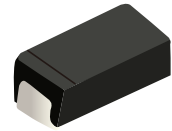


## FEATURES

- | Glass Passivated Die Construction
- | Fast Recovery Time for High Efficiency
- | Low reverse leakage
- | Ideally Suited for Automatic Assembly



DO-214AC(SMA)



Schematic Symbol

## MECHANICAL DATA

- | Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- | Moisture Sensitivity: Level 1 per J-STD-020

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS AND CHARACTERISTICS (T<sub>A</sub>=25°C)

| Parameter   | Symbol                           | RS1A           | RS1B | RS1D | RS1G | RS1J | RS1K | RS1M | Unit |    |
|---|----------------------------------|----------------|------|------|------|------|------|------|------|----|
| Marking   |                                  | RS1A           | RS1B | RS1D | RS1G | RS1J | RS1K | RS1M |      |    |
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>                 | 50             | 100  | 200  | 400  | 600  | 800  | 1000 | V    |    |
| Maximum RMS voltage   | V <sub>RMS</sub>                 | 35             | 70   | 140  | 280  | 420  | 560  | 700  |      |    |
| Maximum DC blocking voltage   | V <sub>DC</sub>                  | 50             | 100  | 200  | 400  | 600  | 800  | 1000 |      |    |
| Maximum average forward rectified current   | I <sub>F(AV)</sub>               | 1              |      |      |      |      |      |      | A    |    |
| Surge peak forward current,8.3ms single half sine-wave superimposed on rated load per diode | I <sub>FSM</sub>                 | 30             |      |      |      |      |      |      |      |    |
| Maximum instantaneous forward voltage(Note1)@1A   | V <sub>F</sub>                   | 1.3            |      |      |      |      |      |      | V    |    |
| Maximum DC reverse current at rated DC blocking voltage                                     | T <sub>J</sub> =25°C             | I <sub>R</sub> |      |      |      |      |      |      | 5    | uA |
|   | T <sub>J</sub> =125°C            |                |      |      |      |      |      |      | 10   |    |
| Maximum reverse recovery time(Note 2)   | T <sub>rr</sub>                  | 150            |      |      |      | 250  | 500  | ns   |      |    |
| Typical junction capacitance (Note3)  | C <sub>J</sub>                   | 10             |      |      |      |      |      |      | pF   |    |
| Typical thermal resistance  | R <sub>θJC</sub>                 | 32             |      |      |      |      |      |      | °C/W |    |
|   | R <sub>θJA</sub>                 | 105            |      |      |      |      |      |      | °C/W |    |
| Operating junction and storage temperature range  | T <sub>J</sub> ,T <sub>STG</sub> | -55 to +150    |      |      |      |      |      |      | °C   |    |

Note :

- 1.Pulse test with PW=300us,1% duty cycle
- 2.Reverse Recovery Test Conditions : I<sub>F</sub>=0.5A,I<sub>R</sub>=1.0A,I<sub>RR</sub>=0.25A
- 3.Measured at 1 MHz and Applied V<sub>R</sub>=4.0 Volts

# CHARACTERISTIC CURVES

Fig. 1- Maximum Forward Current Derating Curve

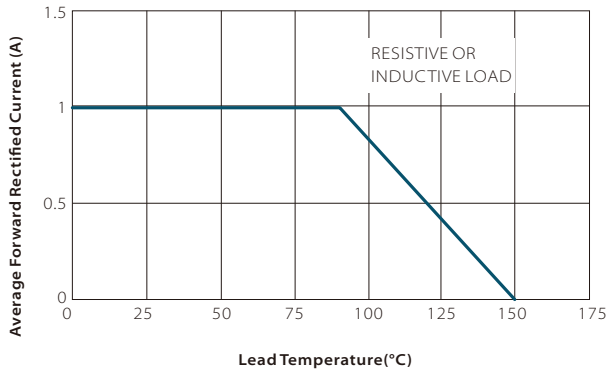


Fig. 2-Typical Reverse Characteristics

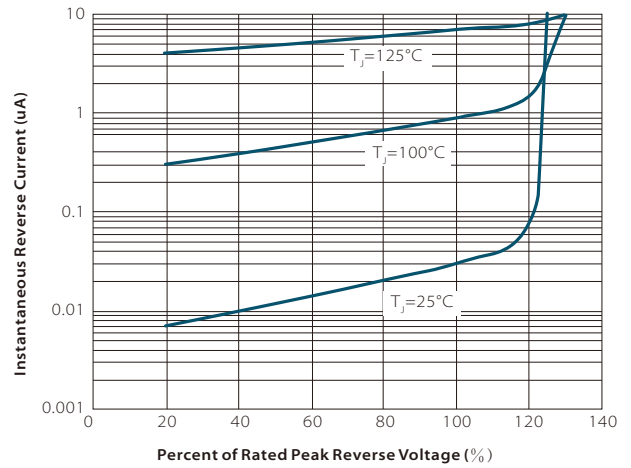


Fig. 3-Maximum Non-Repetitive Peak Forward Surge Current

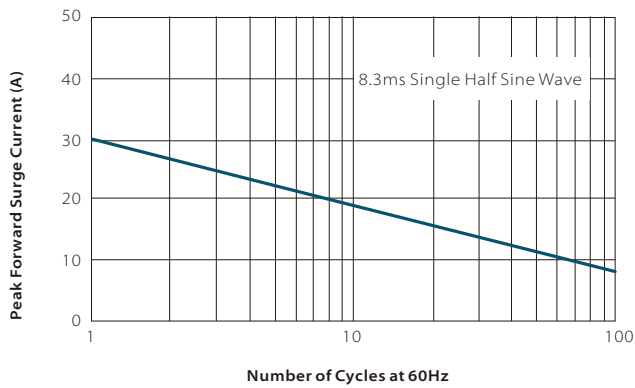
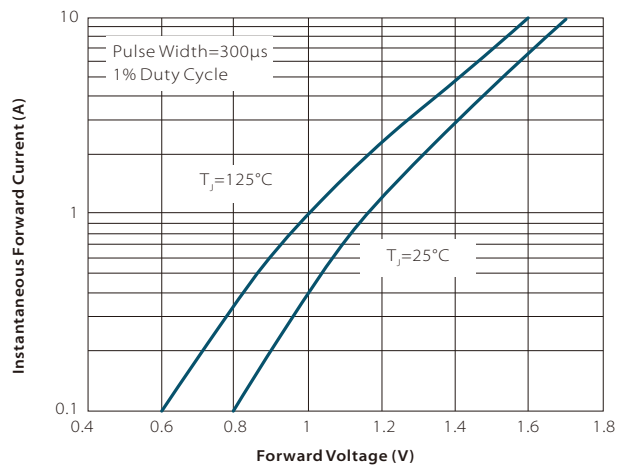
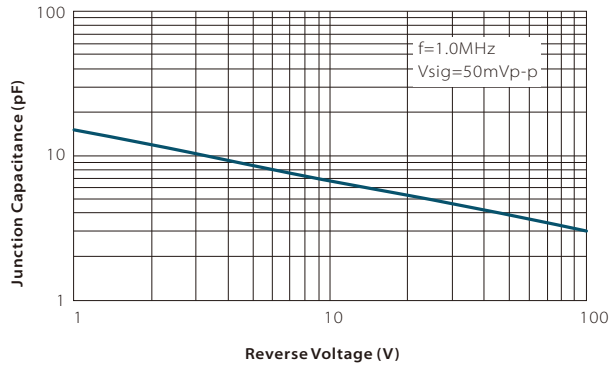


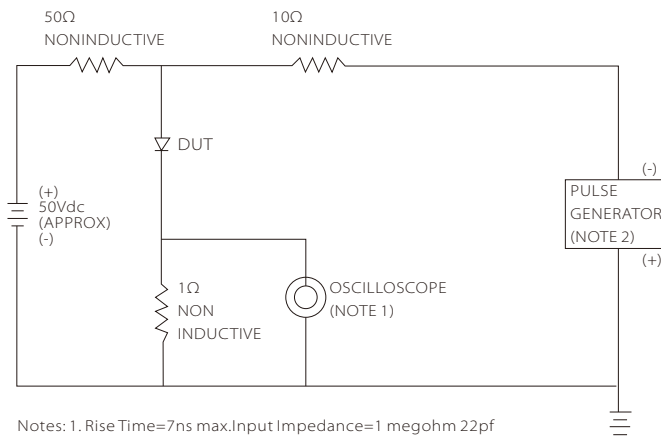
Fig. 4-Typical Instantaneous Forward Characteristics



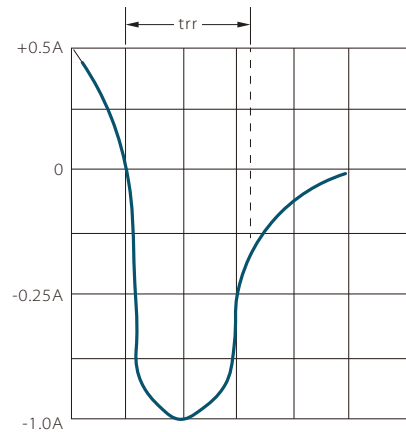
**Fig. 5- Typical Junction Capacitance**



**Fig. 6-Reverse Recovery Time Characteristic And Test Circuit Diagram**

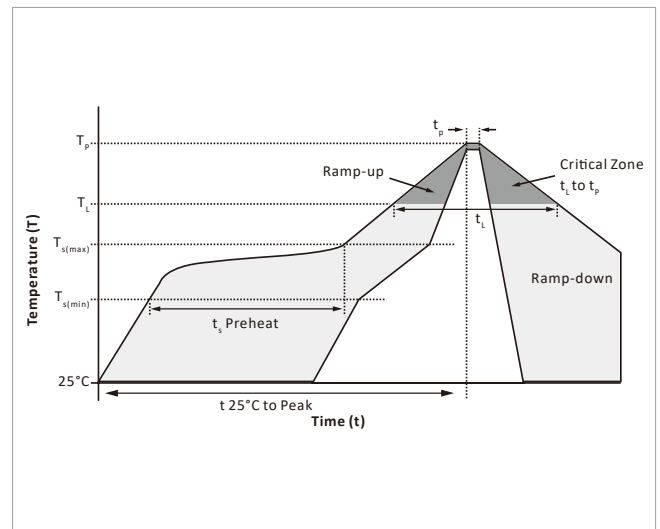


Notes: 1. Rise Time=7ns max. Input Impedance=1 megohm 22pf  
2. Rise Time=10ns max. Source Impedance=50 ohms

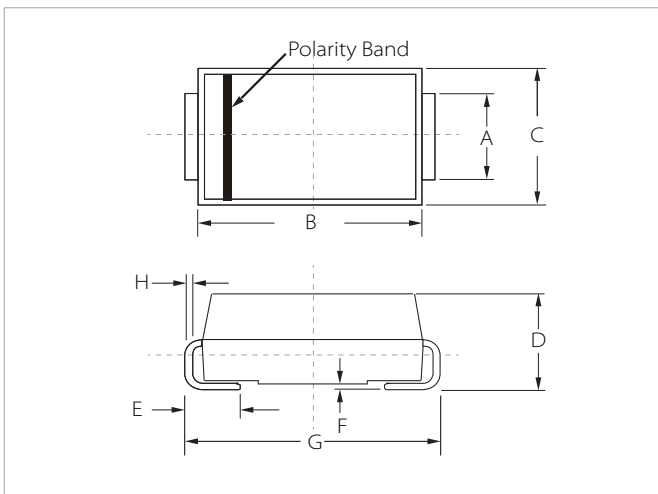


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                  | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat   | Temperature Max ( $T_{s(min)}$ ) | 150°C              |
|  | Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|  | Time (min to max) ( $t_p$ )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                  | 3°C/second max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                  | 3°C/second max     |
| Reflow   | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|  | Time (min to max) ( $t_L$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                  | 20 – 40 seconds    |
| Ramp-down Rate   |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                  | 8 minutes max.     |
| Do not exceed  |                                  | 260°C              |

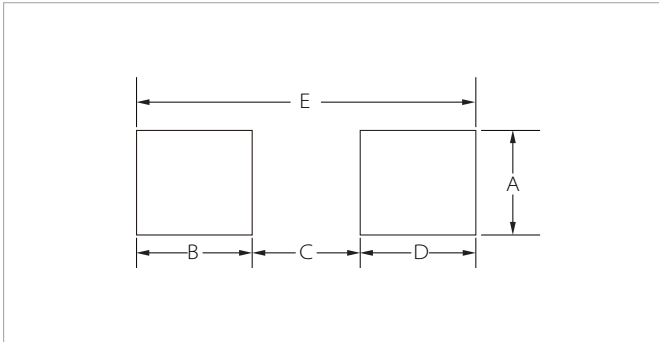


## DO-214AC(SMA) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 1.20        | 1.60 | 0.047  | 0.063 |
| B    | 4.20        | 4.60 | 0.165  | 0.181 |
| C    | 2.60        | 2.80 | 0.102  | 0.110 |
| D    | 2.10        | 2.40 | 0.083  | 0.094 |
| E    | 0.76        | 1.52 | 0.030  | 0.060 |
| F    | 0.02        | 0.20 | 0.001  | 0.008 |
| G    | 4.85        | 5.25 | 0.191  | 0.207 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 1.63        | -    | 0.064    | -     |
| B    | 1.45        | -    | 0.057    | -     |
| C    | -           | 2.80 | -        | 0.090 |
| D    | 1.45        | -    | 0.057    | -     |
| E    | 5.28REF     |      | 0.208REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| RS1A-RS1M   | DO-214AC(SMA)     | 5000PCS  | 13"       |

To find your local partner within Semiwell's website : [www.semiwell.com.cn](http://www.semiwell.com.cn)

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