

# DATA SHEET

## GLZ2.0~GLZ56

### SURFACE MOUNT ZENER DIODES

**VOLTAGE** 2.0 to 56 Volts

**POWER** 500 mWatts

**MINI-MELF/LL-34**

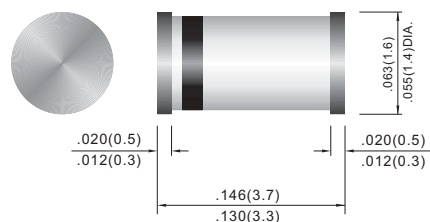
Unit : inch (mm)

#### FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- Both normal and Pb free product are available :  
Normal : 80~95% Sn, 5~20% Pb  
Pb free: 98.5% Sn above

#### MECHANICAL DATA

- Case: Molded Glass MINI-MELF
- Terminals: Solderable per MIL-STD-202E, Method 208
- Polarity: See Diagram Below
- Approx. Weight: 0.03 grams
- Mounting Position: Any
- Packing information  
T/R - 2.5K per 7" plastic Reel  
T/R - 10K per 13" plastic Reel



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter                                                                                  | Sym bol           | Value       | Units |
|--------------------------------------------------------------------------------------------|-------------------|-------------|-------|
| Power Dissipation at Tamb = 25 °C                                                          | P <sub>TO T</sub> | 500         | m W   |
| Junction Temperature                                                                       | T <sub>J</sub>    | 175         | °C    |
| Storage Temperature Range                                                                  | T <sub>S</sub>    | -65 to +175 | °C    |
| Valid provided that leads at a distance of 10mm from case are kept at ambient temperature. |                   |             |       |

| Parameter                                                                                  | Sym bol          | Min. | Typ. | Max. | Units |
|--------------------------------------------------------------------------------------------|------------------|------|------|------|-------|
| Thermal Resistance Junction to Ambient Air                                                 | R <sub>thA</sub> | --   | --   | 0.3  | K/m W |
| Forward Voltage at I <sub>F</sub> = 100mA                                                  | V <sub>F</sub>   | --   | --   | 1    | V     |
| Valid provided that leads at a distance of 10mm from case are kept at ambient temperature. |                  |      |      |      |       |

| Part Number | CLASS | V <sub>Z</sub> @ I <sub>T</sub> |         | I <sub>Z</sub><br>(mA) | V <sub>R</sub><br>(V) | R (uA)<br>MAX | I <sub>zt</sub><br>(mA) | Z <sub>zt</sub> (Ω)<br>MAX | I <sub>K</sub><br>(mA) | Z <sub>zk</sub> (Ω)<br>MAX | Marking<br>code |
|-------------|-------|---------------------------------|---------|------------------------|-----------------------|---------------|-------------------------|----------------------------|------------------------|----------------------------|-----------------|
|             |       | M in. V                         | M ax. V |                        |                       |               |                         |                            |                        |                            |                 |
| GLZ 20      | A     | 1.88                            | 2.10    | 20                     | 0.5                   | 120           | 20                      | 140                        | 1                      | 2000                       | 2A0             |
|             | B     | 2.02                            | 2.20    |                        |                       |               |                         |                            |                        |                            | 2B0             |
| GLZ 22      | A     | 2.12                            | 2.30    | 20                     | 0.7                   | 120           | 20                      | 120                        | 1                      | 2000                       | 2A2             |
|             | B     | 2.22                            | 2.41    |                        |                       |               |                         |                            |                        |                            | 2B2             |
| GLZ 24      | A     | 2.33                            | 2.52    | 20                     | 1.0                   | 120           | 20                      | 100                        | 1                      | 2000                       | 2A4             |
|             | B     | 2.43                            | 2.63    |                        |                       |               |                         |                            |                        |                            | 2B4             |
| GLZ 27      | A     | 2.54                            | 2.75    | 20                     | 1.0                   | 120           | 20                      | 100                        | 1                      | 1000                       | 2A7             |
|             | B     | 2.69                            | 2.91    |                        |                       |               |                         |                            |                        |                            | 2B7             |
| GLZ 30      | A     | 2.85                            | 3.07    | 20                     | 1.0                   | 50            | 20                      | 80                         | 1                      | 1000                       | 3A0             |
|             | B     | 3.01                            | 3.22    |                        |                       |               |                         |                            |                        |                            | 3B0             |
| GLZ 33      | A     | 3.16                            | 3.38    | 20                     | 1.0                   | 20            | 20                      | 70                         | 1                      | 1000                       | 3A3             |
|             | B     | 3.32                            | 3.53    |                        |                       |               |                         |                            |                        |                            | 3B3             |
| GLZ 36      | A     | 3.455                           | 3.695   | 20                     | 1.0                   | 10            | 20                      | 60                         | 1                      | 1000                       | 3A6             |
|             | B     | 3.60                            | 3.845   |                        |                       |               |                         |                            |                        |                            | 3B6             |
| GLZ 39      | A     | 3.74                            | 4.01    | 20                     | 1.0                   | 5             | 20                      | 50                         | 1                      | 1000                       | 3A9             |
|             | B     | 3.89                            | 4.16    |                        |                       |               |                         |                            |                        |                            | 3B9             |
| GLZ 43      | A     | 4.04                            | 4.29    | 20                     | 1.0                   | 5             | 20                      | 40                         | 1                      | 1000                       | 4A3             |
|             | B     | 4.17                            | 4.43    |                        |                       |               |                         |                            |                        |                            | 4B3             |
|             | C     | 4.30                            | 4.57    |                        |                       |               |                         |                            |                        |                            | 4C3             |
| GLZ 47      | A     | 4.44                            | 4.68    | 20                     | 1.0                   | 5             | 20                      | 25                         | 1                      | 900                        | 4A7             |
|             | B     | 4.55                            | 4.80    |                        |                       |               |                         |                            |                        |                            | 4B7             |
|             | C     | 4.68                            | 4.93    |                        |                       |               |                         |                            |                        |                            | 4C7             |
| GLZ 51      | A     | 4.81                            | 5.07    | 20                     | 1.5                   | 5             | 20                      | 20                         | 1                      | 800                        | 5A1             |
|             | B     | 4.94                            | 5.20    |                        |                       |               |                         |                            |                        |                            | 5B1             |
|             | C     | 5.09                            | 5.37    |                        |                       |               |                         |                            |                        |                            | 5C1             |
| GLZ 56      | A     | 5.28                            | 5.55    | 20                     | 2.5                   | 5             | 20                      | 13                         | 1                      | 500                        | 5A6             |
|             | B     | 5.45                            | 5.73    |                        |                       |               |                         |                            |                        |                            | 5B6             |
|             | C     | 5.61                            | 5.91    |                        |                       |               |                         |                            |                        |                            | 5C6             |
| GLZ 62      | A     | 5.78                            | 6.09    | 20                     | 3.0                   | 5             | 20                      | 10                         | 1                      | 300                        | 6A2             |
|             | B     | 5.96                            | 6.27    |                        |                       |               |                         |                            |                        |                            | 6B2             |
|             | C     | 6.12                            | 6.44    |                        |                       |               |                         |                            |                        |                            | 6C2             |
| GLZ 68      | A     | 6.29                            | 6.63    | 20                     | 3.5                   | 2             | 20                      | 8                          | 0.5                    | 150                        | 6A8             |
|             | B     | 6.49                            | 6.83    |                        |                       |               |                         |                            |                        |                            | 6B8             |
|             | C     | 6.66                            | 7.01    |                        |                       |               |                         |                            |                        |                            | 6C8             |
| GLZ 75      | A     | 6.85                            | 7.22    | 20                     | 4.0                   | 0.5           | 20                      | 8                          | 0.5                    | 120                        | 7A5             |
|             | B     | 7.07                            | 7.45    |                        |                       |               |                         |                            |                        |                            | 7B5             |
|             | C     | 7.29                            | 7.67    |                        |                       |               |                         |                            |                        |                            | 7C5             |
| GLZ 82      | A     | 7.53                            | 7.92    | 20                     | 5.0                   | 0.5           | 20                      | 8                          | 0.5                    | 120                        | 8A2             |
|             | B     | 7.78                            | 8.19    |                        |                       |               |                         |                            |                        |                            | 8B2             |
|             | C     | 8.03                            | 8.45    |                        |                       |               |                         |                            |                        |                            | 8C2             |
| GLZ 91      | A     | 8.29                            | 8.73    | 20                     | 6.0                   | 0.5           | 20                      | 8                          | 0.5                    | 120                        | 9A1             |
|             | B     | 8.57                            | 9.01    |                        |                       |               |                         |                            |                        |                            | 9B1             |
|             | C     | 8.83                            | 9.30    |                        |                       |               |                         |                            |                        |                            | 9C1             |
| GLZ 10      | A     | 9.12                            | 9.59    | 20                     | 7.0                   | 0.2           | 20                      | 8                          | 0.5                    | 120                        | 10A             |
|             | B     | 9.41                            | 9.90    |                        |                       |               |                         |                            |                        |                            | 10B             |
|             | C     | 9.70                            | 10.20   |                        |                       |               |                         |                            |                        |                            | 10C             |
|             | D     | 9.94                            | 10.44   |                        |                       |               |                         |                            |                        |                            | 11D             |
| GLZ 11      | A     | 10.18                           | 10.71   | 10                     | 8.0                   | 0.2           | 10                      | 10                         | 0.5                    | 120                        | 11A             |
|             | B     | 10.50                           | 11.05   |                        |                       |               |                         |                            |                        |                            | 11B             |
|             | C     | 10.82                           | 11.38   |                        |                       |               |                         |                            |                        |                            | 11C             |

| PartNumber | CLASS | V <sub>Z</sub> @ I <sub>T</sub> |         | I <sub>Z</sub><br>(mA) | V <sub>R</sub><br>(V) | R (Ω)<br>MAX | I <sub>zt</sub><br>(mA) | Z <sub>zt</sub> (Ω)<br>MAX | I <sub>K</sub><br>(mA) | Z <sub>ZK</sub> (Ω)<br>MAX | Marking<br>Code |
|------------|-------|---------------------------------|---------|------------------------|-----------------------|--------------|-------------------------|----------------------------|------------------------|----------------------------|-----------------|
|            |       | M in. V                         | M ax. V |                        |                       |              |                         |                            |                        |                            |                 |
| GLZ 12     | A     | 11.13                           | 11.71   | 10                     | 9.0                   | 0.2          | 10                      | 12                         | 0.5                    | 110                        | 12A             |
|            | B     | 11.44                           | 12.03   |                        |                       |              |                         |                            |                        |                            | 12B             |
|            | C     | 11.74                           | 12.35   |                        |                       |              |                         |                            |                        |                            | 12C             |
| GLZ 13     | A     | 12.11                           | 12.75   | 10                     | 10                    | 0.2          | 10                      | 14                         | 0.5                    | 110                        | 13A             |
|            | B     | 12.55                           | 13.21   |                        |                       |              |                         |                            |                        |                            | 13B             |
|            | C     | 12.99                           | 13.66   |                        |                       |              |                         |                            |                        |                            | 13C             |
| GLZ 15     | A     | 13.44                           | 14.13   | 10                     | 11                    | 0.2          | 10                      | 16                         | 0.5                    | 110                        | 15A             |
|            | B     | 13.89                           | 14.62   |                        |                       |              |                         |                            |                        |                            | 15B             |
|            | C     | 14.35                           | 15.09   |                        |                       |              |                         |                            |                        |                            | 15C             |
| GLZ 16     | A     | 14.80                           | 15.57   | 10                     | 12                    | 0.2          | 10                      | 18                         | 0.5                    | 150                        | 16A             |
|            | B     | 15.25                           | 16.04   |                        |                       |              |                         |                            |                        |                            | 16B             |
|            | C     | 15.69                           | 16.51   |                        |                       |              |                         |                            |                        |                            | 16C             |
| GLZ 18     | A     | 16.22                           | 17.06   | 10                     | 13                    | 0.2          | 10                      | 23                         | 0.5                    | 150                        | 18A             |
|            | B     | 16.82                           | 17.70   |                        |                       |              |                         |                            |                        |                            | 18B             |
|            | C     | 17.42                           | 18.33   |                        |                       |              |                         |                            |                        |                            | 18C             |
| GLZ 20     | A     | 18.02                           | 18.96   | 10                     | 15                    | 0.2          | 10                      | 28                         | 0.5                    | 200                        | 20A             |
|            | B     | 18.63                           | 19.59   |                        |                       |              |                         |                            |                        |                            | 20B             |
|            | C     | 19.23                           | 20.22   |                        |                       |              |                         |                            |                        |                            | 20C             |
|            | D     | 19.72                           | 20.72   |                        |                       |              |                         |                            |                        |                            | 20D             |
| GLZ 22     | A     | 20.15                           | 21.20   | 5                      | 17                    | 0.2          | 5                       | 30                         | 0.5                    | 200                        | 22A             |
|            | B     | 20.64                           | 21.71   |                        |                       |              |                         |                            |                        |                            | 22B             |
|            | C     | 21.08                           | 22.17   |                        |                       |              |                         |                            |                        |                            | 22C             |
|            | D     | 21.52                           | 22.63   |                        |                       |              |                         |                            |                        |                            | 22D             |
| GLZ 24     | A     | 22.05                           | 23.18   | 5                      | 19                    | 0.2          | 5                       | 35                         | 0.5                    | 200                        | 24A             |
|            | B     | 22.61                           | 23.77   |                        |                       |              |                         |                            |                        |                            | 24B             |
|            | C     | 23.12                           | 24.31   |                        |                       |              |                         |                            |                        |                            | 24C             |
|            | D     | 23.63                           | 24.85   |                        |                       |              |                         |                            |                        |                            | 24D             |
| GLZ 27     | A     | 24.26                           | 25.52   | 5                      | 21                    | 0.2          | 5                       | 45                         | 0.5                    | 250                        | 27A             |
|            | B     | 24.97                           | 26.26   |                        |                       |              |                         |                            |                        |                            | 27B             |
|            | C     | 25.63                           | 26.95   |                        |                       |              |                         |                            |                        |                            | 27C             |
|            | D     | 26.29                           | 27.64   |                        |                       |              |                         |                            |                        |                            | 27D             |
| GLZ 30     | A     | 26.99                           | 28.39   | 5                      | 23                    | 0.2          | 5                       | 55                         | 0.5                    | 250                        | 30A             |
|            | B     | 27.70                           | 29.13   |                        |                       |              |                         |                            |                        |                            | 30B             |
|            | C     | 28.36                           | 29.82   |                        |                       |              |                         |                            |                        |                            | 30C             |
|            | D     | 29.02                           | 30.51   |                        |                       |              |                         |                            |                        |                            | 30D             |
| GLZ 33     | A     | 29.68                           | 31.22   | 5                      | 25                    | 0.2          | 5                       | 65                         | 0.5                    | 250                        | 33A             |
|            | B     | 30.32                           | 31.88   |                        |                       |              |                         |                            |                        |                            | 33B             |
|            | C     | 30.90                           | 32.50   |                        |                       |              |                         |                            |                        |                            | 33C             |
|            | D     | 31.49                           | 33.11   |                        |                       |              |                         |                            |                        |                            | 33D             |
| GLZ 36     | A     | 32.14                           | 33.79   | 5                      | 27                    | 0.2          | 5                       | 75                         | 0.5                    | 250                        | 36A             |
|            | B     | 32.79                           | 34.49   |                        |                       |              |                         |                            |                        |                            | 36B             |
|            | C     | 33.40                           | 35.13   |                        |                       |              |                         |                            |                        |                            | 36C             |
|            | D     | 34.01                           | 35.77   |                        |                       |              |                         |                            |                        |                            | 36D             |
| GLZ 39     | A     | 34.68                           | 36.47   | 5                      | 30                    | 0.2          | 5                       | 85                         | 0.5                    | 250                        | 39A             |
|            | B     | 35.36                           | 37.19   |                        |                       |              |                         |                            |                        |                            | 39B             |
|            | C     | 36.00                           | 37.85   |                        |                       |              |                         |                            |                        |                            | 39C             |
|            | D     | 36.63                           | 38.52   |                        |                       |              |                         |                            |                        |                            | 39D             |
| GLZ 43     |       | 40.00                           | 45.00   | 5                      | 33                    | 0.2          | 5                       | 90                         | --                     |                            | 43              |
| GLZ 47     |       | 44.00                           | 49.00   | 5                      | 36                    | 0.2          | 5                       | 90                         | --                     |                            | 47              |
| GLZ 51     |       | 48.00                           | 54.00   | 5                      | 39                    | 0.2          | 5                       | 110                        | --                     |                            | 51              |
| GLZ 56     |       | 53.00                           | 60.00   | 5                      | 43                    | 0.2          | 5                       | 110                        | --                     |                            | 56              |

## RATING AND CHARACTERISTIC CURVES

