

## Zener diode

# Formosa MS

## GDZ2.0 Thru GDZ56

**VOLTAGE** 2.0 to 56 Volts

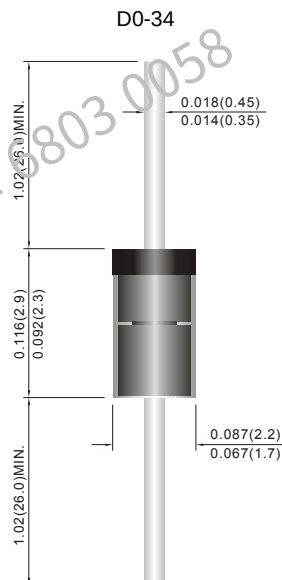
**POWER** 500 mWatts

### FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: Molded Glass DO-34
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Approx. Weight: 0.09 grams
- Ordering information  
Suffix : " -34 " to order DO-34 Package
- Packing information  
B - 2K per Bulk box  
T/R - 10K per 15" plastic Reel  
T/B - 5K per horiz. tape & Ammo box



Unit: inch ( mm )

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter                                                                               | Symbol    | Value        | Units              |
|-----------------------------------------------------------------------------------------|-----------|--------------|--------------------|
| Power Dissipation on $T_A=25^{\circ}\text{C}$                                           | $P_{TOT}$ | 500          | mW                 |
| Operating Junction Temperature Range                                                    | $T_J$     | 175          | $^{\circ}\text{C}$ |
| Storage Temperature Range                                                               | $T_{STG}$ | -65 to + 175 | $^{\circ}\text{C}$ |
| Valid provided that leads at a distance of 10mm from case are kept at ambient perature. |           |              |                    |

| Parameter                                                                               | Symbol          | Min. | Typ. | Max. | Units                        |
|-----------------------------------------------------------------------------------------|-----------------|------|------|------|------------------------------|
| Thermal Resistance                                                                      | $R_{\theta JA}$ | -    | -    | 0.3  | $^{\circ}\text{C}/\text{mW}$ |
| Forward Voltage at $I_F=100\text{mA}$                                                   | $V_F$           | -    | -    | 1    | V                            |
| Valid provided that leads at a distance of 10mm from case are kept at ambient perature. |                 |      |      |      |                              |

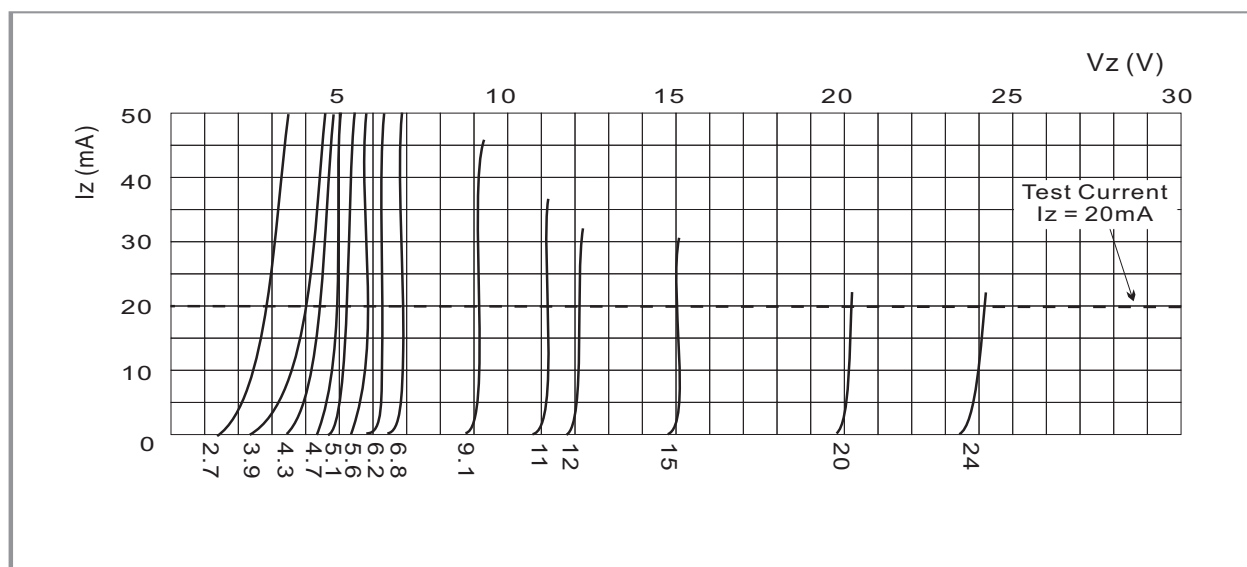
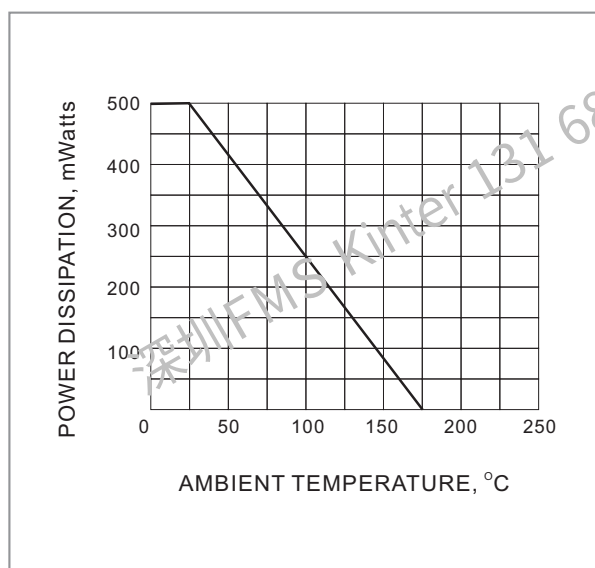
## GDZ2.0 Thru GDZ56

| 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> |     |              |
|                     | Nom. V                           | Min. V | Max. V | Ω                                 | mA | Ω                                 | mA  | μA                              | V   |              |
| 500 mW Zener Diodes |                                  |        |        |                                   |    |                                   |     |                                 |     |              |
| GDZ 2.0A            | 2                                | 1.88   | 2.1    | 140                               | 20 | 2000                              | 1   | 120                             | 0.5 | 2A0          |
| GDZ 2.0B            | 2                                | 2.02   | 2.2    | 140                               | 20 | 2000                              | 1   | 120                             | 0.5 | 2B0          |
| GDZ 2.2A            | 2.2                              | 2.12   | 2.3    | 120                               | 20 | 2000                              | 1   | 120                             | 0.7 | 2A2          |
| GDZ 2.2B            | 2.2                              | 2.22   | 2.41   | 120                               | 20 | 2000                              | 1   | 120                             | 0.7 | 2B2          |
| GDZ 2.4A            | 2.4                              | 2.33   | 2.52   | 100                               | 20 | 2000                              | 1   | 120                             | 1   | 2A4          |
| GDZ 2.4B            | 2.4                              | 2.43   | 2.63   | 100                               | 20 | 2000                              | 1   | 120                             | 1   | 2B4          |
| GDZ 2.7A            | 2.7                              | 2.54   | 2.75   | 100                               | 20 | 1000                              | 1   | 120                             | 1   | 2A7          |
| GDZ 2.7B            | 2.7                              | 2.69   | 2.91   | 100                               | 20 | 1000                              | 1   | 120                             | 1   | 2B7          |
| GDZ 3.0A            | 3                                | 2.85   | 3.07   | 80                                | 20 | 1000                              | 1   | 50                              | 1   | 3A0          |
| GDZ 3.0B            | 3                                | 3.01   | 3.22   | 80                                | 20 | 1000                              | 1   | 50                              | 1   | 3B0          |
| GDZ 3.3A            | 3.3                              | 3.16   | 3.38   | 70                                | 20 | 1000                              | 1   | 20                              | 1   | 3A3          |
| GDZ 3.3B            | 3.3                              | 3.32   | 3.53   | 70                                | 20 | 1000                              | 1   | 20                              | 1   | 3B3          |
| GDZ 3.6A            | 3.6                              | 3.46   | 3.69   | 60                                | 20 | 1000                              | 1   | 10                              | 1   | 3A6          |
| GDZ 3.6B            | 3.6                              | 3.6    | 3.84   | 60                                | 20 | 1000                              | 1   | 10                              | 1   | 3B6          |
| GDZ 3.9A            | 3.9                              | 3.74   | 4.01   | 50                                | 20 | 1000                              | 1   | 5                               | 1   | 3A9          |
| GDZ 3.9B            | 3.9                              | 3.89   | 4.16   | 50                                | 20 | 1000                              | 1   | 5                               | 1   | 3B9          |
| GDZ 4.3A            | 4.3                              | 4.04   | 4.29   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4A3          |
| GDZ 4.3B            | 4.3                              | 4.17   | 4.43   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4B3          |
| GDZ 4.3C            | 4.3                              | 4.3    | 4.57   | 40                                | 20 | 1000                              | 1   | 5                               | 1   | 4C3          |
| GDZ 4.7A            | 4.7                              | 4.44   | 4.68   | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4A7          |
| GDZ 4.7B            | 4.7                              | 4.55   | 4.8    | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4B7          |
| GDZ 4.7C            | 4.7                              | 4.68   | 4.93   | 25                                | 20 | 900                               | 1   | 5                               | 1   | 4C7          |
| GDZ 5.1A            | 5.1                              | 4.81   | 5.07   | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5A1          |
| GDZ 5.1B            | 5.1                              | 4.94   | 5.2    | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5B1          |
| GDZ 5.1C            | 5.1                              | 5.09   | 5.37   | 20                                | 20 | 800                               | 1   | 5                               | 1.5 | 5C1          |
| GDZ 5.6A            | 5.6                              | 5.28   | 5.55   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5A6          |
| GDZ 5.6B            | 5.6                              | 5.45   | 5.73   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5B6          |
| GDZ 5.6C            | 5.6                              | 5.61   | 5.91   | 13                                | 20 | 500                               | 1   | 5                               | 2.5 | 5C6          |
| GDZ 6.2A            | 6.2                              | 5.78   | 6.09   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6A2          |
| GDZ 6.2B            | 6.2                              | 5.96   | 6.27   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6B2          |
| GDZ 6.2C            | 6.2                              | 6.12   | 6.44   | 10                                | 20 | 300                               | 1   | 5                               | 3   | 6C2          |
| GDZ 6.8A            | 6.8                              | 6.29   | 6.63   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6A8          |
| GDZ 6.8B            | 6.8                              | 6.49   | 6.83   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6B8          |
| GDZ 6.8C            | 6.8                              | 6.66   | 7.01   | 8                                 | 20 | 150                               | 0.5 | 2                               | 3.5 | 6C8          |
| GDZ 7.5A            | 7.5                              | 6.85   | 7.22   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7A5          |
| GDZ 7.5B            | 7.5                              | 7.07   | 7.45   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7B5          |
| GDZ 7.5C            | 7.5                              | 7.29   | 7.67   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 4   | 7C5          |
| GDZ 8.2A            | 8.2                              | 7.53   | 7.92   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8A2          |
| GDZ 8.2B            | 8.2                              | 7.78   | 8.19   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8B2          |
| GDZ 8.2C            | 8.2                              | 8.03   | 8.45   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 5   | 8C2          |
| GDZ 9.1A            | 9.1                              | 8.29   | 8.73   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9A1          |
| GDZ 9.1B            | 9.1                              | 8.57   | 9.01   | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9B1          |
| GDZ 9.1C            | 9.1                              | 8.83   | 9.3    | 8                                 | 20 | 120                               | 0.5 | 0.5                             | 6   | 9C1          |
| GDZ 10A             | 10                               | 9.12   | 9.59   | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10A          |
| GDZ 10B             | 10                               | 9.41   | 9.9    | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10B          |
| GDZ 10C             | 10                               | 9.7    | 10.2   | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10C          |
| GDZ 10D             | 10                               | 9.94   | 10.44  | 8                                 | 20 | 120                               | 0.5 | 0.2                             | 7   | 10D          |
| GDZ 11A             | 11                               | 10.18  | 10.71  | 10                                | 10 | 120                               | 0.5 | 0.2                             | 8   | 11A          |
| GDZ 11B             | 11                               | 10.5   | 11.05  | 10                                | 10 | 120                               | 0.5 | 0.2                             | 8   | 11B          |
| GDZ 11C             | 11                               | 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> |    |              |
|                     | Nom. V                           | Min. V | Max. V | Ω                                 | mA | Ω                                 | mA  | μA                              | V  |              |
| 500 mW Zener Diodes |                                  |        |        |                                   |    |                                   |     |                                 |    |              |
| GDZ 12A             | 12                               | 11.13  | 11.71  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12A          |
| GDZ 12B             | 12                               | 11.44  | 12.03  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12B          |
| GDZ 12C             | 12                               | 11.74  | 12.35  | 12                                | 10 | 110                               | 0.5 | 0.2                             | 9  | 12C          |
| GDZ 13A             | 13                               | 12.11  | 12.75  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13A          |
| GDZ 13B             | 13                               | 12.55  | 13.21  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13B          |
| GDZ 13C             | 13                               | 12.99  | 13.66  | 14                                | 10 | 110                               | 0.5 | 0.2                             | 10 | 13C          |
| GDZ 15A             | 15                               | 13.44  | 14.13  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15A          |
| GDZ 15B             | 15                               | 13.89  | 14.62  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15B          |
| GDZ 15C             | 15                               | 14.35  | 15.09  | 16                                | 10 | 110                               | 0.5 | 0.2                             | 11 | 15C          |
| GDZ 16A             | 16                               | 14.8   | 15.57  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16A          |
| GDZ 16B             | 16                               | 15.25  | 16.04  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16B          |
| GDZ 16C             | 16                               | 15.69  | 16.51  | 18                                | 10 | 150                               | 0.5 | 0.2                             | 12 | 16C          |
| GDZ 18A             | 18                               | 16.22  | 17.06  | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18A          |
| GDZ 18B             | 18                               | 16.82  | 17.7   | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18B          |
| GDZ 18C             | 18                               | 17.42  | 18.33  | 23                                | 10 | 150                               | 0.5 | 0.2                             | 13 | 18C          |
| GDZ 20A             | 20                               | 18.02  | 18.96  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20A          |
| GDZ 20B             | 20                               | 18.63  | 19.59  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20B          |
| GDZ 20C             | 20                               | 19.23  | 20.22  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20C          |
| GDZ 20D             | 20                               | 19.72  | 20.72  | 28                                | 10 | 200                               | 0.5 | 0.2                             | 15 | 20D          |
| GDZ 22A             | 22                               | 20.15  | 21.2   | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22A          |
| GDZ 22B             | 22                               | 20.64  | 21.71  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22B          |
| GDZ 22C             | 22                               | 21.08  | 22.17  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22C          |
| GDZ 22D             | 22                               | 21.52  | 22.63  | 30                                | 5  | 200                               | 0.5 | 0.2                             | 17 | 22D          |
| GDZ 24A             | 24                               | 22.05  | 23.18  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24A          |
| GDZ 24B             | 24                               | 22.61  | 23.77  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24B          |
| GDZ 24C             | 24                               | 23.12  | 24.31  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24C          |
| GDZ 24D             | 24                               | 23.63  | 24.85  | 35                                | 5  | 200                               | 0.5 | 0.2                             | 19 | 24D          |
| GDZ 27A             | 27                               | 24.26  | 25.52  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27A          |
| GDZ 27B             | 27                               | 24.97  | 26.26  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27B          |
| GDZ 27C             | 27                               | 25.63  | 26.95  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27C          |
| GDZ 27D             | 27                               | 26.29  | 27.64  | 45                                | 5  | 250                               | 0.5 | 0.2                             | 21 | 27D          |
| GDZ 30A             | 30                               | 26.99  | 28.39  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30A          |
| GDZ 30B             | 30                               | 27.7   | 29.13  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30B          |
| GDZ 30C             | 30                               | 28.36  | 29.82  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30C          |
| GDZ 30D             | 30                               | 29.02  | 30.51  | 55                                | 5  | 250                               | 0.5 | 0.2                             | 23 | 30D          |
| GDZ 33A             | 33                               | 29.68  | 31.22  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33A          |
| GDZ 33B             | 33                               | 30.32  | 31.88  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33B          |
| GDZ 33C             | 33                               | 30.90  | 32.5   | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33C          |
| GDZ 33D             | 33                               | 31.49  | 33.11  | 65                                | 5  | 250                               | 0.5 | 0.2                             | 25 | 33D          |
| GDZ 36A             | 36                               | 32.14  | 33.79  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36A          |
| GDZ 36B             | 36                               | 32.79  | 34.49  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36B          |
| GDZ 36C             | 36                               | 33.4   | 35.13  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36C          |
| GDZ 36D             | 36                               | 34.01  | 35.77  | 75                                | 5  | 250                               | 0.5 | 0.2                             | 27 | 36D          |
| GDZ 39A             | 39                               | 34.68  | 36.47  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39A          |
| GDZ 39B             | 39                               | 35.36  | 37.19  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39B          |
| GDZ 39C             | 39                               | 36     | 37.85  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39C          |
| GDZ 39D             | 39                               | 36.63  | 38.52  | 85                                | 5  | 250                               | 0.5 | 0.2                             | 30 | 39D          |
| GDZ 41              | 39                               | 37     | 41     | 90                                | 5  | -                                 | -   | 0.2                             | 30 | 41           |
| GDZ 43              | 43                               | 40     | 45     | 90                                | 5  | -                                 | -   | 0.2                             | 33 | 43           |
| GDZ 47              | 47                               | 44     | 49     | 90                                | 5  | -                                 | -   | 0.2                             | 36 | 47           |
| GDZ 51              | 51                               | 48     | 54     | 110                               | 5  | -                                 | -   | 0.2                             | 39 | 51           |
| GDZ 56              | 56                               | 53     | 60     | 110                               | 5  | -                                 | -   | 0.2                             | 43 | 56           |

## RATING AND CHARACTERISTIC CURVES





**ООО «НИОКРсистемс»** - это оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов. Реализуемая нашей компанией продукция насчитывает более полумиллиона наименований.

Благодаря этому наша компания предлагает к поставке практически не ограниченный ассортимент компонентов как оптовыми, мелкооптовыми партиями, так и в розницу.

Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

### **Наша компания это:**

- Гарантия качества поставляемой продукции
- Широкий ассортимент
- Минимальные сроки поставок
- Техническая поддержка
- Подбор комплектации
- Индивидуальный подход
- Гибкое ценообразование
- Работаем по 275 ФЗ