

# SR5150T THRU SR5200T

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# SR5150T THRU SR5200T

## 5.0A Axial Leaded Schottky Barrier Rectifiers - 150V-200V

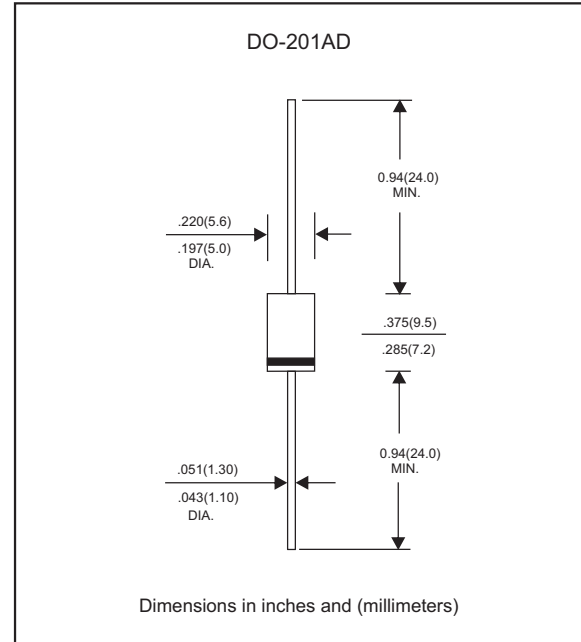
### Features

- Axial lead type devices for through hole design
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" for Halogen-free part, ex.SR5150T-H

### Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-201AD
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any
- Weight : Approximated 1.10 gram

### Package outline



### Maximum ratings and Electrical Characteristics (AT T<sub>A</sub>=25°C unless otherwise noted)

| PARAMETER                  | CONDITIONS   | Symbol           | MIN. | TYP. | MAX. | UNIT |
|----------------------------|--|------------------|------|------|------|------|
| Forward rectified current  | See Fig.2  | I <sub>O</sub>   |      |      | 5.0  | A    |
| Forward surge current      | 8.3ms single half sine-wave (JEDEC methode)              | I <sub>FSM</sub> |      |      | 150  | A    |
| Reverse current            | V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 25°C  | I <sub>R</sub>   |      |      | 0.1  | mA   |
|                            | V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 125°C |                  |      |      | 1    |      |
| Thermal resistance         | Junction to ambient                                      | R <sub>BJA</sub> |      | 25   |      | °C/W |
|                            | Junction to lead   | R <sub>BJL</sub> |      | 10   |      |      |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage                 | C <sub>J</sub>   |      | 380  |      | pF   |
| Storage temperature        |  | T <sub>STG</sub> | -65  |      | +175 | °C   |

| SYMBOLS | V <sub>RRM</sub> <sup>*1</sup><br>(V) | V <sub>RMS</sub> <sup>*2</sup><br>(V) | V <sub>R</sub> <sup>*3</sup><br>(V) | V <sub>F</sub> <sup>*4</sup><br>(V) | Operating temperature<br>T <sub>J</sub> , (°C) |
|---------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|--|
| SR5150T | 150                                   | 105                                   | 150                                 | 0.90                                |  |
| SR5200T | 200                                   | 140                                   | 200                                 | 0.92                                |  |

\*1 Repetitive peak reverse voltage

\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage@I<sub>F</sub>=5.0A

## Rating and characteristic curves (SR5150T THRU SR5200T)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

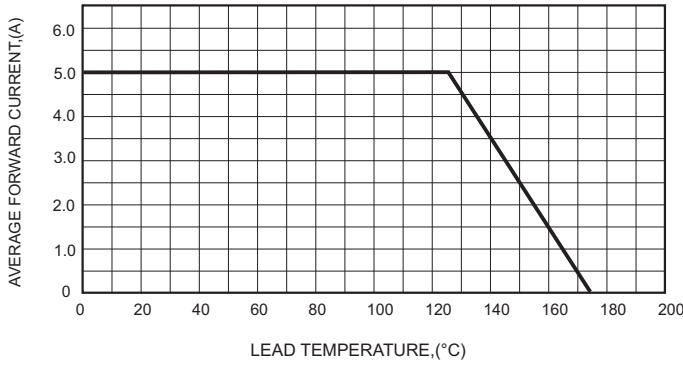


FIG.2-TYPICAL FORWARD CHARACTERISTICS

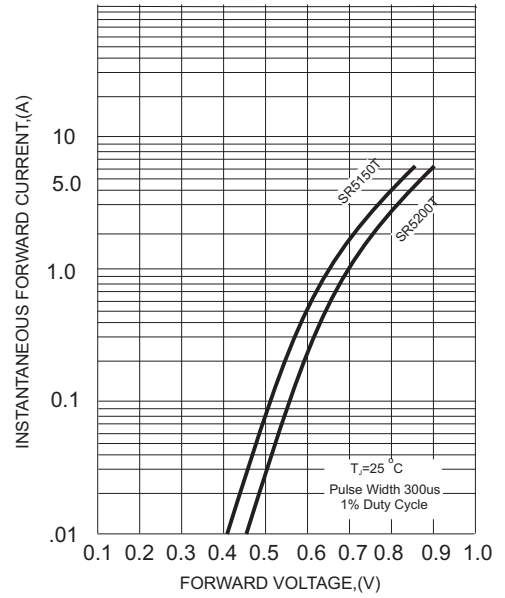


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

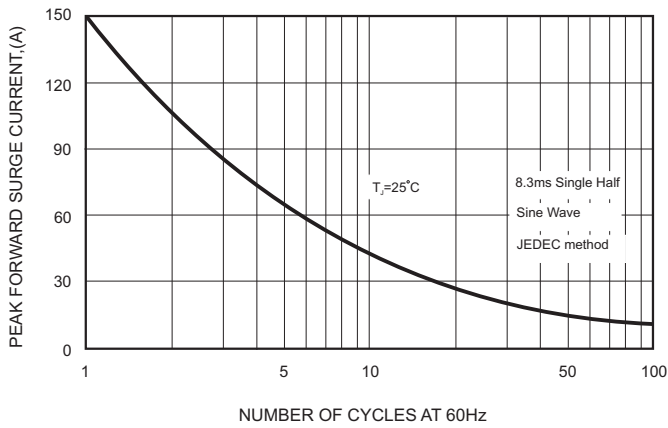


FIG.5 - TYPICAL REVERSE CHARACTERISTICS

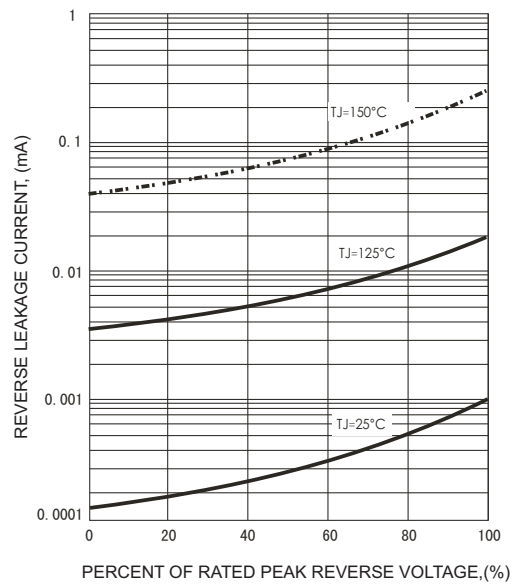
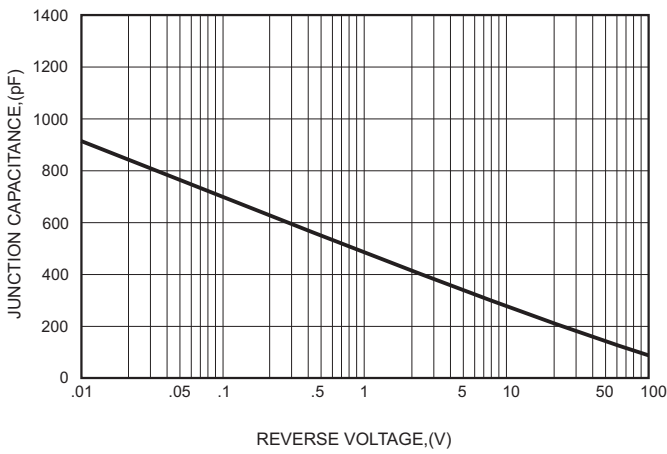




FIG.4-TYPICAL JUNCTION CAPACITANCE



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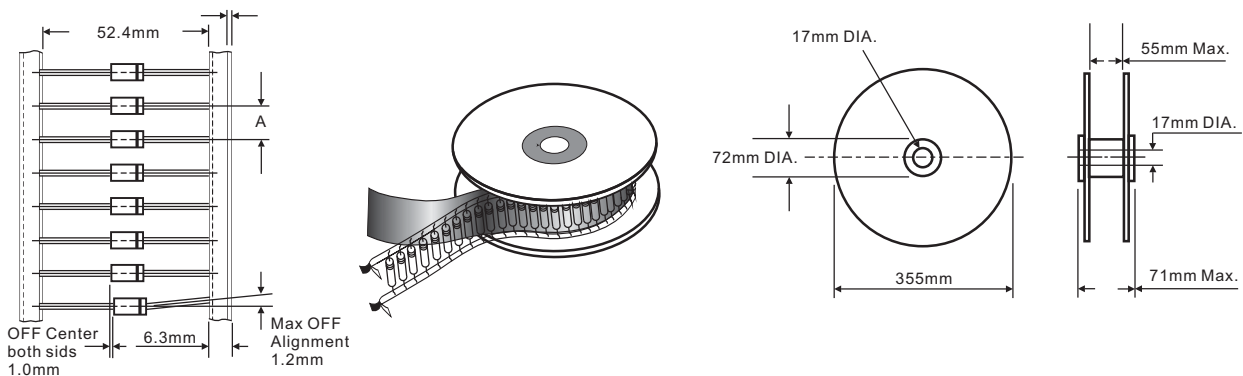
## Pinning information

| Pin                        | Simplified outline   | Symbol  |
|----------------------------|--|---|
| Pin1 cathode<br>Pin2 anode |  |  |

## Marking

| Type number | Marking code |
|-------------|--------------|
| SR5150T     | SR5150T      |
| SR5200T     | SR5200T      |

## Taping & bulk specifications for AXIAL devices



### REEL PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / REEL) | COMPONENT SPACING "A" in FIG. A | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|------------------|---------------------|---------------------------------|-------------------|-----------------------|--------------------------|
| DO-201AD         | 1,200               | 10 mm                           | 380 * 340 * 370   | 4,800                 | 9.1                      |

### AMMO PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / BOX) | INNER BOX SIZE (m/m) | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|------------------|--------------------|----------------------|-------------------|-----------------------|--------------------------|
| DO-201AD         | 1,250              | 260 * 83 * 160       | 440 * 270 * 340   | 12,500                | 17.0                     |

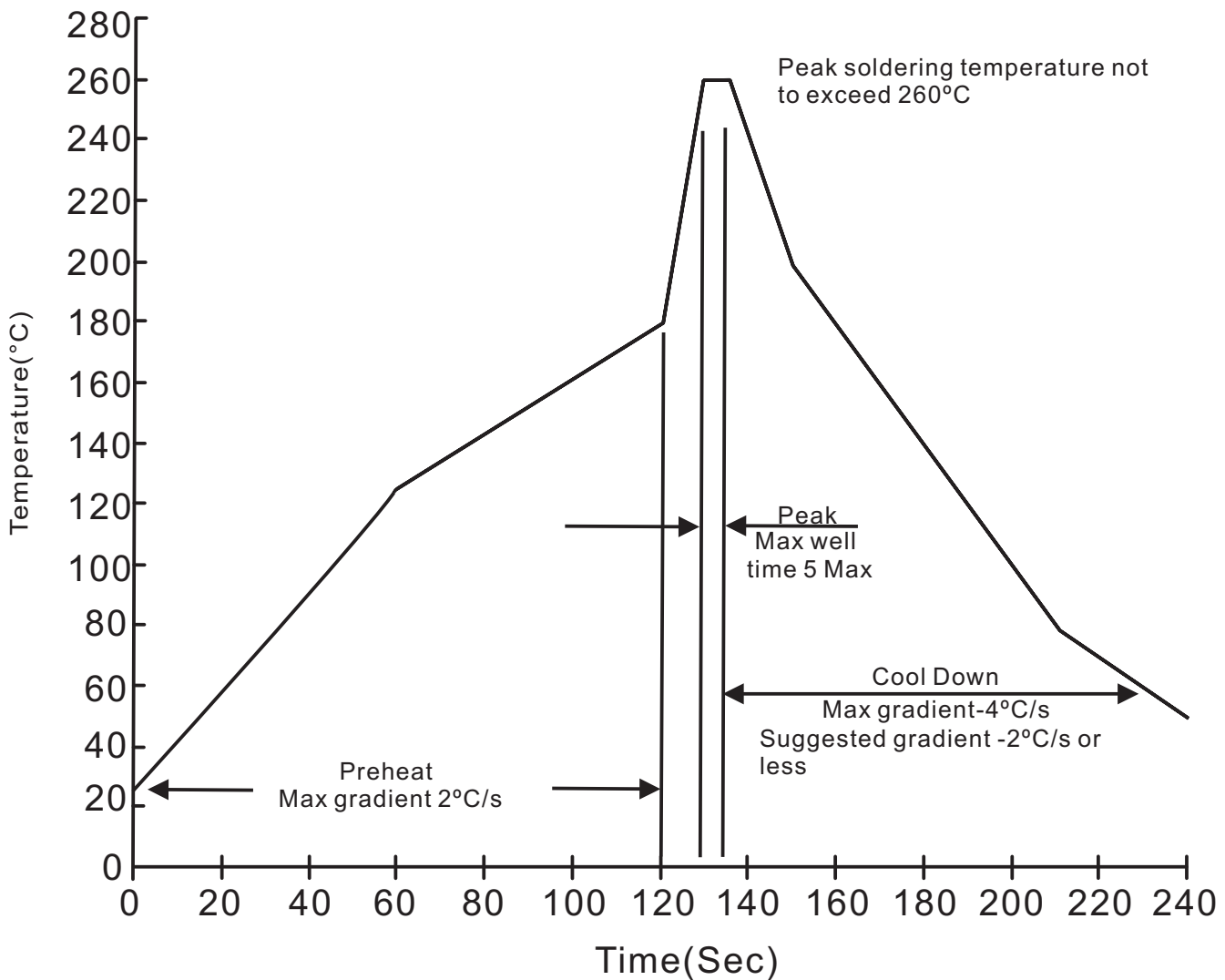
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BULK PACKING

| DEVICE CASE TYPE | Q'TY 1 (PCS / BOX) | INNER BOX SIZE (m/m) | CARTON SIZE (m/m) | Q'TY 2 (PCS / CARTON) | APPROX. CROSS WEIGHT(kg) |
|------------------|--------------------|----------------------|-------------------|-----------------------|--------------------------|
| DO-201AD         | 500                | 305 * 73 * 40        | 347 * 320 * 271   | 12,000                | 16.4                     |

**Suggested thermal profiles for soldering processes**

1. Lead free temperature profile wave-soldering



**SR5150T THRU SR5200T****High reliability test capabilities**

| Item Test                         | Conditions  | Reference                     |
|-----------------------------------|---|-------------------------------|
| 1. Solder Resistance              | at 260±5°C for 10±2sec.<br>immerse body into solder 1/16"±1/32"   | MIL-STD-750D<br>METHOD-2031   |
| 2. Solderability                  | at 245±5°C for 5 sec.   | MIL-STD-202F<br>METHOD-208    |
| 3. Pull Test                      | 2.0kg in axial lead direction for 10 sec.<br>$I_F = I_O$  | MIL-STD-202F<br>METHOD-211A   |
| 4. Bend Lead                      | 2.0kg weight applied to each lead bending<br>arc 90°±5° for 3 times   | MIL-STD-202F<br>METHOD-211A   |
| 5. High Temperature Reverse Bias  | $V_R = 80\%$ rate at $T_J = 175^\circ\text{C}$ for 168 hrs.   | MIL-STD-750D<br>METHOD-1038   |
| 6. Forward Operation Life         | Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.<br>$T_A = 25^\circ\text{C}$ , $I_F = I_O$ | MIL-STD-750D<br>METHOD-1027   |
| 7. Intermittent Operation Life    | On state: power on for 5 min.<br>off state: power off for 5 min,<br>on and off for 500 cycles.                    | MIL-STD-750D<br>METHOD-1036   |
| 8. Pressure Cooker                | 15P <sub>SIG</sub> at $T_A = 121^\circ\text{C}$ for 4 hrs.  | JESD22-A102                   |
| 9. Temperature Cycling            | -55°C to +125°C dwelled for 30 min.<br>and transferred for 5min. total 10 cycles.                                 | MIL-STD-750D<br>METHOD-1051   |
| 10. Forward Surge                 | 8.3ms single half sine-wave one surge.  | MIL-STD-750D<br>METHOD-4066-2 |
| 11. Humidity                      | at $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.   | MIL-STD-750D<br>METHOD-1021   |
| 12. High Temperature Storage Life | at 175°C for 1000 hrs.  | MIL-STD-750D<br>METHOD-1031   |