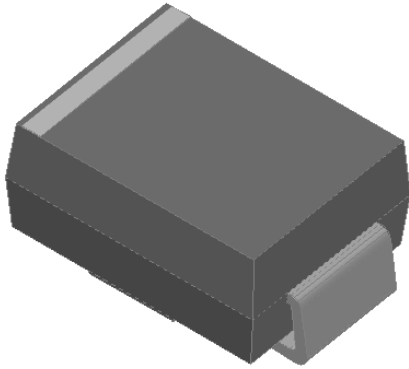


## Surface Mount Super Fast Recovery Rectifier

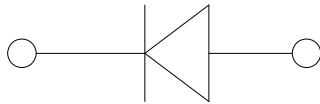


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer 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             | ES2A       | ES2B | ES2C | ES2D | ES2F | ES2G | ES2H | ES2J | ES2K |
|---|------------------|------------------|------------|------|------|------|------|------|------|------|------|
| Device marking code   |                  |                  | ES2A       | ES2B | ES2C | ES2D | ES2F | ES2G | ES2H | ES2J | ES2K |
| Maximum Repetitive Peak Reverse Voltage   | V <sub>RRM</sub> | V                | 50         | 100  | 150  | 200  | 300  | 400  | 500  | 600  | 800  |
| Maximum RMS Voltage   | V <sub>RMS</sub> | V                | 35         | 70   | 105  | 140  | 210  | 280  | 350  | 420  | 560  |
| Maximum DC blocking Voltage   | V <sub>DC</sub>  | V                | 50         | 100  | 150  | 200  | 300  | 400  | 500  | 600  | 800  |
| Average rectified output current<br>@60Hz sine wave, resistance load, TL (Fig.1)              | I <sub>o</sub>   | A                | 2.0        |      |      |      |      |      |      |      |      |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                | 50         |      |      |      |      |      |      |      |      |
| Forward Surge Current (Non-repetitive)<br>@1ms, square wave, 1 cycle, T <sub>j</sub> =25°C    |                  |                  | 100        |      |      |      |      |      |      |      |      |
| Current squared time<br>@1ms≤t≤8.3ms T <sub>j</sub> =25°C                                     | I <sup>2</sup> t | A <sup>2</sup> s | 10.375     |      |      |      |      |      |      |      |      |
| 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  | ES2A | ES2B | ES2C | ES2D | ES2F | ES2G | ES2H | ES2J | ES2K |
|---|-----------------|------|--|------|------|------|------|------|------|------|------|------|
| Maximum instantaneous forward voltage                   | V <sub>F</sub>  | V    | I <sub>FM</sub> =2.0A  | 0.95 |      |      |      | 1.3  |      | 1.7  |      | 1.85 |
| 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 |      |      |      |      | 35   |      |      |      |      |
| 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   | Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C          | 31   |      |      |      | 17   |      | 12   |      | 12   |



# ES2A THRU ES2K

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

| PARAMETER                  | SYMBOL                          | UNIT | ES2A | ES2B | ES2C | ES2D | ES2F | ES2G | ES2H | ES2J | ES2K |
|----------------------------|---------------------------------|------|------|------|------|------|------|------|------|------|------|
| Typical Thermal Resistance | R <sub>θJA</sub> <sup>(1)</sup> | °C/W | 60   |      |      |      |      |      |      |      |      |
|                            | R <sub>θJL</sub> <sup>(1)</sup> |      | 22   |      |      |      |      |      |      |      |      |
|                            | R <sub>θJC</sub> <sup>(1)</sup> |      | 16   |      |      |      |      |      |      |      |      |

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)

FIG1: I<sub>o</sub>-T<sub>L</sub> Curve

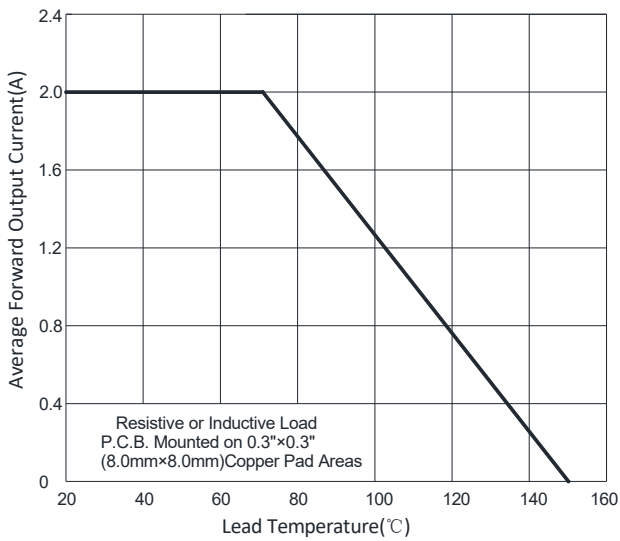


FIG2: Surge Forward Current Capability

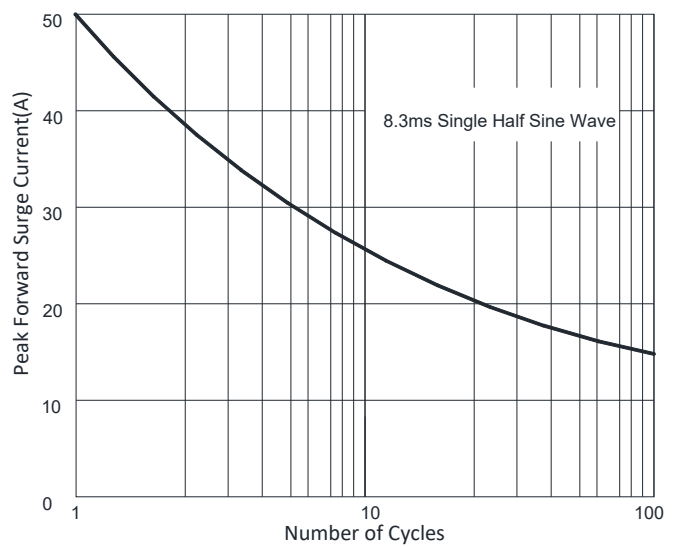


FIG3: Typical Forward Voltage

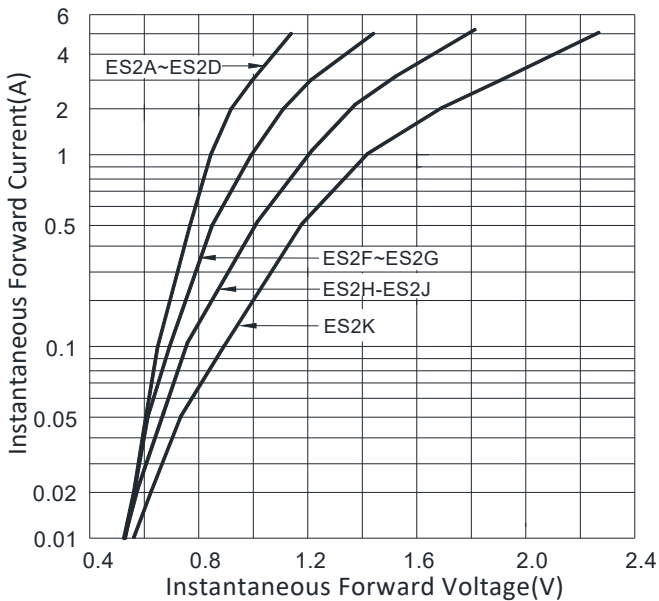


FIG4: Typical Reverse Characteristics

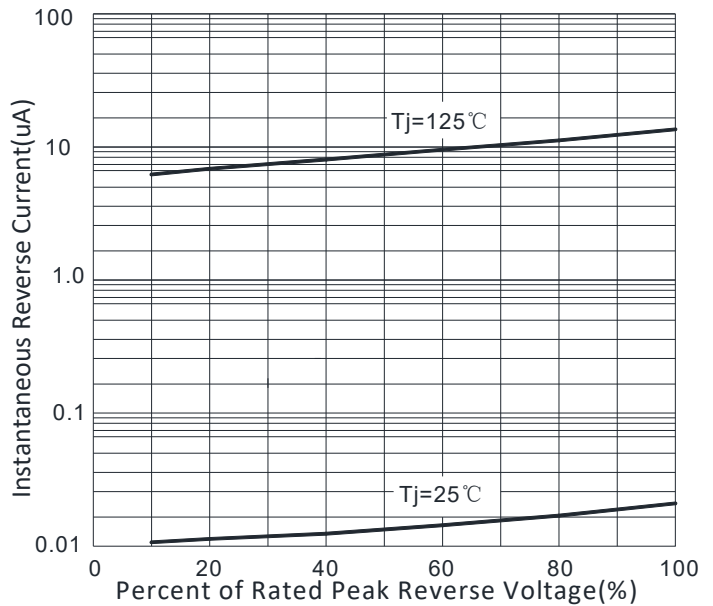
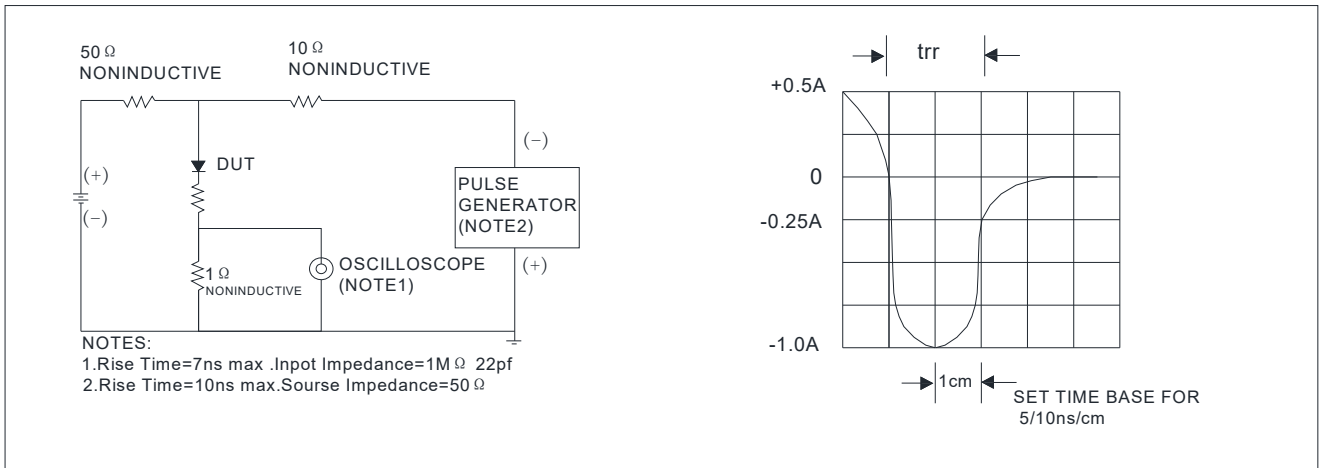


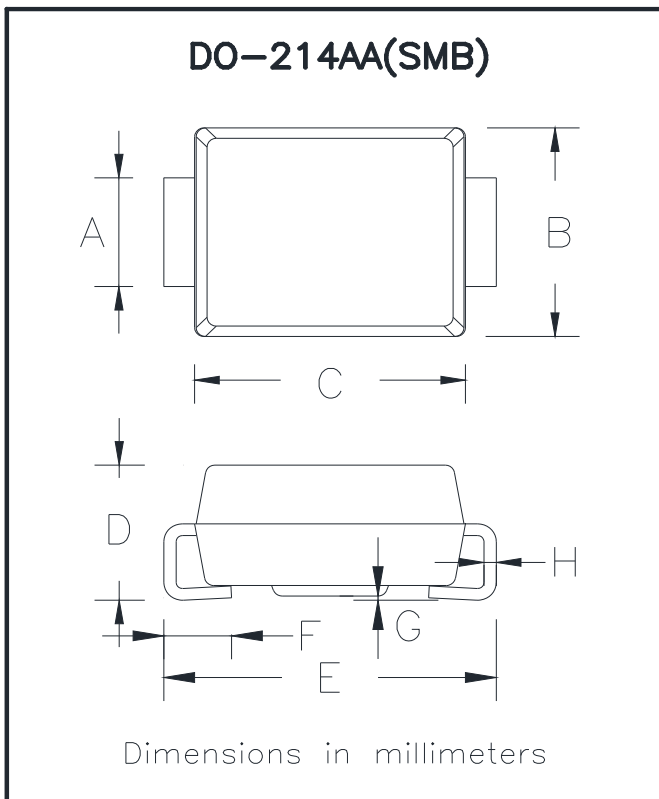
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



### Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| ES2A-ES2K     | F1           | Approximate 0.096 | 3000                 | /                       | 48000                      | 13" reel      |
| ES2A-ES2K     | F2           | Approximate 0.096 | 750                  | 6000                    | 24000                      | 7" reel       |
| ES2A-ES2K     | F3           | Approximate 0.096 | 500                  | 4000                    | 16000                      | 7" reel       |

### Outline Dimensions

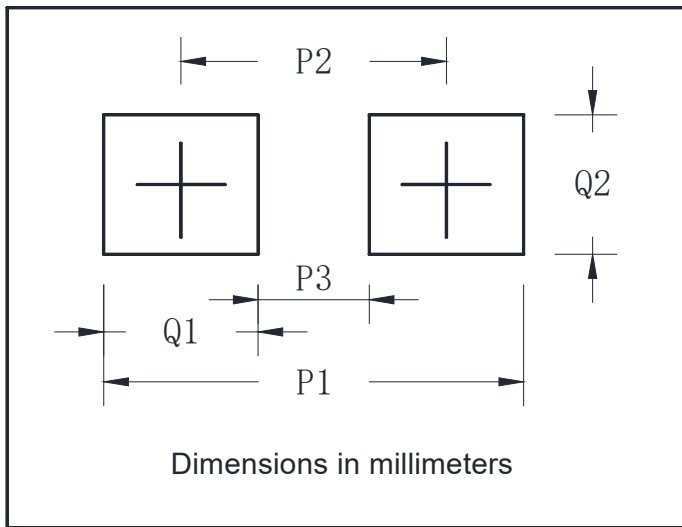


| DO-214AA(SMB) |      |      |
|---------------|------|------|
| Dim           | Min  | Max  |
| A             | 1.85 | 2.15 |
| B             | 3.30 | 3.94 |
| C             | 4.05 | 4.75 |
| D             | 1.99 | 2.61 |
| E             | 5.21 | 5.59 |
| F             | 0.90 | 1.41 |
| G         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



## ES2A THRU ES2K

### ■ Suggested pad layout



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



## ES2A THRU ES2K

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