



# GLZ2.0 SERIES

## SURFACE MOUNT ZENER DIODES

**VOLTAGE** 2.0 to 56 Volt      **POWER** 500 mWatt

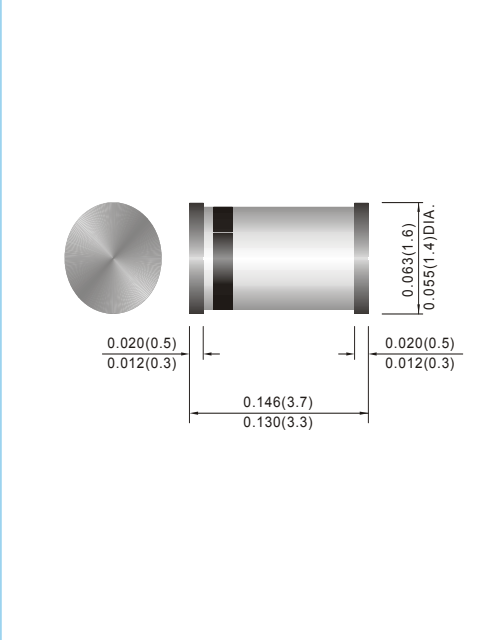
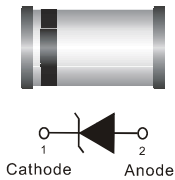
**MINI-MELF / LL34**      Unit : inch(mm)

### FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- Lead free in compliance with EU RoHS 2.0

### MECHANICAL DATA

- Case: Molded Glass MINI-MELF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.001 ounces, 0.03 grams.
- Polarity : Color band denotes cathode end
- Packing information  
T/R - 2.5K per 7" plastic Reel  
T/R - 10K per 13" plastic Reel



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter                                  | Symbol           | Value        | Units |
|--|------------------|--------------|-------|
| Power Dissipation at T <sub>A</sub> = 25°C | P <sub>TOT</sub> | 500          | mW    |
| Junction Temperature Range                 | T <sub>J</sub>   | -55 to + 175 | °C    |
| Storage Temperature Range                  | T <sub>STG</sub> | -65 to + 175 | °C    |

Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

| Parameter                                  | Symbol           | Min. | Typ. | Max. | Units |
|--|------------------|------|------|------|-------|
| Thermal Resistance Junction to Ambient Air | R <sub>θJA</sub> | --   | --   | 0.3  | °C/mW |
| 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.



## GLZ2.0 SERIES

| Part Number         | Nominal Zener Voltage            |        | Max. Zener Impedance              |    |                                   |     | Max Reverse Leakage Current     |     | Marking Code |
|---------------------|----------------------------------|--------|-----------------------------------|----|-----------------------------------|-----|---------------------------------|-----|--------------|
|                     | V <sub>Z</sub> @ I <sub>ZT</sub> |        | Z <sub>ZT</sub> @ I <sub>ZT</sub> |    | Z <sub>ZK</sub> @ I <sub>ZK</sub> |     | I <sub>R</sub> @ V <sub>R</sub> |     |              |
|                     | Min. V                           | Max. V | Ω                                 | mA | Ω                                 | mA  | μA                              | V   |              |
| 500 mW Zener Diodes |                                  |        |                                   |    |                                   |     |                                 |     |              |
| GLZ 2.0A            | 1.88                             | 2.1    | 140                               | 20 | 2000                              | 1   | 120                             | 0.5 | 2A0          |
| GLZ 2.0B            | 2.02                             | 2.2    | 140                               | 20 | 2000                              | 1   | 120                             | 0.5 | 2B0          |
| GLZ 2.2A            | 2.12                             | 2.3    | 120                               | 20 | 2000                              | 1   | 120                             | 0.7 | 2A2          |
| GLZ 2.2B            | 2.22                             | 2.41   | 120                               | 20 | 2000                              | 1   | 120                             | 0.7 | 2B2          |
| GLZ 2.4A            | 2.33                             | 2.52   | 100                               | 20 | 2000                              | 1   | 120                             | 1   | 2A4          |
| GLZ 2.4B            | 2.43                             | 2.63   | 100                               | 20 | 2000                              | 1   | 120                             | 1   | 2B4          |
| GLZ 2.7A            | 2.54                             | 2.75   | 100                               | 20 | 1000                              | 1   | 120                             | 1   | 2A7          |
| GLZ 2.7B            | 2.69                             | 2.91   | 100                               | 20 | 1000                              | 1   | 120                             | 1   | 2B7          |
| GLZ 3.0A            | 2.85                             | 3.07   | 80                                | 20 | 1000                              | 1   | 50                              | 1   | 3A0          |
| GLZ 3.0B            | 3.01                             | 3.22   | 80                                | 20 | 1000                              | 1   | 50                              | 1   | 3B0          |
| GLZ 3.3A            | 3.16                             | 3.38   | 70                                | 20 | 1000                              | 1   | 20                              | 1   | 3A3          |
| GLZ 3.3B            | 3.32                             | 3.53   | 70                                | 20 | 1000                              | 1   | 20                              | 1   | 3B3          |
| GLZ 3.6A            | 3.46                             | 3.69   | 60                                | 20 | 1000                              | 1   | 10                              | 1   | 3A6          |
| GLZ 3.6B            | 3.6                              | 3.84   | 60                                | 20 | 1000                              | 1   | 10                              | 1   | 3B6          |
| GLZ 3.9A            | 3.74                             | 4.01   | 50                                | 20 | 1000                              | 1   | 5                               | 1   | 3A9          |
| GLZ 3.9B            | 3.89                             | 4.16   | 50                                | 20 | 1000                              | 1   | 5                               | 1   | 3B9          |
| GLZ 4.3A            | 4.04                             | 4.29   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4A3          |
| GLZ 4.3B            | 4.17                             | 4.43   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4B3          |
| GLZ 4.3C            | 4.3                              | 4.57   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4C3          |
| GLZ 4.7A            | 4.44                             | 4.68   | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4A7          |
| GLZ 4.7B            | 4.55                             | 4.80   | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4B7          |
| GLZ 4.7C            | 4.68                             | 4.93   | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4C7          |
| GLZ 5.1A            | 4.81                             | 5.07   | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5A1          |
| GLZ 5.1B            | 4.94                             | 5.2    | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5B1          |
| GLZ 5.1C            | 5.09                             | 5.37   | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5C1          |
| GLZ 5.6A            | 5.28                             | 5.55   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5A6          |
| GLZ 5.6B            | 5.45                             | 5.73   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5B6          |
| GLZ 5.6C            | 5.61                             | 5.91   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5C6          |
| GLZ 6.2A            | 5.78                             | 6.09   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6A2          |
| GLZ 6.2B            | 5.96                             | 6.27   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6B2          |
| GLZ 6.2C            | 6.12                             | 6.44   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6C2          |
| GLZ 6.8A            | 6.29                             | 6.63   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6A8          |
| GLZ 6.8B            | 6.49                             | 6.83   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6B8          |
| GLZ 6.8C            | 6.66                             | 7.01   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6C8          |
| GLZ 7.5A            | 6.85                             | 7.22   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7A5          |
| GLZ 7.5B            | 7.07                             | 7.45   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7B5          |
| GLZ 7.5C            | 7.29                             | 7.67   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7C5          |
| GLZ 8.2A            | 7.53                             | 7.92   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8A2          |
| GLZ 8.2B            | 7.78                             | 8.19   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8B2          |
| GLZ 8.2C            | 8.03                             | 8.45   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8C2          |
| GLZ 9.1A            | 8.29                             | 8.73   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9A1          |
| GLZ 9.1B            | 8.57                             | 9.01   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9B1          |
| GLZ 9.1C            | 8.83                             | 9.3    | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9C1          |
| GLZ 10A             | 9.12                             | 9.59   | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10A          |
| GLZ 10B             | 9.41                             | 9.9    | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10B          |
| GLZ 10C             | 9.7                              | 10.2   | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10C          |
| GLZ 10D             | 9.94                             | 10.44  | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10D          |
| GLZ 11A             | 10.18                            | 10.71  | 10                                | 10 | 120                               | 0.5 | 0.2                             | 8   | 11A          |
| GLZ 11B             | 10.5                             | 11.05  | 10                                | 10 | 120                               | 0.5 | 0.2                             | 8   | 11B          |
| GLZ 11C             | 10.82                            | 11.38  | 10                                | 10 | 120                               | 0.5 | 0.2                             | 8   | 11C          |



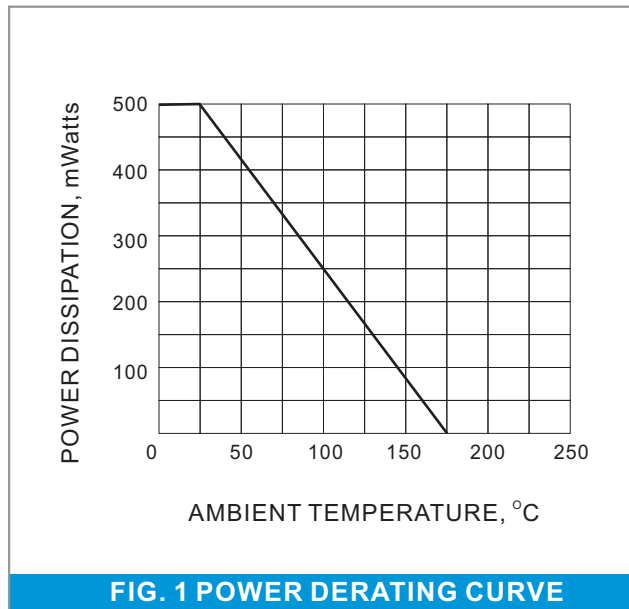
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|---------------------|----------------------------------|--------|-----------------------------------|----|-----------------------------------|-----|---------------------------------|----|--------------|
|                     | V <sub>Z</sub> @ I <sub>ZT</sub> |        | Z <sub>ZT</sub> @ I <sub>ZT</sub> |    | Z <sub>ZK</sub> @ I <sub>ZK</sub> |     | I <sub>R</sub> @ V <sub>R</sub> |    |              |
|                     | Min. V                           | Max. V | Ω                                 | mA | Ω                                 | mA  | μA                              | V  |              |
| 500 mW Zener Diodes |                                  |        |                                   |    |                                   |     |                                 |    |              |
| GLZ 12A             | 11.13                            | 11.71  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12A          |
| GLZ 12B             | 11.44                            | 12.03  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12B          |
| GLZ 12C             | 11.74                            | 12.35  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12C          |
| GLZ 13A             | 12.11                            | 12.75  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13A          |
| GLZ 13B             | 12.55                            | 13.21  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13B          |
| GLZ 13C             | 12.99                            | 13.66  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13C          |
| GLZ 15A             | 13.44                            | 14.13  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15A          |
| GLZ 15B             | 13.89                            | 14.62  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15B          |
| GLZ 15C             | 14.35                            | 15.09  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15C          |
| GLZ 16A             | 14.8                             | 15.57  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16A          |
| GLZ 16B             | 15.25                            | 16.04  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16B          |
| GLZ 16C             | 15.69                            | 16.51  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16C          |
| GLZ 18A             | 16.22                            | 17.06  | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18A          |
| GLZ 18B             | 16.82                            | 17.7   | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18B          |
| GLZ 18C             | 17.42                            | 18.33  | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18C          |
| GLZ 20A             | 18.02                            | 18.96  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20A          |
| GLZ 20B             | 18.63                            | 19.59  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20B          |
| GLZ 20C             | 19.23                            | 20.22  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20C          |
| GLZ 20D             | 19.72                            | 20.72  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20D          |
| GLZ 22A             | 20.15                            | 21.2   | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22A          |
| GLZ 22B             | 20.64                            | 21.71  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22B          |
| GLZ 22C             | 21.08                            | 22.17  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22C          |
| GLZ 22D             | 21.52                            | 22.63  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22D          |
| GLZ 24A             | 22.05                            | 23.18  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24A          |
| GLZ 24B             | 22.61                            | 23.77  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24B          |
| GLZ 24C             | 23.12                            | 24.31  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24C          |
| GLZ 24D             | 23.63                            | 24.85  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24D          |
| GLZ 27A             | 24.26                            | 25.52  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27A          |
| GLZ 27B             | 24.97                            | 26.26  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27B          |
| GLZ 27C             | 25.63                            | 26.95  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27C          |
| GLZ 27D             | 26.29                            | 27.64  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27D          |
| GLZ 30A             | 26.99                            | 28.39  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30A          |
| GLZ 30B             | 27.7                             | 29.13  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30B          |
| GLZ 30C             | 28.36                            | 29.82  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30C          |
| GLZ 30D             | 29.02                            | 30.51  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30D          |
| GLZ 33A             | 29.68                            | 31.22  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33A          |
| GLZ 33B             | 30.32                            | 31.88  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33B          |
| GLZ 33C             | 30.9                             | 32.5   | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33C          |
| GLZ 33D             | 31.49                            | 33.11  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33D          |
| GLZ 36A             | 32.14                            | 33.79  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36A          |
| GLZ 36B             | 32.79                            | 34.49  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36B          |
| GLZ 36C             | 33.4                             | 35.13  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36C          |
| GLZ 36D             | 34.01                            | 35.77  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36D          |
| GLZ 39A             | 34.68                            | 36.47  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39A          |
| GLZ 39B             | 35.36                            | 37.19  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39B          |
| GLZ 39C             | 36                               | 37.85  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39C          |
| GLZ 39D             | 36.63                            | 38.52  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39D          |
| GLZ 41              | 37                               | 41     | 90                                | 5  | -                                 | -   | 0.2                             | 30 | 41           |
| GLZ 43              | 40                               | 45     | 90                                | 5  | -                                 | -   | 0.2                             | 33 | 43           |
| GLZ 47              | 44                               | 49     | 90                                | 5  | -                                 | -   | 0.2                             | 36 | 47           |
| GLZ 51              | 48                               | 54     | 110                               | 5  | -                                 | -   | 0.2                             | 39 | 51           |
| GLZ 56              | 53                               | 60     | 110                               | 5  | -                                 | -   | 0.2                             | 43 | 56           |

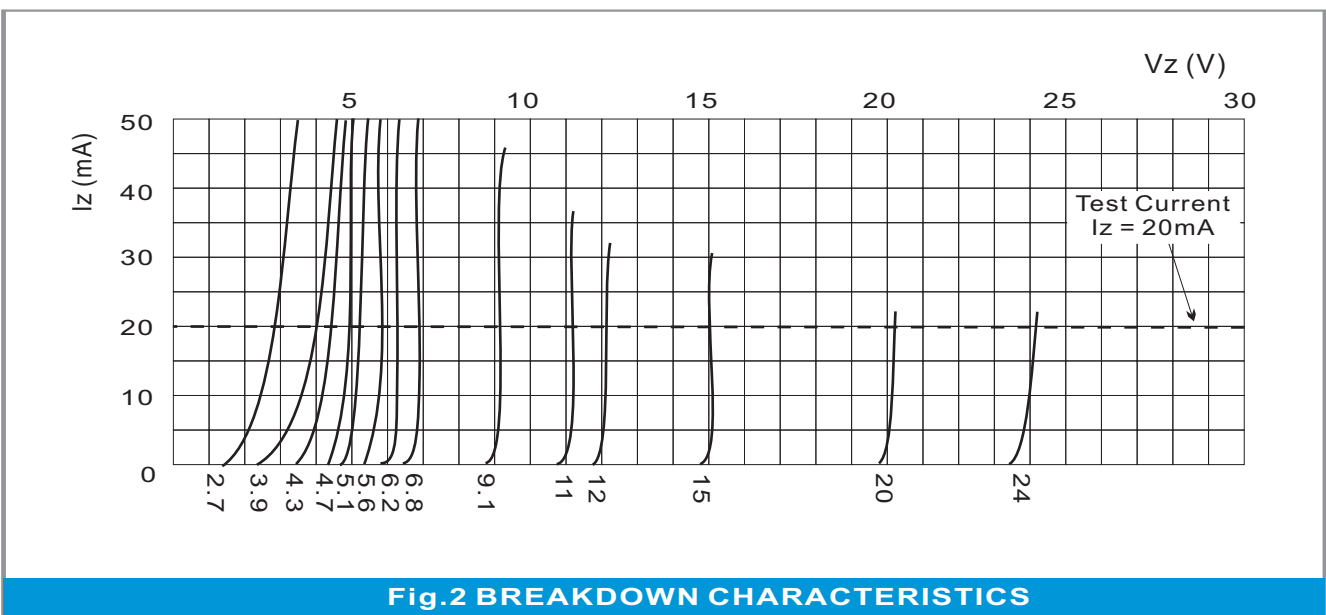


**GLZ2.0 SERIES**

**RATING AND CHARACTERISTIC CURVES**



**FIG. 1 POWER DERATING CURVE**



**Fig.2 BREAKDOWN CHARACTERISTICS**

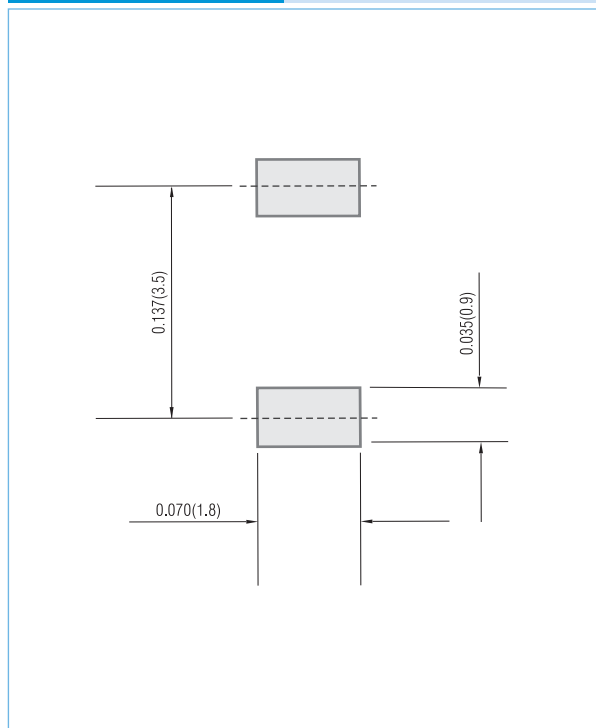


## GLZ2.0 SERIES

### MOUNTING PAD LAYOUT

MINI-MELF

Unit: inch ( mm )



### ORDER INFORMATION

- Packing information
  - T/R - 10K per 13" plastic Reel
  - T/R - 2.5K per 7" plastic Reel



## GLZ2.0 SERIES

### Part No\_packing code\_Version

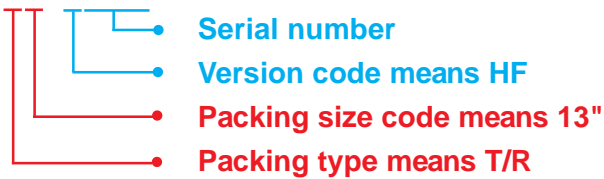
GLZ2.0A\_R1\_10001

GLZ2.0A\_R2\_10001

For example :

**RB500V-40\_R2\_00001**

Part No.



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |



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