



# RS1A THRU RS1M

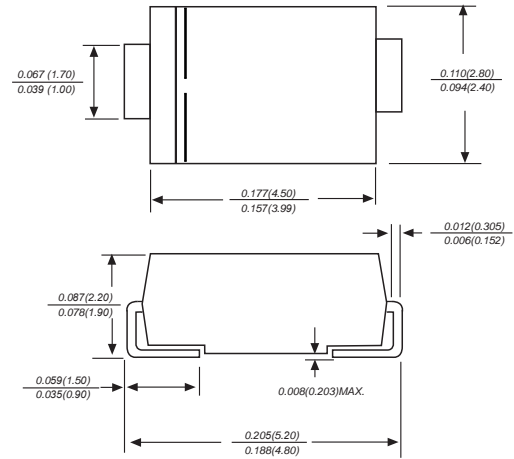
Reverse Voltage - 50 to 1000 Volts Forward Current - 1.0 Ampere

## SURFACE MOUNT FAST RECOVERY RECTIFIER

### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Low reverse leakage
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed:  
250 C/ 10 seconds at terminals
- ◆ Glass passivated chip junction

DO-214AC/SMA



Dimensions in inches and (millimeters)

### Mechanical Data

**Case :** JEDEC DO-214AC/SMA Molded plastic body

**Terminals :** Solder plated, solderable per MIL-STD-750,Method 2026

**Polarity :** Polarity symbol marking on body

**Mounting Position :** Any

**Weight :** 0.002 ounce, 0.07 grams

### Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| Parameter   | SYMBOLS         | RS1A        | RS1B        | RS1D        | RS1G        | RS1J        | RS1K        | RS1M        | UNITS                     |
|---|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------------|
|   |                 | MDD<br>RS1A | MDD<br>RS1B | MDD<br>RS1D | MDD<br>RS1G | MDD<br>RS1J | MDD<br>RS1K | MDD<br>RS1M |                           |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$       | 50          | 100         | 200         | 400         | 600         | 800         | 1000        | V                         |
| 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        | V                         |
| Maximum average forward rectified current at $T_L=90^\circ\text{C}$   | $I_{(AV)}$      | 1.0         |             |             |             |             |             |             | A                         |
| Peak forward surge current<br>8.3ms single half sine-wave<br>superimposed on rated load (JEDEC Method)          | $I_{FSM}$       | 30          |             |             |             |             |             |             | A                         |
| Maximum instantaneous forward voltage at 1.0A   | $V_F$           | 1.30        |             |             |             |             |             |             | V                         |
| Maximum DC reverse current<br>$T_A=25^\circ\text{C}$<br>at rated DC blocking voltage<br>$T_A=125^\circ\text{C}$ | $I_R$           | 5<br>50     |             |             |             |             |             |             | $\mu\text{A}$             |
| Maximum reverse recovery time (NOTE 1)  | $t_{rr}$        | 150         |             |             | 250         |             | 500         |             | ns                        |
| Typical junction capacitance (NOTE 2)   | $C_J$           | 15.0        |             |             |             |             |             |             | pF                        |
| Typical thermal resistance (NOTE 3)   | $R_{\theta JA}$ | 50.0        |             |             |             |             |             |             | $^\circ\text{C}/\text{W}$ |
| Operating junction and storage temperature range  | $T_J, T_{STG}$  | -55 to +150 |             |             |             |             |             |             | $^\circ\text{C}$          |

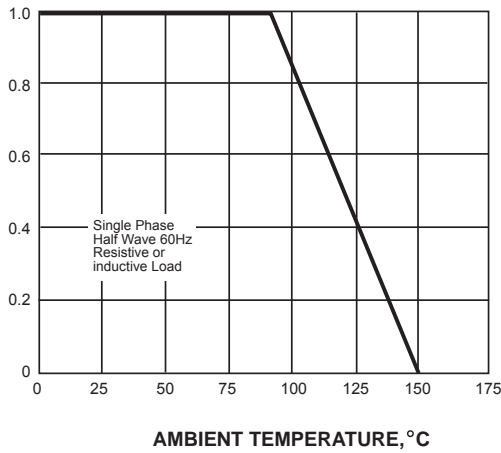
**Note:** 1.Reverse recovery condition  $I_F=0.5\text{A}, I_R=1.0\text{A}, t_{rr}=0.25\text{A}$   
2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
3.P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas



## Ratings And Characteristic Curves

AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



PEAK FORWARD SURGE CURRENT, AMPERES

FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

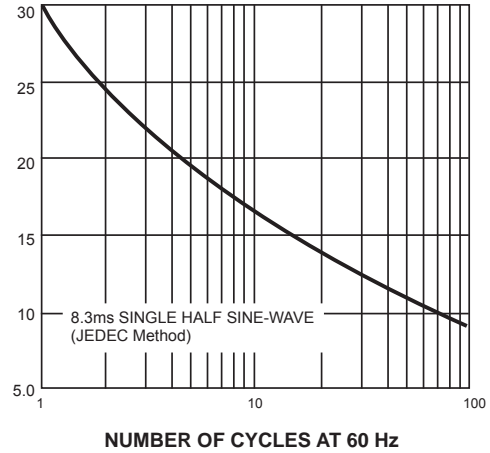
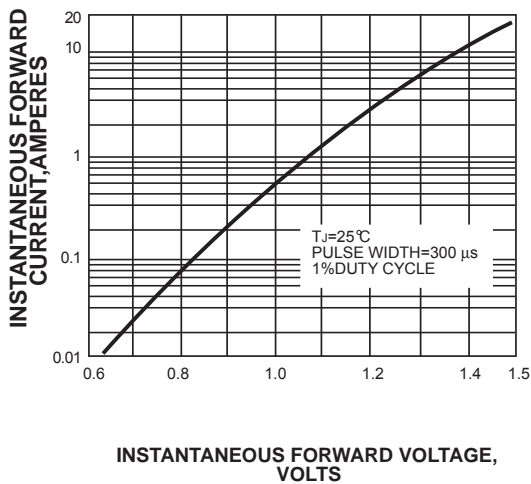


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT, MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS

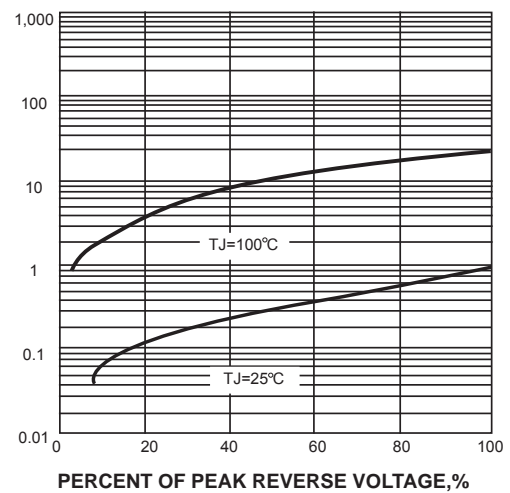
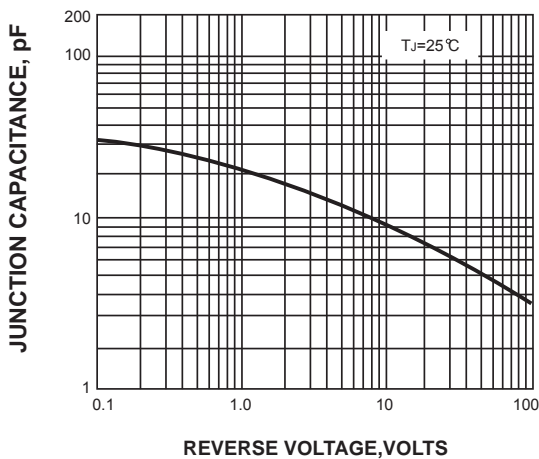
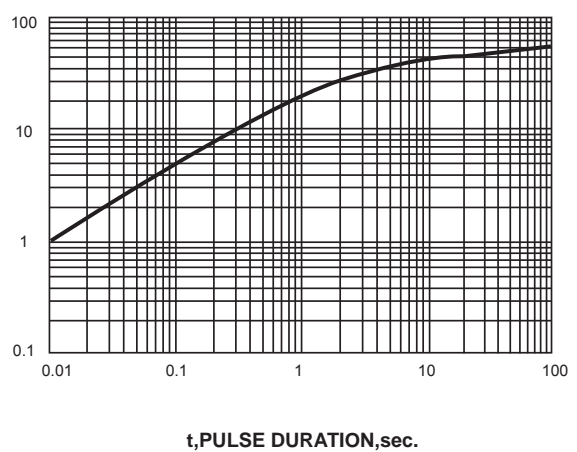


FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE, °C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



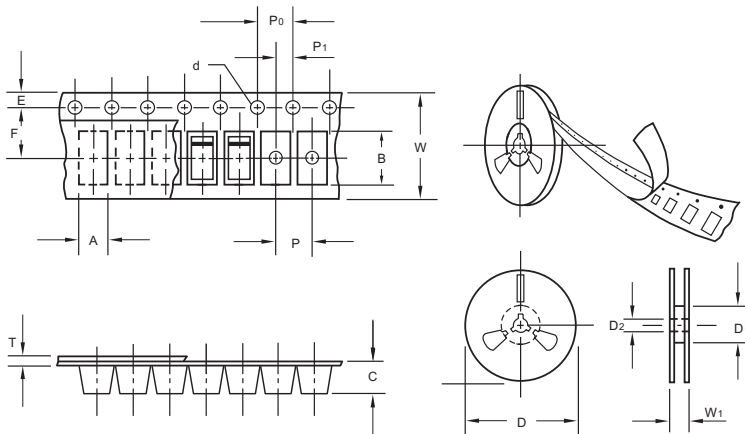
The curve above is for reference only.



# RS1A THRU RS1M

Reverse Voltage - 50 to 1000 Volts Forward Current - 1.0 Ampere

## Packing information



unit:mm

| Item                      | Symbol         | Tolerance | SMA    |
|---------------------------|----------------|-----------|--------|
| Carrier width             | A              | 0.1       | 2.80   |
| Carrier length            | B              | 0.1       | 5.33   |
| Carrier depth             | C              | 0.1       | 2.36   |
| Sprocket hole             | d              | 0.05      | 1.50   |
| 13" Reel outside diameter | D              | 2.0       | 330.00 |
| 13" Reel inner diameter   | D <sub>1</sub> | min       | 50.00  |
| 7" Reel outside diameter  | D              | 2.0       | 178.00 |
| 7" Reel inner diameter    | D <sub>1</sub> | min       | 62.00  |
| Feed hole diameter        | D <sub>2</sub> | 0.5       | 13.00  |
| Sprocket hole position    | E              | 0.1       | 1.75   |
| Punch hole position       | F              | 0.1       | 5.50   |
| Punch hole pitch          | P              | 0.1       | 4.00   |
| Sprocket hole pitch       | P <sub>0</sub> | 0.1       | 4.00   |
| Embossment center         | P <sub>1</sub> | 0.1       | 2.00   |
| Overall tape thickness    | T              | 0.1       | 0.28   |
| Tape width                | W              | 0.3       | 12.00  |
| Reel width                | W <sub>1</sub> | 1.0       | 18.00  |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

## Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA. (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SMA     | 7"        | 2,000      | 4.0                     | 4,000     | 183*155*183     | 178             | 382*356*392       | 160,000      | 16.0                      |
| SMA     | 11"       | 5,000      | 4.0                     | 10,000    | 290*290*38      | 330             | 310*310*360       | 80,000       | 11.0                      |
| SMA     | 13"       | 7,500      | 4.0                     | 15,000    | 335*335*38      | 330             | 350*330*360       | 120,000      | 14.5                      |

## Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 1.68      | 0.066       |
| B      | 1.52      | 0.060       |
| C      | 3.90      | 0.154       |
| D      | 2.41      | 0.095       |
| E      | 5.45      | 0.215       |

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