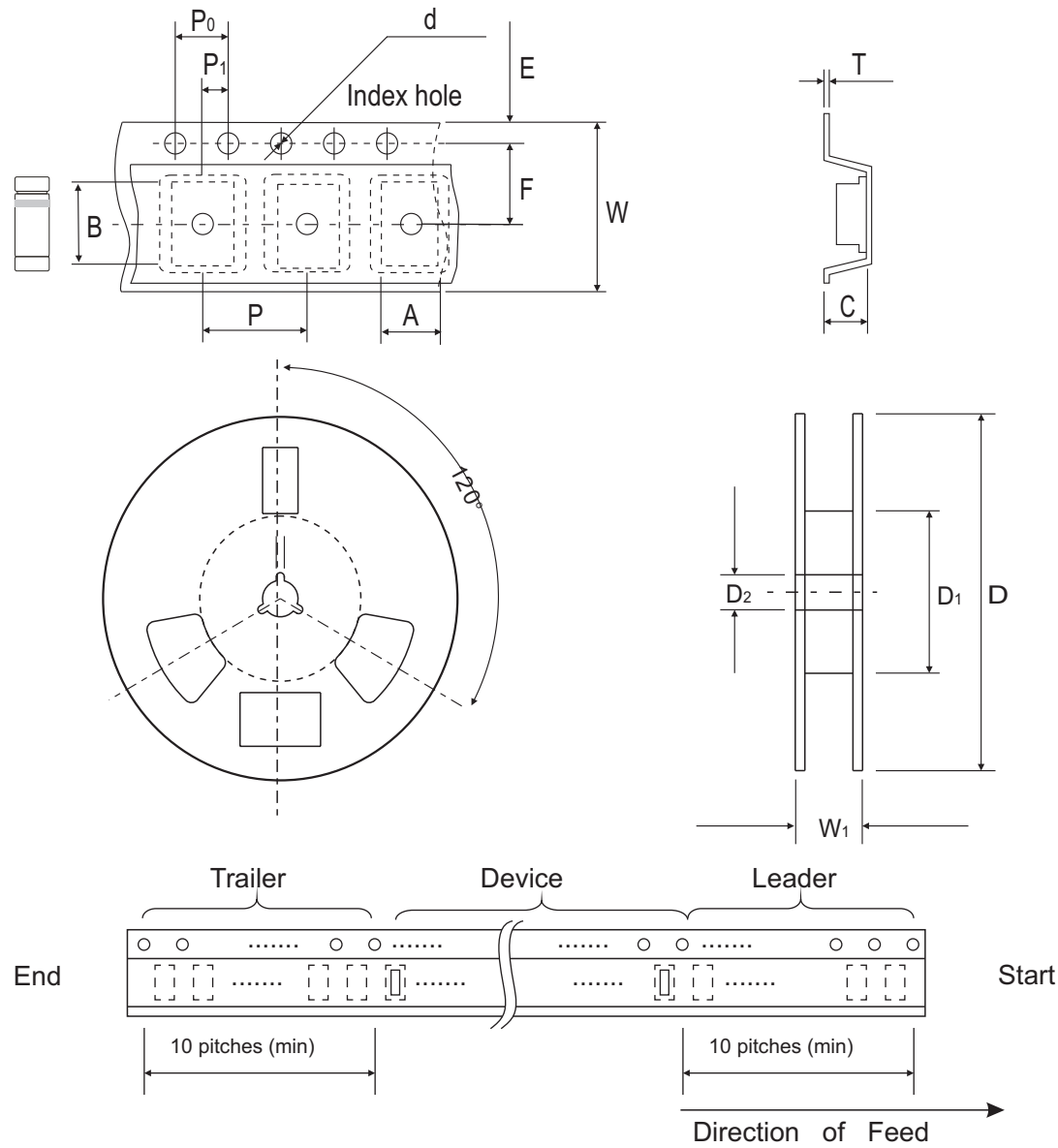
| SIZE | Mini-MELF (SOD-80) |        |
|------|--------------------|--------|
|      | (mm)               | (inch) |
| A    | 3.40               | 0.134  |
| B    | 1.30               | 0.051  |
| C    | 1.70               | 0.067  |
| D    | 5.10               | 0.201  |
| E    | 1.70               | 0.067  |



Standard Package

| Case Type          | Qty per Reel | Reel Size |
|--------------------|--------------|-----------|
|                    | (Pcs)        | (inch)    |
| Mini-MELF (SOD-80) | 2500         | 7         |

Reel Taping Specification



|                    | SYMBOL | A          | B           | C           | d             | D            | D1         | D2            |
|--------------------|--------|------------|-------------|-------------|---------------|--------------|------------|---------------|
| Mini-MELF (SOD-80) | (mm)   | 2.0 (max)  | 3.9 (max)   | 2.0 (max)   | 1.55 ± 0.10   | 178 ± 1.00   | 50.0 MIN.  | 13.0 ± 0.20   |
|                    | (inch) | 0.078(max) | 0.153 (max) | 0.078 (max) | 0.061 ± 0.004 | 7.00 ± 0.039 | 1.969 MIN. | 0.512 ± 0.008 |

|                    | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1        |
|--------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|-----------|
| Mini-MELF (SOD-80) | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 8.00 ± 0.30   | 14.4 MAX. |
|                    | (inch) | 0.689 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.314 ± 0.012 | 0.567 MAX |

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