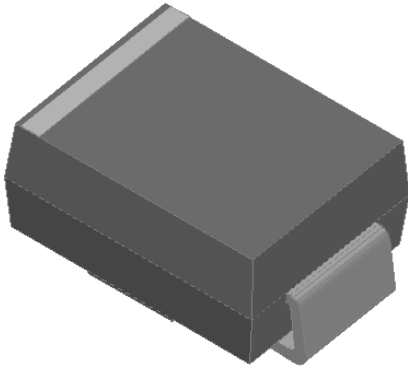


## Surface Mount Fast Recovery Rectifier

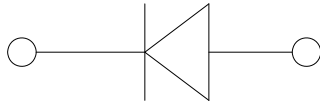


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix "Q" means AEC-Q101 qualified

### Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.



### Mechanical Data

- **Package:** DO-214AA (SMB)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                                                                                     | SYMBOL           | UNIT | GR3ABQ     | GR3BBQ | GR3DBQ | GR3GBQ | GR3JBQ | GR3KBQ | GR3MBQ |
|-----------------------------------------------------------------------------------------------|------------------|------|------------|--------|--------|--------|--------|--------|--------|
| Device marking code                                                                           |                  |      | GR3AB      | GR3BB  | GR3DB  | GR3GB  | GR3JB  | GR3KB  | GR3MB  |
| Maximum Repetitive Peak Reverse Voltage                                                       | V <sub>RRM</sub> | V    | 50         | 100    | 200    | 400    | 600    | 800    | 1000   |
| Maximum RMS Voltage                                                                           | V <sub>RMS</sub> | V    | 35         | 70     | 140    | 280    | 420    | 560    | 700    |
| Maximum DC blocking Voltage                                                                   | V <sub>DC</sub>  | V    | 50         | 100    | 200    | 400    | 600    | 800    | 1000   |
| Average rectified output current<br>@60Hz sine wave, resistance load, T <sub>L</sub> (Fig.1)  | I <sub>O</sub>   | A    | 3.0        |        |        |        |        |        |        |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A    | 100        |        |        |        |        |        |        |
| Storage temperature                                                                           | T <sub>stg</sub> | °C   | -55 ~ +150 |        |        |        |        |        |        |
| Junction temperature                                                                          | T <sub>j</sub>   | °C   | -55 ~ +150 |        |        |        |        |        |        |

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                                               | SYMBOL          | UNIT | TEST CONDITIONS                                                    | GR3ABQ | GR3BBQ | GR3DBQ | GR3GBQ | GR3JBQ | GR3KBQ | GR3MBQ |
|---------------------------------------------------------|-----------------|------|--------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Maximum instantaneous forward voltage                   | V <sub>F</sub>  | V    | I <sub>FM</sub> =3.0A                                              | 1.3    |        |        |        |        |        |        |
| Maximum reverse recovery time                           | t <sub>rr</sub> | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A | 150    |        |        |        | 250    | 500    |        |
| Maximum DC reverse current at rated DC blocking voltage | I <sub>R</sub>  | μA   | T <sub>J</sub> =25°C                                               | 5.0    |        |        |        |        |        |        |
|                                                         |                 |      | T <sub>J</sub> =125°C                                              | 100    |        |        |        |        |        |        |
| Typical junction capacitance                            | C <sub>J</sub>  | pF   | V <sub>R</sub> =4V, f=1 MHz                                        | 45     |        |        |        | 40     | 25     |        |



## GR3ABQ THRU GR3MBQ

### ■ Thermal Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

| PARAMETER                  | SYMBOL                | UNIT               | GR3ABQ | GR3BBQ | GR3DBQ | GR3GBQ | GR3JBQ | GR3KBQ | GR3MBQ |
|----------------------------|-----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|
| Typical Thermal Resistance | $R_{\theta JA}^{(1)}$ | $^\circ\text{C/W}$ | 70     |        |        |        |        |        |        |
|                            | $R_{\theta JL}^{(1)}$ |                    | 20     |        |        |        |        |        |        |

Note:

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

### ■ Characteristics (Typical)

Figure.1:  $I_O$ - $T_L$  Curve

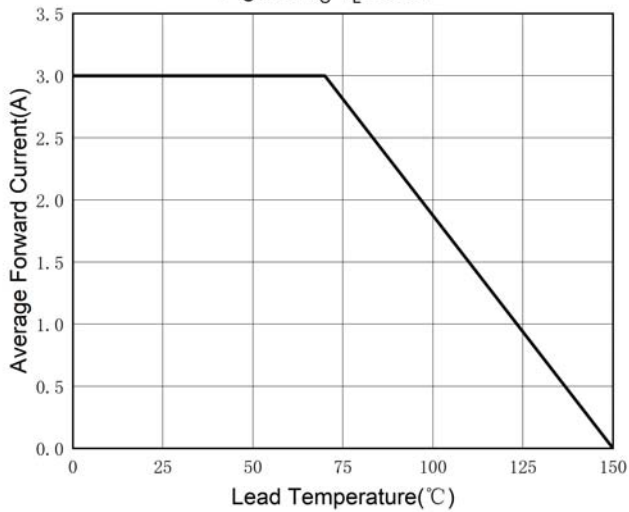


Fig.2: Forward Surge Current Capability

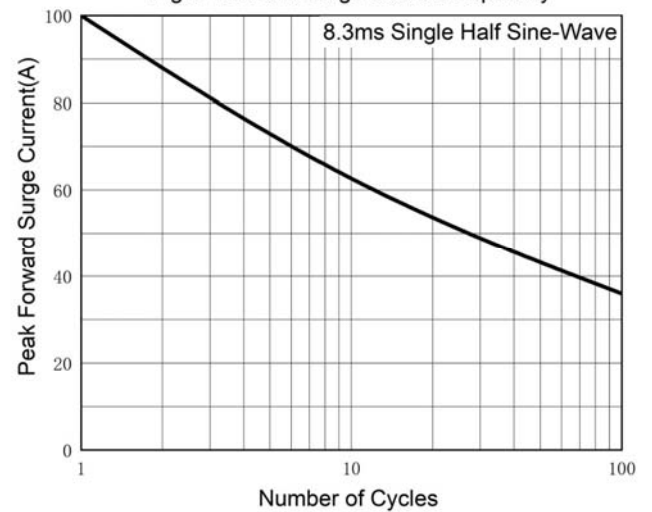


Fig.3: Typical Instantaneous Forward Characteristics

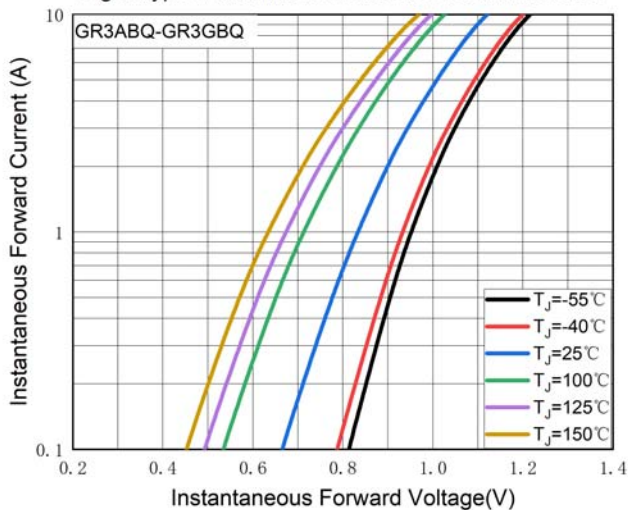
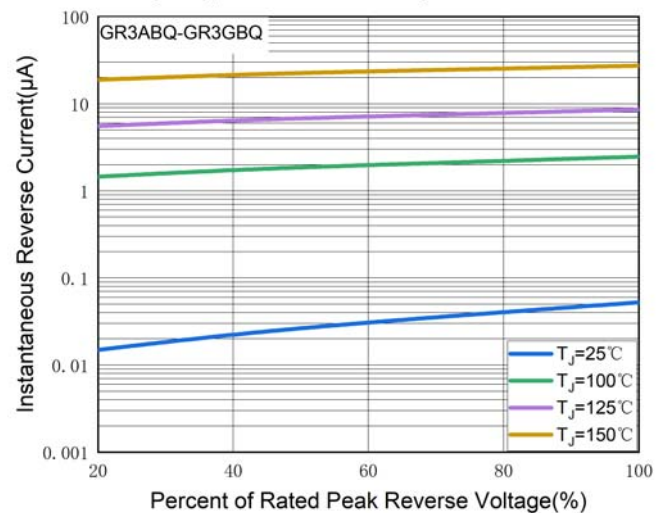


Fig.4: Typical Reverse Leakage Characteristics





## GR3ABQ THRU GR3MBQ

Fig.5: Typical Instantaneous Forward Characteristics

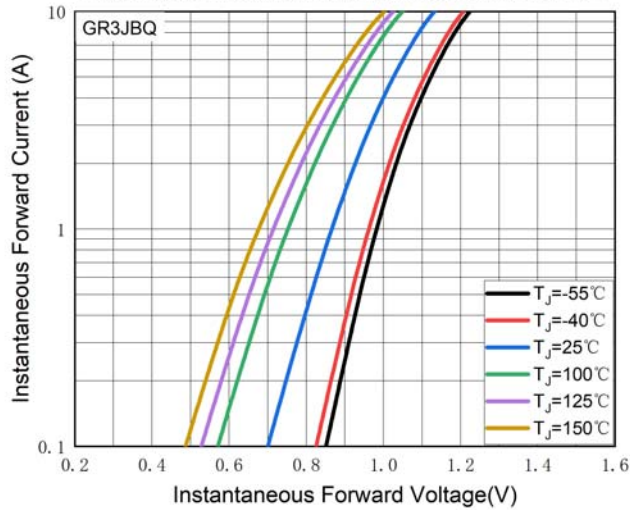


Fig.6: Typical Reverse Leakage Characteristics

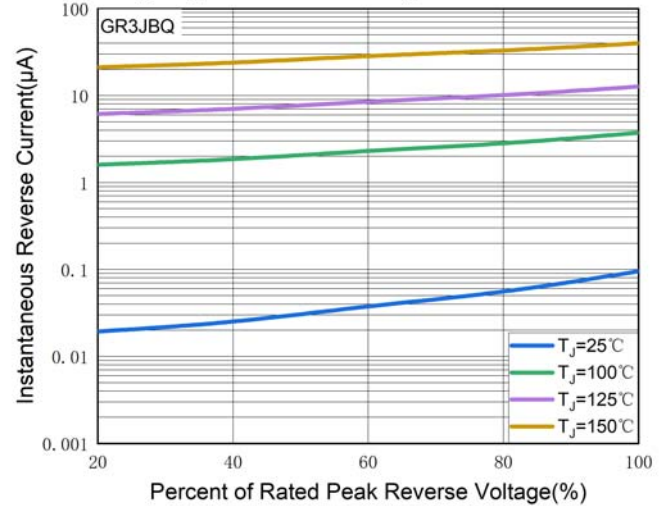
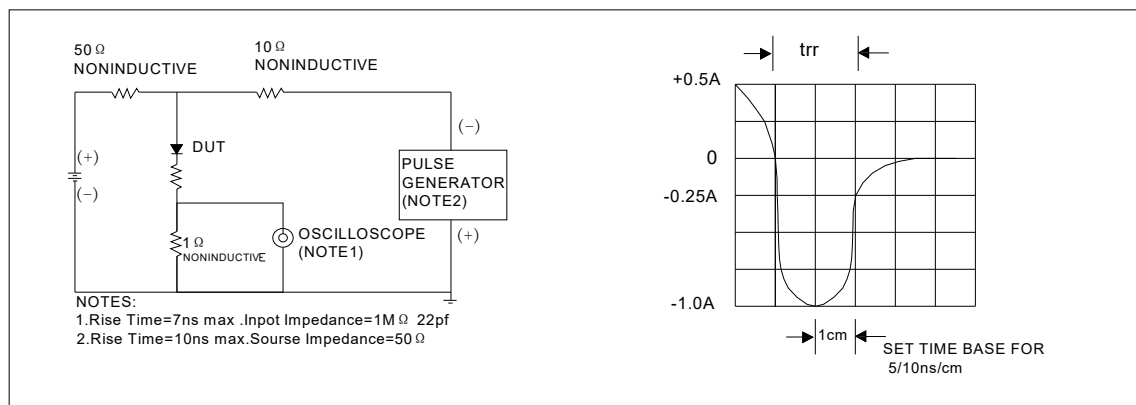


FIG.7: Diagram of circuit and Testing wave form of reverse recovery time



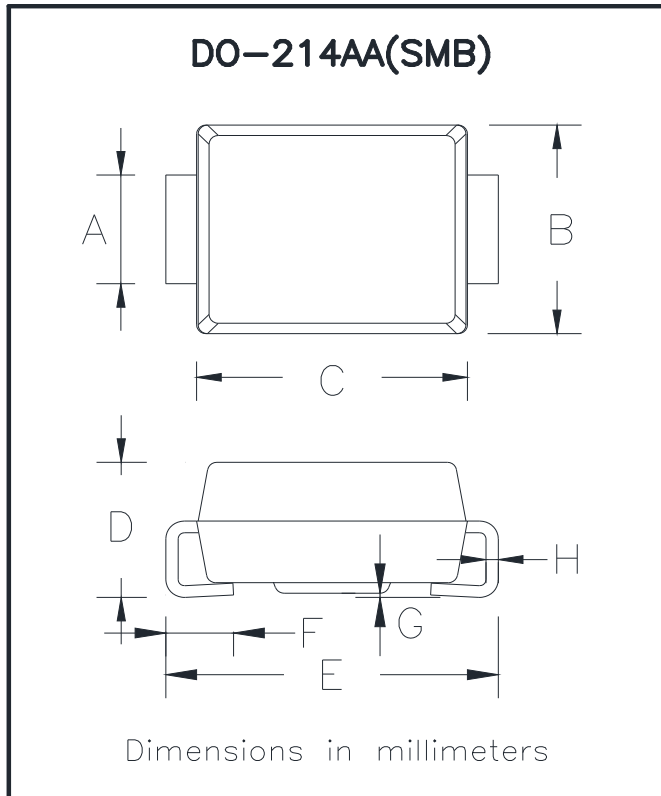


## GR3ABQ THRU GR3MBQ

### ■ Ordering Information (Example)

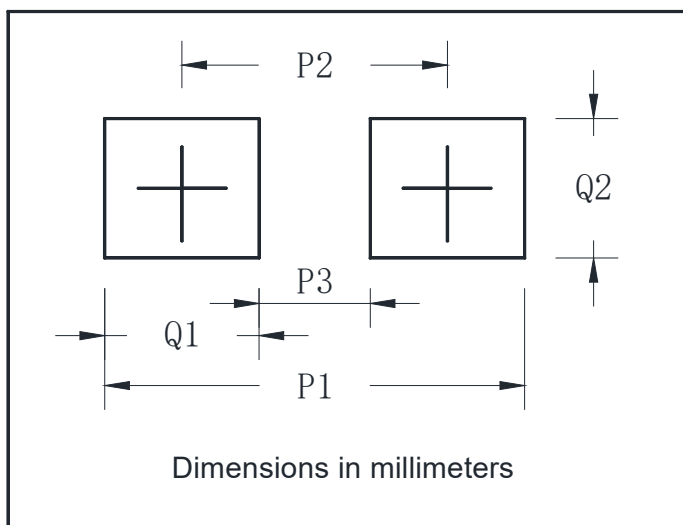
| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g)     | MINIMUM PACKAGE(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|--------------------|----------------------|----------------------------|---------------|
| GR3ABQ-GR3MBQ | F1           | Approximate 0.1003 | 3000                 | 48000                      | 13" reel      |

### ■ Outline Dimensions



| DO-214AA(SMB) |      |      |
|---------------|------|------|
| Dim           | Min  | Max  |
| A             | 1.85 | 2.15 |
| B             | 3.30 | 3.94 |
| C             | 4.05 | 4.75 |
| D             | 1.99 | 2.61 |
| E             | 5.21 | 5.59 |
| F             | 0.90 | 1.41 |
| G             | 0.05 | 0.20 |
| H             | 0.15 | 0.31 |

### ■ Suggested pad layout

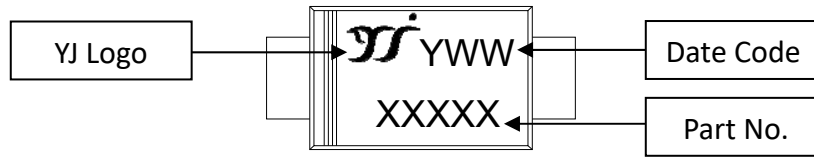


| DO-214AA(SMB) |             |
|---------------|-------------|
| Dim           | Millimeters |
| P1            | 6.8         |
| P2            | 4.3         |
| P3            | 1.8         |
| Q1            | 2.5         |
| Q2            | 2.3         |



## GR3ABQ THRU GR3MBQ

### ■ Marking Information



**Note:**

1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXXXX is marking code, like GR3MBQ marking code is GR3MB.
4. Body color: Black
5. YWW is date code, "Y" is year. "WW" is week.

For instance:

The 17<sup>th</sup> week of 2024, date code is 417

The 17<sup>th</sup> week of 2025, date code is 517



## GR3ABQ THRU GR3MBQ

---

### Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.