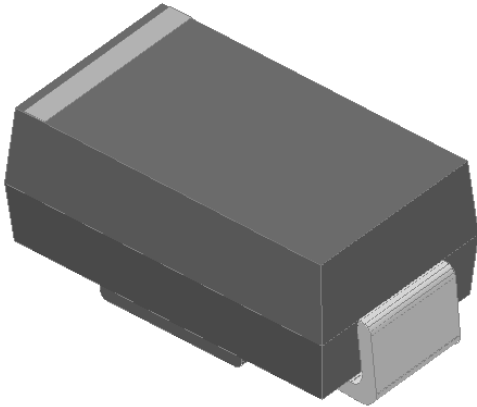


## Surface Mount Fast Recovery Rectifier

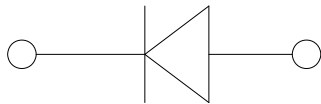


### Features

- 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-214AC (SMA)  
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 | GR2AAQ     | GR2BAQ | GR2DAQ | GR2GAQ | GR2JAQ | GR2KAQ | GR2MAQ |
|-----------------------------------------------------------------------------------------------|------------------|------|------------|--------|--------|--------|--------|--------|--------|
| Device marking code                                                                           |                  |      | GR2AA      | GR2BA  | GR2DA  | GR2GA  | GR2JA  | GR2KA  | GR2MA  |
| 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, TL (FIG.1)              | I <sub>O</sub>   | A    | 2          |        |        |        |        |        |        |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A    | 50         |        |        |        |        |        |        |
| 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                                                    | GR2AAQ | GR2BAQ | GR2DAQ | GR2GAQ | GR2JAQ | GR2KAQ | GR2MAQ |
|---------------------------------------------------------|-----------------|------|--------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Maximum instantaneous forward voltage                   | V <sub>F</sub>  | V    | I <sub>FM</sub> =2.0A                                              | 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      |        |        |        |        |        |        |
|                                                         |                 |      | T <sub>J</sub> =125°C                                              | 100    |        |        |        |        |        |        |
| Typical junction capacitance                            | C <sub>j</sub>  | pF   | V <sub>R</sub> =4V, f=1 MHz                                        | 35     |        |        |        | 25     | 20     |        |



## GR2AAQ THRU GR2MAQ

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

| PARAMETER                  | SYMBOL                 | UNIT                 | GR2AAQ | GR2BAQ | GR2DAQ | GR2GAQ | GR2JAQ | GR2KAQ | GR2MAQ |
|----------------------------|------------------------|----------------------|--------|--------|--------|--------|--------|--------|--------|
| Typical Thermal Resistance | $R_{\theta J-A}^{(1)}$ | $^{\circ}\text{C/W}$ | 75     |        |        |        |        |        |        |
|                            | $R_{\theta J-L}^{(1)}$ |                      | 20     |        |        |        |        |        |        |

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

### ■ Ordering Information (Example)

| PREFERRED P/N  | PACKAGE CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|----------------|--------------|-------------------|----------------------|----------------------------|---------------|
| GR2AAQ- GR2MAQ | F2           | Approximate 0.067 | 7500                 | 120000                     | 13" reel      |

### ■ Characteristics (Typical)

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

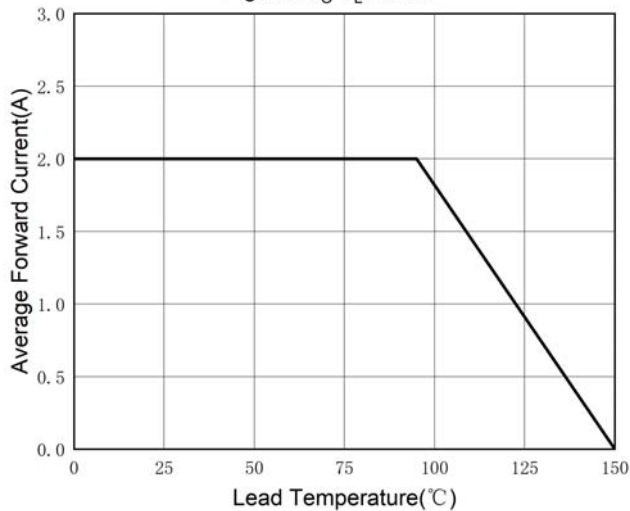


Fig.2: Forward Surge Current Capability

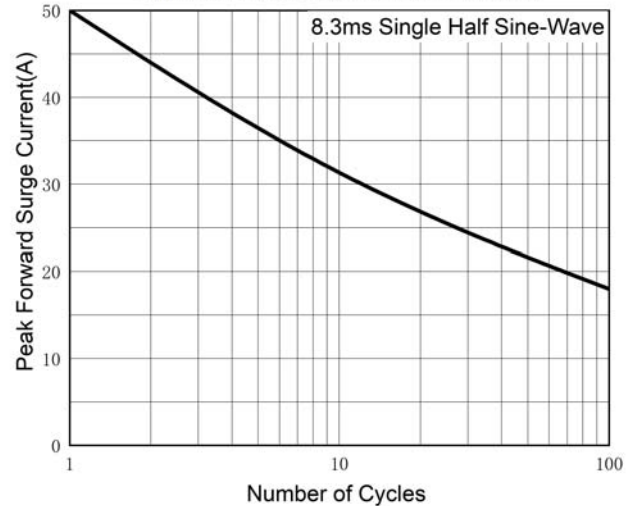


Fig.3: Typical Instantaneous Forward Characteristics

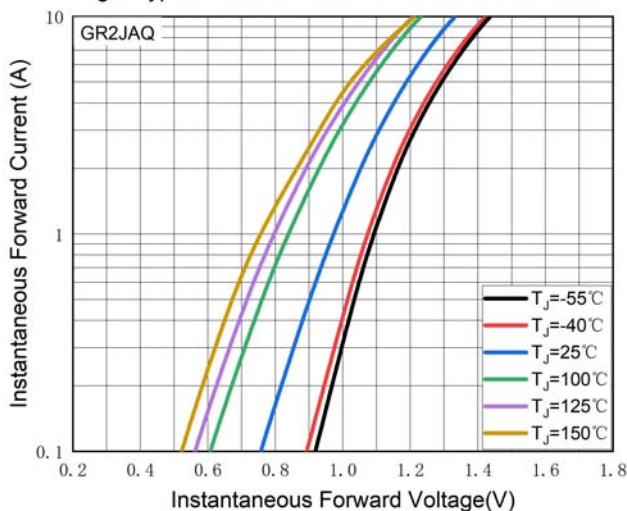
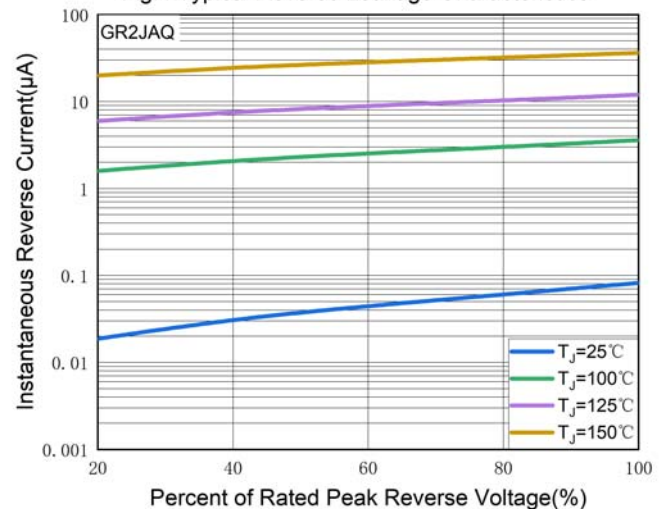


Fig.4: Typical Reverse Leakage Characteristics





## GR2AAQ THRU GR2MAQ

Fig.5: Typical Instantaneous Forward Characteristics

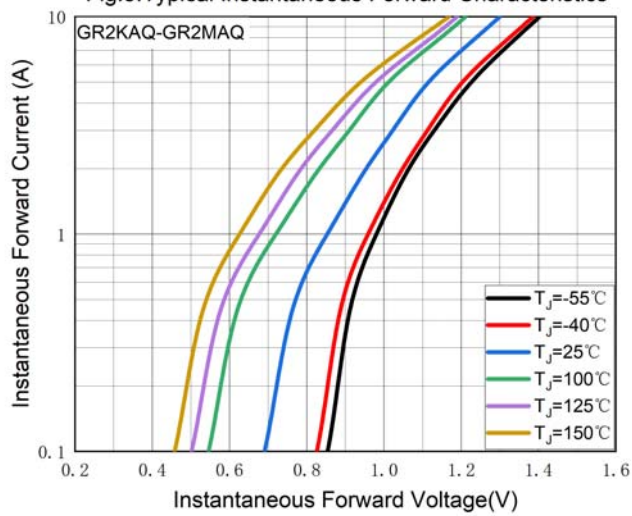


Fig.6: Typical Reverse Leakage Characteristics

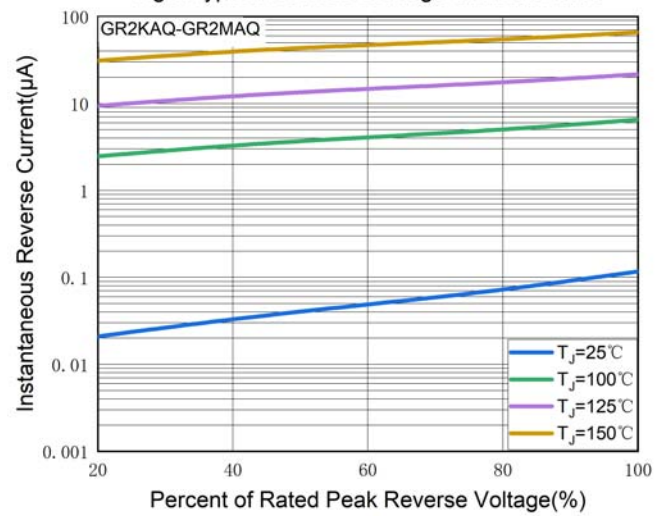
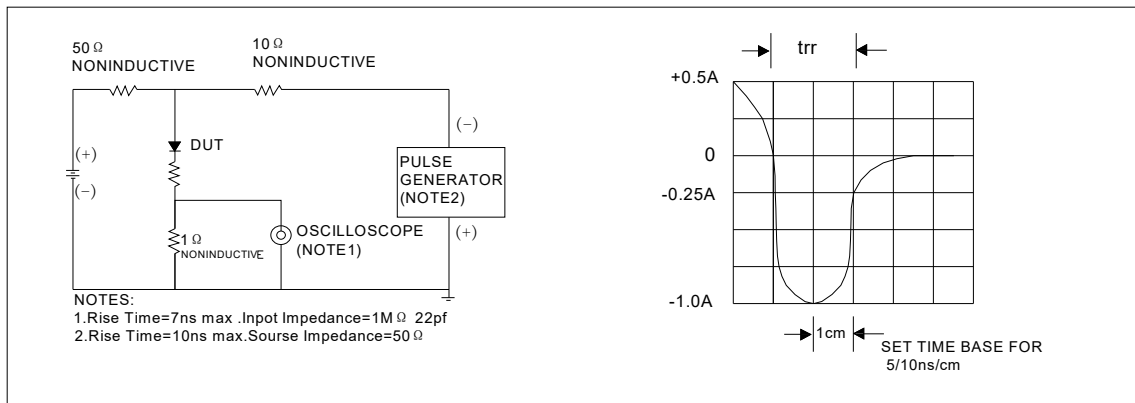


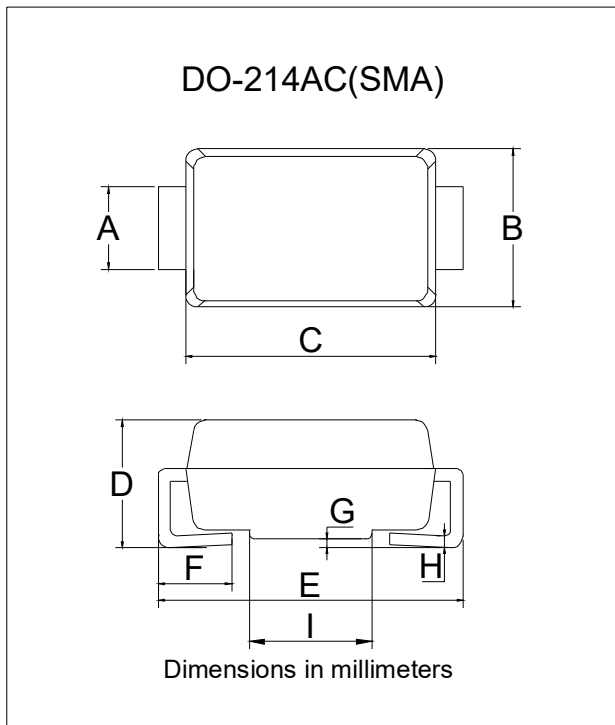
FIG.7: Diagram of circuit and Testing wave form of reverse recovery time





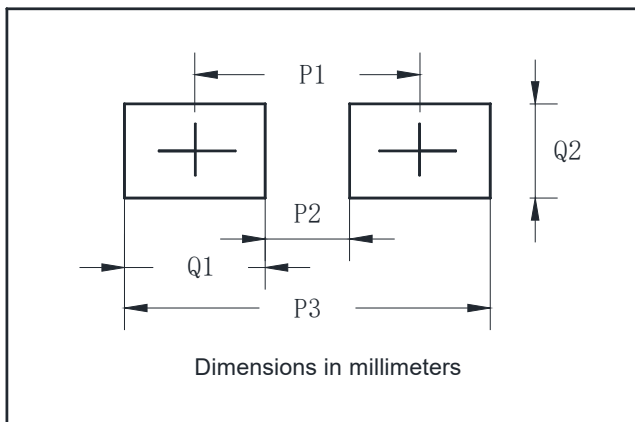
## GR2AAQ THRU GR2MAQ

### ■ Outline Dimensions



| DO-214AC(SMA) |      |      |
|---------------|------|------|
| Dim           | Min  | Max  |
| A             | 1.25 | 1.58 |
| B             | 2.40 | 2.83 |
| C             | 4.00 | 4.75 |
| D             | 1.90 | 2.30 |
| E             | 4.93 | 5.28 |
| F             | 0.76 | 1.41 |
| G             | 0.05 | 0.20 |
| H             | 0.15 | 0.31 |
| I             | 1.7  | 2.1  |

### ■ Suggested Pad Layout

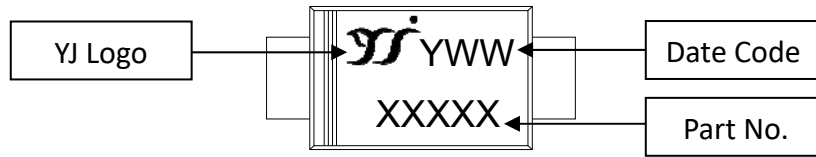


| DO-214AC(SMA) |             |
|---------------|-------------|
| Dim           | Millimeters |
| P1            | 4.00        |
| P2            | 1.50        |
| P3            | 6.50        |
| Q1            | 2.50        |
| Q2            | 1.70        |



## GR2AAQ THRU GR2MAQ

### ■ 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 GR2MAQ marking code is GR2MA.
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



## GR2AAQ THRU GR2MAQ

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