

## 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

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

## MAXIMUM RATINGS AND CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

| Parameter  | Symbol                  | RS1AA | RS1BA | RS1DA | RS1GA       | RS1JA | RS1KA | RS1MA | Unit                      |
|--|-------------------------|-------|-------|-------|-------------|-------|-------|-------|---------------------------|
| Marking  |                         | RS1A  | RS1B  | RS1D  | RS1G        | RS1J  | RS1K  | RS1M  |                           |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$               | 50    | 100   | 200   | 400         | 600   | 800   | 1000  |                           |
| Maximum RMS voltage  | $V_{RMS}$               | 35    | 70    | 140   | 280         | 420   | 560   | 700   | V                         |
| Maximum DC blocking voltage  | $V_{DC}$                | 50    | 100   | 200   | 400         | 600   | 800   | 1000  |                           |
| Maximum average forward rectified current  | $I_{F(AV)}$             |       |       |       |             | 1     |       |       | A                         |
| Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$               |       |       |       |             | 30    |       |       |                           |
| Maximum instantaneous forward voltage (Note1)@1A   | $V_F$                   |       |       |       | 1.3         |       |       |       | V                         |
| Maximum DC reverse current at rated DC blocking voltage                                      | $T_J=25^\circ\text{C}$  | $I_R$ |       |       |             | 5     |       |       | $\mu\text{A}$             |
|  | $T_J=125^\circ\text{C}$ |       |       |       |             | 10    |       |       |                           |
| Maximum reverse recovery time (Note 2)   | $T_{rr}$                |       |       | 150   |             | 250   |       | 500   | ns                        |
| Typical junction capacitance (Note3)   | $C_J$                   |       |       |       | 10          |       |       |       | pF                        |
| Typical thermal resistance   | $R_{\theta JC}$         |       |       |       | 32          |       |       |       | $^\circ\text{C}/\text{W}$ |
|  | $R_{\theta JA}$         |       |       |       | 105         |       |       |       | $^\circ\text{C}/\text{W}$ |
| Operating junction and storage temperature range   | $T_J, T_{STG}$          |       |       |       | -55 to +150 |       |       |       | $^\circ\text{C}$          |

Note :

1. Pulse test with PW=300us, 1% duty cycle
2. Reverse Recovery Test Conditions :  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$
3. Measured at 1 MHz and Applied  $V_R=4.0$  Volts

## CHARACTERISTIC CURVES

Fig. 1- Maximum Forward Current Derating Curve

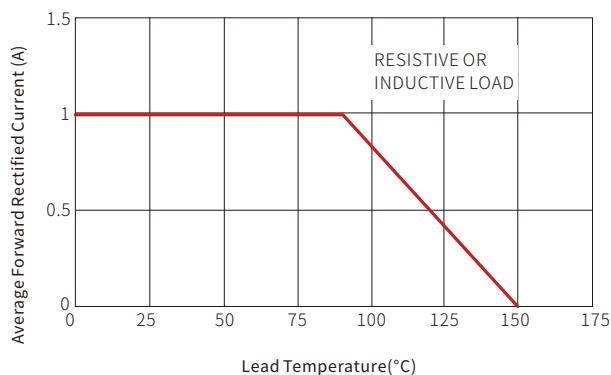


Fig. 2-Typical Reverse Characteristics

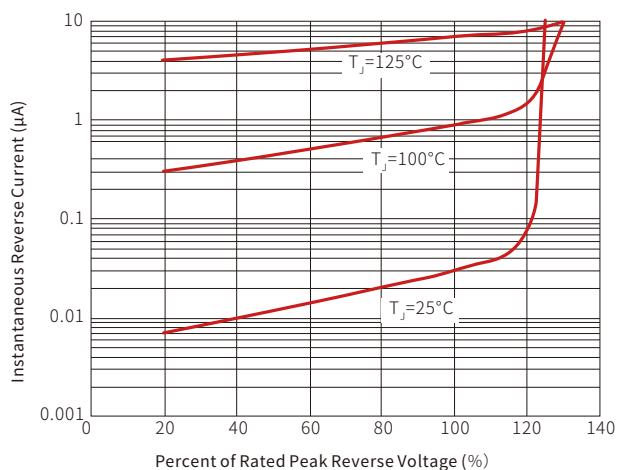


Fig. 3-Maximum Non-Repetitive Peak Forward Surge Current

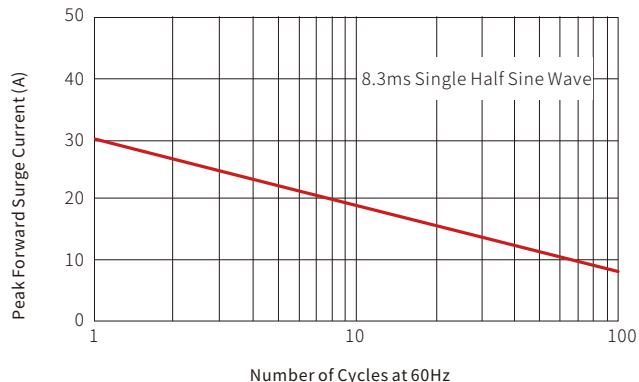
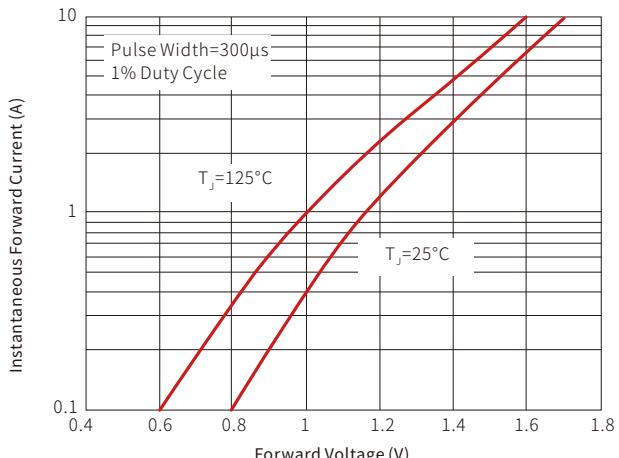
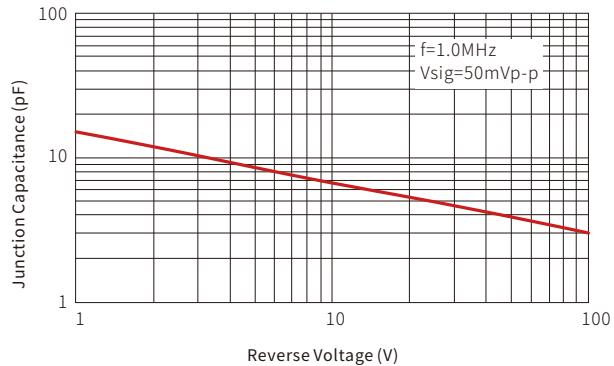
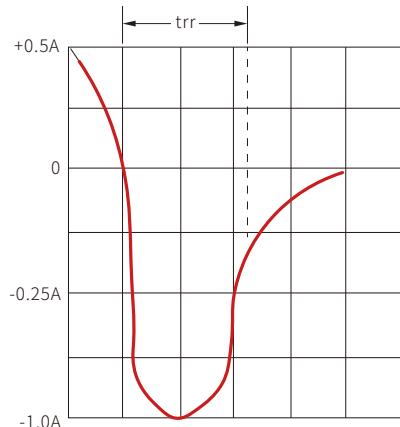
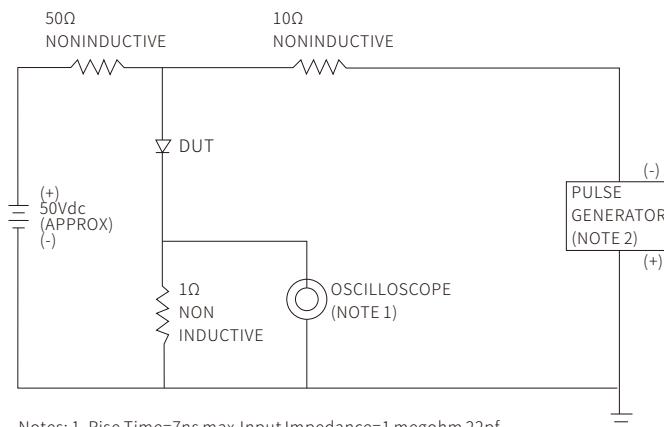


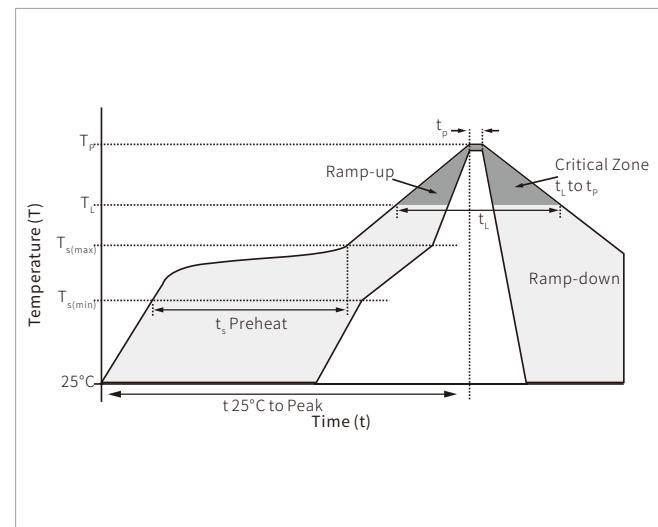
Fig. 4-Typical Instantaneous Forward Characteristics



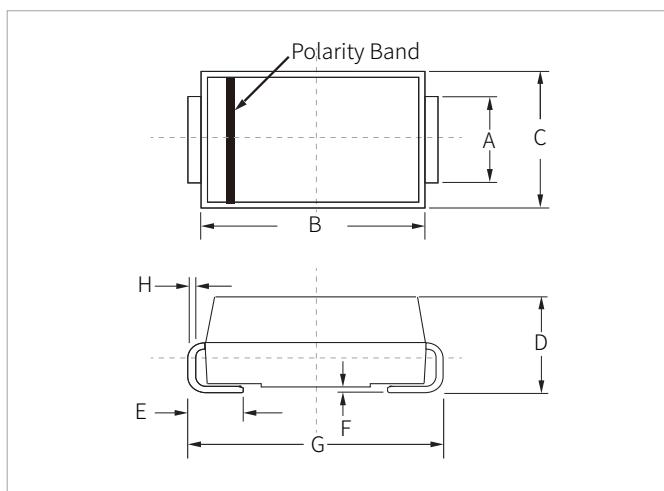
**Fig. 5- Typical Junction Capacitance**

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


## 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) ( $t_s$ )       | 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              |

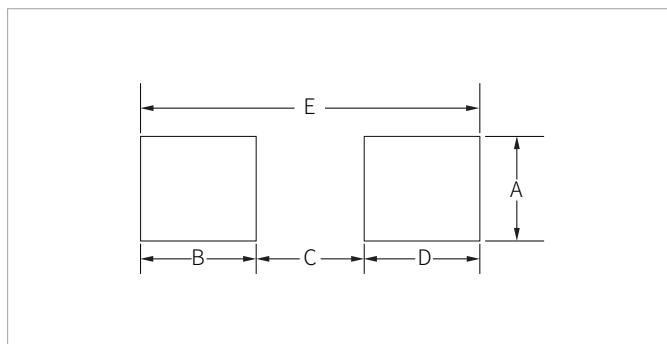


## DO-214AC(SMA) PACKAGE INFORMATION



| 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    | 2.40        | 2.80 | 0.094  | 0.110 |
| D    | 2.00        | 2.40 | 0.079  | 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 |
|-------------|-------------------|----------|-----------|
| RS1AA-RS1MA | DO-214AC(SMA)     | 5000PCS  | 13"       |

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