NextGen Components,Inc.

# PART CODE: SOD323007WSSD7

## SPECIFICATION SHEET

| | |
|---|---|
| **SPECIFICATION SHEET NO.** | N0929- SOD323007WSSD7 |
| **DATE** | Sept. 29, 2021 |
| **REVISION** | A0 |
| **DESCRIPITION** | SMD General Purpose Silicon Rectifier, SOD-323 series,<br>1N4007WS Type, 2 Pads<br>Reverse Voltage 1000V Max. Forward Current 1.0A Max.<br>Operating Temp. Range -55°C ~+150°C<br>Package in Tape/Reel, 3000pcs/Reel<br>RoHS/RoHS III compliant |
| **CUSTOMER** | |
| **CUSTOMER PART NUMBER** | |
| **CROSS REF. PART NUMBER** | |
| **ORIGINAL PART NUMBER** | MDD 1N4007WS |
| **PART CODE** | SOD323007WSSD7 |

| **VENDOR APPROVE** | | | |
|---|---|---|---|
| Issued/Checked/Approved |  |  |  |
| DATE: Sept. 29, 2021 | | | |

| **CUSTOMER APPROVE** |
|---|
| |
| DATE: |

NextGen Components,Inc.

# PART CODE: SOD323007WSSD7

## SMD GENERAL PURPOSE RECTIFER SOD323 SERIES

### MAIN FEATURE

- Glass passivated device
- Low reverse leakage
- Metallurgically bonded construction
- High temperature soldering guaranteed: 250℃/ 10 seconds at terminals

### APPLICATION

- For printed circuit board

### PART CODE GUIDE

RFQ
Request For Quotation

| SOD323 | 007WS | S | D7 |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

1) **SOD323**: SMD General Purpose Silicon Rectifier, SOD-323 series,

2) **4007**: Type Code for original part number 1N4007WS

3) **S**: Package code, Tape/reel, 3000pcs/reel.

4) **D7:** Marking code for "D7" on the case surface, Different Marking for different specification..

### MORE ITEMS AVAILABLE

| | | | | |
|---|---|---|---|---|
| SOD323001WSSD1 | SOD323002WSSD2 | SOD323003WSSD3 | SOD323004WSSD4 | SOD323005WSSD5 |
| SOD323006WSSD6 | **SOD323007WSSD7** | | | |

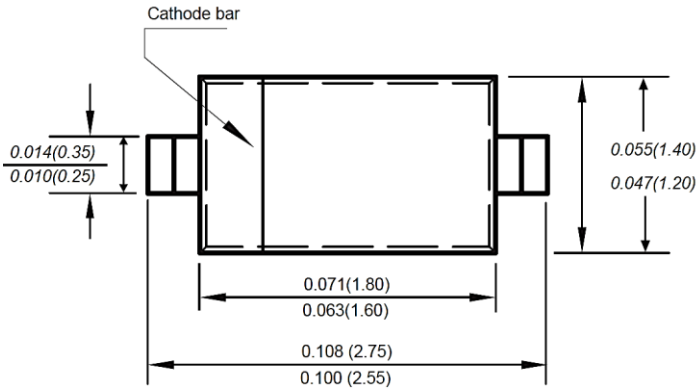
# SMD GENERAL PURPOSE RECTIFER SOD323 SERIES

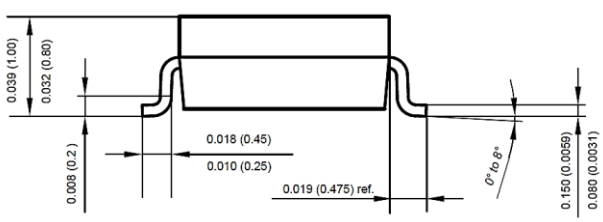
## DIMENSION (Unit: Inch/mm)

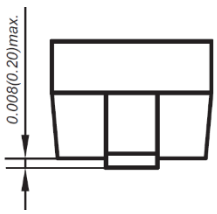
**Image for reference**

**Marking: D7**

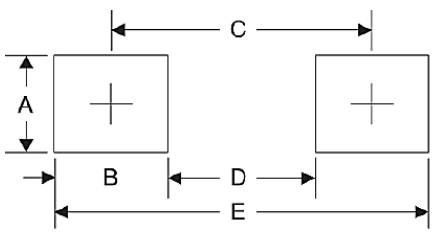
**SOD-323**




**Recommend Pad Layout**




| Symbol | Unit (inch) | Unit (mm) |
|---|---|---|
| A | 0.047 | 1.2 |
| B | 0.047 | 1.2 |
| C | 0.102 | 2.6 |
| D | 0.055 | 1.4 |
| E | 0.149 | 3.8 |

# SMD GENERAL PURPOSE RECTIFER SOD323 SERIES

## MECHANICAL DATA

| Case | Terminals | Polarity | Mounting Position | Weight per piece |
|---|---|---|---|---|
| JEDEC SOD-323 molded plastic body | Solder plated, Solderable per MIL-STD-750, Method 2026 | Polarity symbol marking on case | Any | 0.00019 Ounce, 0.00548 grams |

## MAX. RATING & CHARACTERISTICS

| Parameter | | SYMBOLS | VALUE | | | UNITS |
|---|---|---|---|---|---|---|
| | | | Min. | Typical | Max. | |
| **Repetitive peak reverse voltage** | | $V_{RRM}$ | | | 1000 | Volts |
| **RMS voltage** | | $V_{RMS}$ | | | 700 | Volts |
| **DC blocking voltage** | | $V_{DC}$ | | | 1000 | Volts |
| **Average forward output rectified current** | | $I_{AV}$ | | | 1.0 | A |
| **Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)** | | $I_{FSM}$ | | | 25 | A |
| **Instantaneous forward voltage at 1.0A** | | $V_F$ | | | 1.1 | Volts |
| **DC reverse current at rated DC blocking voltage** | **TA=25℃** | $I_R$ | | | 5.0 | μA |
| | **TA=125℃** | | | | 50 | μA |
| **Junction capacitance (Note 3)** | | $C_J$ | | 5 | | pF |
| **Thermal resistance (Note 4)** | | $R_{\theta JA}$ | | 55.0 | | °C/W |
| **Operating junction temperature range** | | $T_J$ | -55 | | +150 | °C |
| **Storage temperature range** | | $T_{STG}$ | -55 | | +150 | °C |

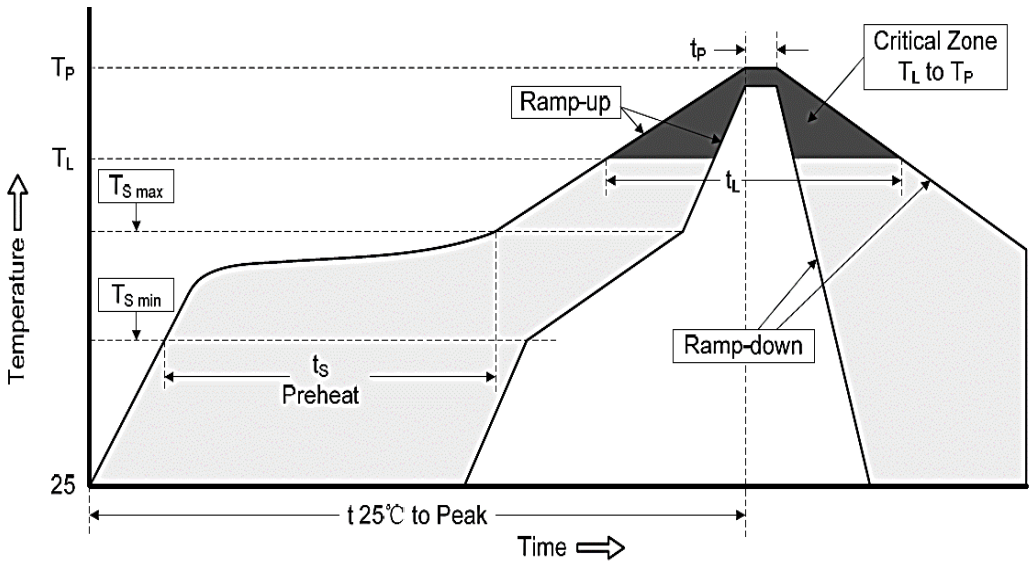
Note

1. 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%.
2. Reverse recovery condition IF=0.5A,IR=1.0A,Irr=0.25A
3. Measured at 1.0MHz and applied reverse voltage of 4.0Voltage
4. P.C.B. mounted with 0.2x0.2”(5.0x5.0mm) copper pad areas.

## RELIABILITY

| Number | Experiment Items | Experiment Method And Conditions | Reference Documents |
|---|---|---|---|
| 1 | Solder Resistance Test | Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32" | MIL-STD-750D METHOD-2031.2 |
| 2 | Solderability Test | 230°C ±5°C for 5 sec. | MIL-STD-750D METHOD-2026.1 0 |
| 3 | Pull Test | 1 kg in axial lead direction for 10 sec. | MIL-STD-750D METHOD-2036.4 |
| 4 | Bend Test | 0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times | MIL-STD-750D METHOD-2036.4 |
| 5 | High Temperature Reverse Bias Test | $T_A$=100°C for 1000 Hours at $V_R$=80% Rated $V_R$ | MIL-STD-750D METHOD-1038.4 |
| 6 | Forward Operation Life Test | TA=25°C Rated Average Rectified Current | MIL-STD-750D METHOD-1027.3 |
| 7 | Intermittent Operation Life Test | On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles. | MIL-STD-750D METHOD-1036.3 |
| 8 | Pressure Cooker Test | 15 PSIG, $T_A$=121°C, 4 hours | MIL-S-19500 APPENOIXC |
| 9 | Temperature Cycling Test | -55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles. | MIL-STD-750D METHOD-1051.7 |
| 10 | Thermal Shock Test | 0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles | MIL-STD-750D METHOD-1056.7 |
| 11 | Forward Surge Test | 8.3ms Single Sale Sine-wave One Surge. | MIL-STD-750D METHOD-4066.4 |
| 12 | Humidity Test | $T_A$=65°C, RH=98% for 1000 hours. | MIL-STD-750D METHOD-1021.3 |
| 13 | High Temperature Storage life Test | 150°C for 1000 Hours | MIL-STD-750D METHOD-1031.5 |

## SUGGESTED REFLOW PROFILE (For Reference Only)




| | | |
|---|---|---|
| **Profile Feature** | | Pb-Free Assembly |
| **Average Ramp-up Rate (Ts Max to Tp)** | | 3℃/second Max |
| **Preheat** | **Temperature Min (Ts Min.)** | 150℃ |
| | **Temperature Max (Ts Max.)** | 200℃ |
| | **Time (ts Min. to ts Max.)** | 60 ~ 180 seconds |
| **Time maintained above** | **Temperature (TL)** | 217℃ |
| | **Time (tL)** | 60 ~ 150 seconds |
| **Peak/Classification Temperature (Tp)** | | 260 ℃ |
| **Time within 5℃ of actual Peak Temperature (tp)** | | 20 ~ 40 seconds |
| **Ramp-down rate** | | 6 ℃ /Second Max. |
| **Time 25 ℃ to Peak Temperature** | | 8 minutes Max. |
| **Suggest reflow times** | | 3 Times Max. |

## RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

Fig.1 Forward Current Derating Curve

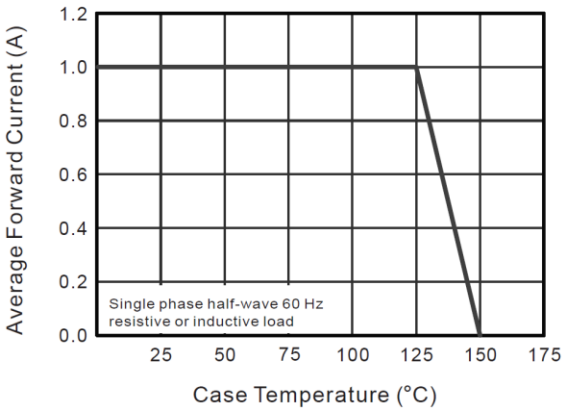



Fig.2 Typical Instaneous Reverse Characteristics

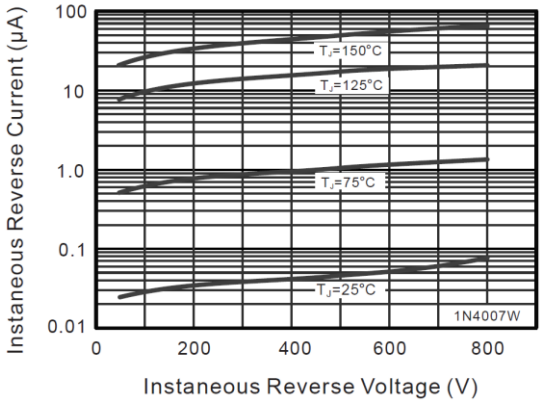



Fig.3 Typical Forward Characteristic

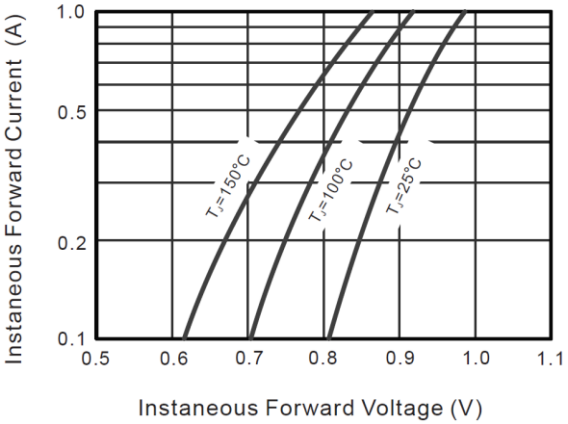



Fig.4 Typical Junction Capacitance

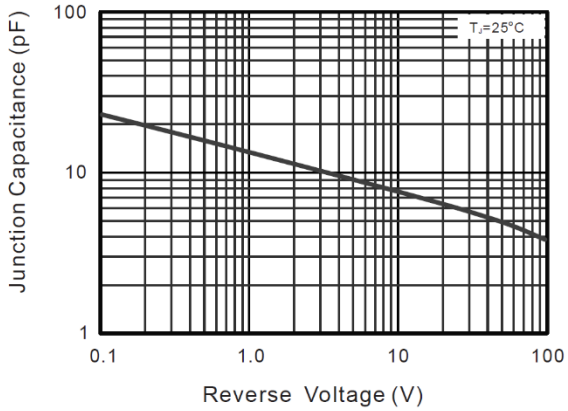
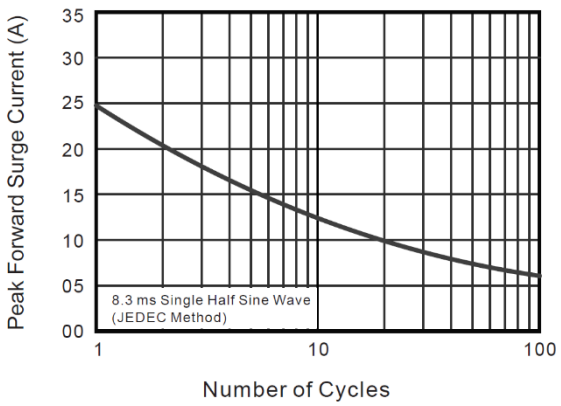
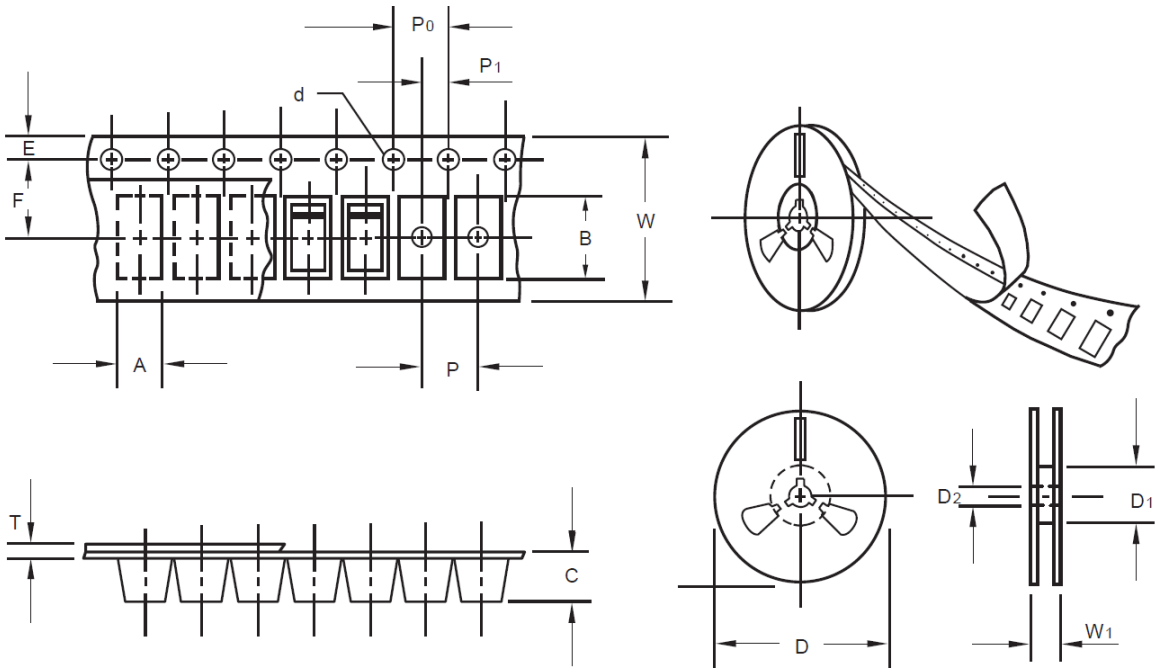



Fig.5 Maximum Non-Repetitive Peak Forward Surae Current



## TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and specifications.




| Item | Symbol | Tolerance | SO-323 |
|---|---|---|---|
| Carrier width | A | 0.1 | 1.46 |
| Carrier Length | B | 0.1 | 2.90 |
| Carrier Depth | C | 0.1 | 1.25 |
| Sprocket hole | d | 0.05 | 1.55 |
| 7”Reel outside diameter | D | 2.0 | 178.00 |
| 7”Reel inner diameter | D1 | Min. | 50.00 |
| Feed hole diameter | D2 | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P0 | 0.1 | 4.00 |
| Embossment center | P1 | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.06 |
| Tape width | W | 0.3 | 8.00 |
| Reel width | W1 | 1.0 | 12.30 |

## SPQ PACKAGE for Reference

| Item | Unit | Value |
|---|---|---|
| Case Code | | SOD-323 |
| Reel Size | Inch | 7 |
| Reel Size | mm | 178 |
| Tape Space | mm | / |
| SPQ /Reel | pcs | 3000 |
| Weigh /SPQ | LBs | 0.88 |
| Weigh /SPQ | KGs | 0.40 |
| Qty. Per Box | pcs | 6,000 |
| Inner Box | Inch | L8.0*W8.0*H1.5 |