NextGen Components,Inc.

# PART CODE: SMAFSS16F0S106

## SPECIFICATION SHEET

| | |
|---|---|
| **SPECIFICATION SHEET NO.** | P1105- SMAFSS16F0S106 |
| **DATE** | Nov. 05, 2022 |
| **REVISION** | A1 |
| **DESCRIPITION** | SMD High Efficiency Rectifier, 2 Pads, SMAF series, SS16F Type<br>Reverse Voltage 60V Max. Forward Current 1.0A Max.<br>Operating Temp. Range -50°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 SS16F |
| **PART CODE** | SMAFSS16F0S106 |

| **VENDOR APPROVE** |
|---|
| Issued/Checked/Approved<br>  <br>  <br>  |
| DATE: Nov. 05, 2022 |

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

11/5/2022

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## SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

### MAIN FEATURE

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Low reverse leakage
- Built-in strain relief,
- High forward surge current capability
- Ultra fast switching for high efficiency
- High temperature soldering guaranteed: 250℃/ 10 seconds at terminals

### APPLICATION

- For printed circuit board

**RFQ**
Request For Quotation

### PART CODE GUIDE

| SMAF | SS16F0 | S | 106 |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

1) **SMAF**: SMD High Efficiency Rectifier, 2 Pads, SMAF series

2) **SS16F0**: Type code for original part number SS16F

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

4) **106:** Specification code for Reverse Voltage 60V Max. Forward Current 1.0A Max.

### MORE ITEMS AVAILABLE

| | | | | |
|---|---|---|---|---|
| SMAFSS12F0S102 | SMAFSS13F0S103 | SMAFSS14F0S104 | SMAFSS15F0S105 | **SMAFSS16F0S106** |
| SMAFSS18F0S108 | SMAFSS110FS110 | SMAFSS1150S115 | SMAFSS1200S120 | |
| SMAFSS22F0S202 | SMAFSS23F0S203 | SMAFSS24F0S204 | SMAFSS25F0S205 | SMAFSS26F0S206 |
| SMAFSS28F0S208 | SMAFSS210FS210 | SMAFSS2150S215 | SMAFSS2200S220 | |
| SMAFSS32F0S302 | SMAFSS33F0S303 | SMAFSS34F0S304 | SMAFSS35F0S305 | SMAFSS36F0S306 |
| SMAFSS38F0S308 | SMAFSS310FS310 | SMAFSS3150S315 | SMAFSS3200S320 | |
| SMAFSS52F0S502 | SMAFSS53F0S503 | SMAFSS54F0S504 | SMAFSS55F0S505 | SMAFSS56F0S506 |
| SMAFSS58F0S508 | SMAFSS510FS510 | SMAFSS5150S515 | SMAFSS5200S520 | |

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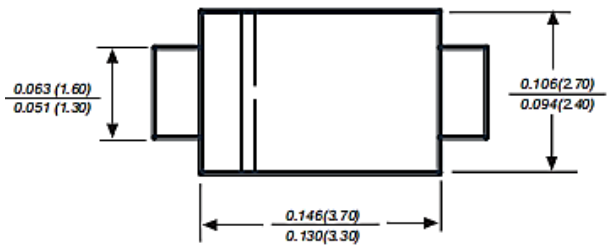
# SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

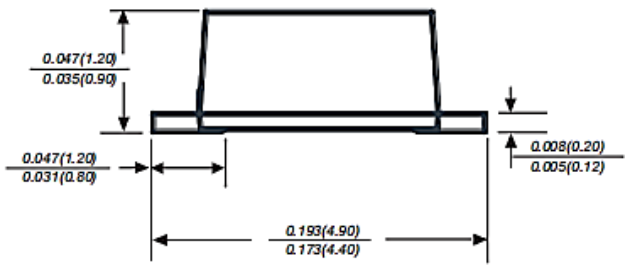
## DIMENSION (Unit: Inch/mm)

**Image for reference**

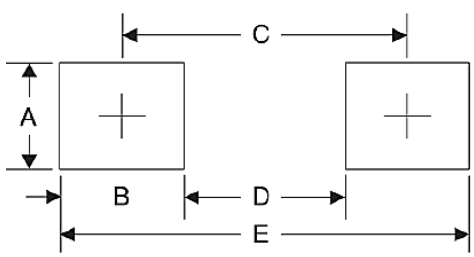
**Marking: SS16F**

**SMAF**




**Recommend Pad Layout**




| Symbol | Unit (Inch) | Unit (mm) |
|---|---|---|
| A | 0.071 | 1.80 |
| B | 0.063 | 1.60 |
| C | 0.150 | 3.80 |
| D | 0.087 | 2.21 |
| E | 0.213 | 5.40 |

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# SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

## MECHANICAL DATA

| Case | Terminals | Polarity | Mounting Position | Weight per piece |
|---|---|---|---|---|
| JEDEC SMAF molded plastic body | Solder plated, Solderable per MIL-STD-750, Method 2026 | Color band denotes cathode end | Any | 0.00095 Ounce, 0.027 grams |

## MAX. RATING & CHARACTERISTICS

| Parameter | | SYMBOLS | VALUE | | | UNITS |
|---|---|---|---|---|---|---|
| | | | Min. | Typical | Max. | |
| **Repetitive peak reverse voltage** | | $V_{RRM}$ | | | 60 | Volts |
| **RMS voltage** | | $V_{RMS}$ | | | 42 | Volts |
| **DC blocking voltage** | | $V_{DC}$ | | | 60 | Volts |
| **Average forward output rectified current at TL= 55°C** | | $I_{AV}$ | | | 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** | | $V_F$ | | | 0.70 | Volts |
| **DC reverse current at rated DC blocking voltage** | **TA=25℃** | $I_R$ | | | 0.3 | mA |
| | **TA=100℃** | | | | 10.0 | |
| **Junction capacitance (Note 3)** | | $C_J$ | | 80 | | pF |
| **Thermal resistance (Note 4)** | | $R_{QJA}$ | | 95 | | °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 2.0x2.0”(5.0x5.0cm) copper pad areas.

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# SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

## 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 |

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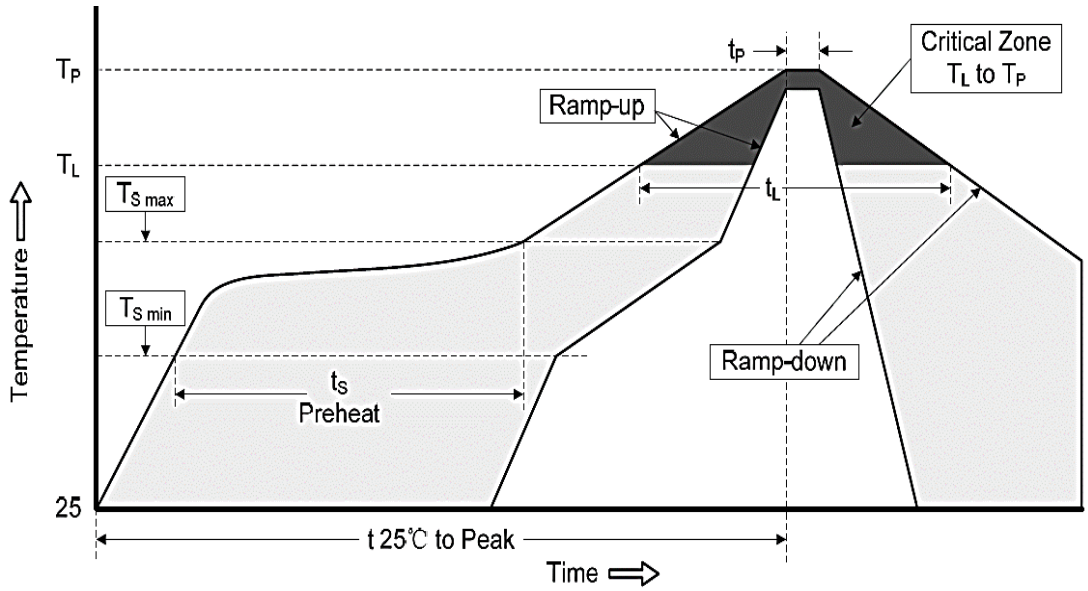
**SUGGESTED REFLOW PROFILE (For Reference Only)**




| | | |
|---|---|---|
| **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

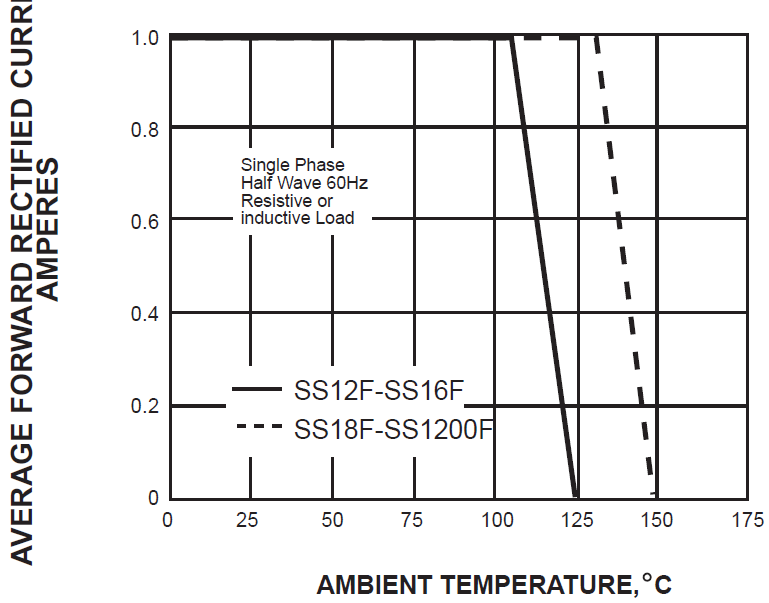
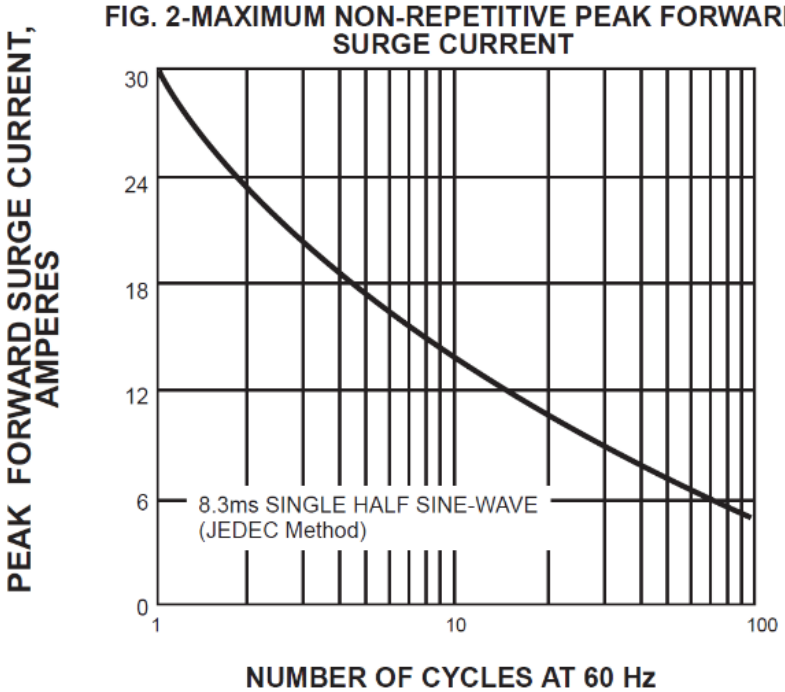



FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



**RATINGS AND CHARACTERISTIC CURVES (For Reference Only)**

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

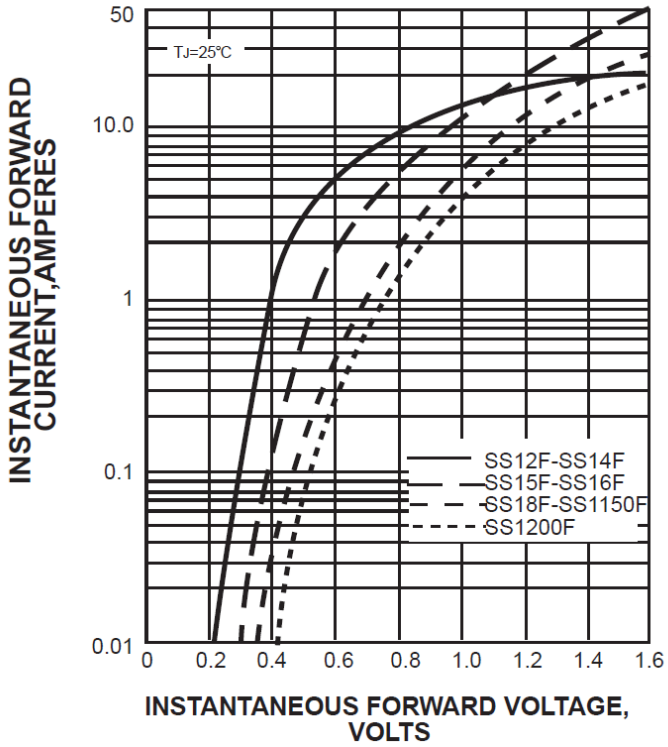
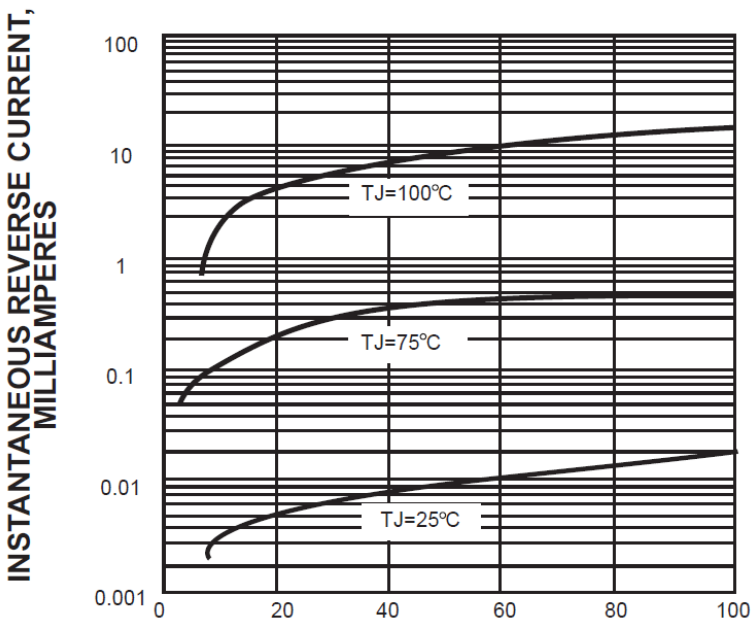



FIG. 4-TYPICAL REVERSE CHARACTERISTICS



**RATINGS AND CHARACTERISTIC CURVES (For Reference Only)**

FIG. 5-TYPICAL JUNCTION CAPACITANCE

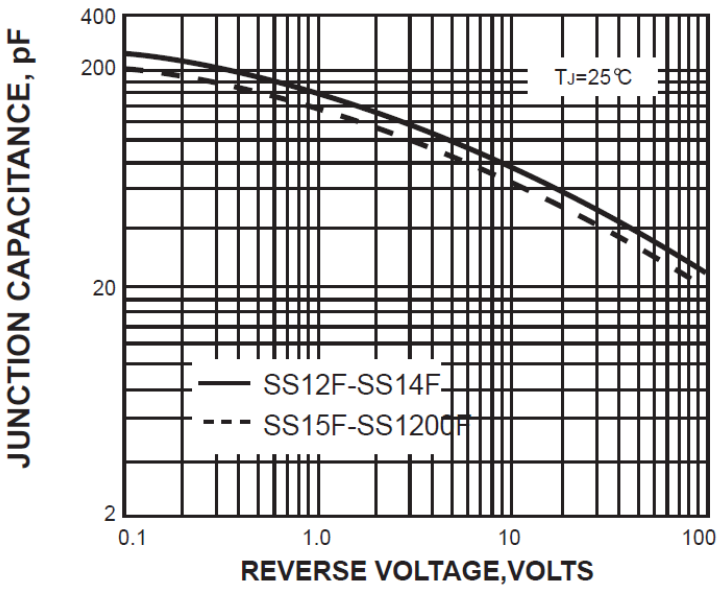
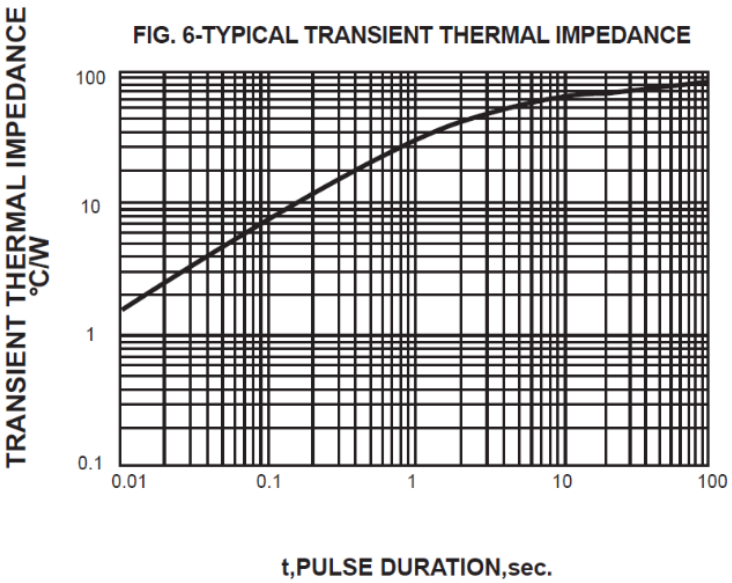



FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



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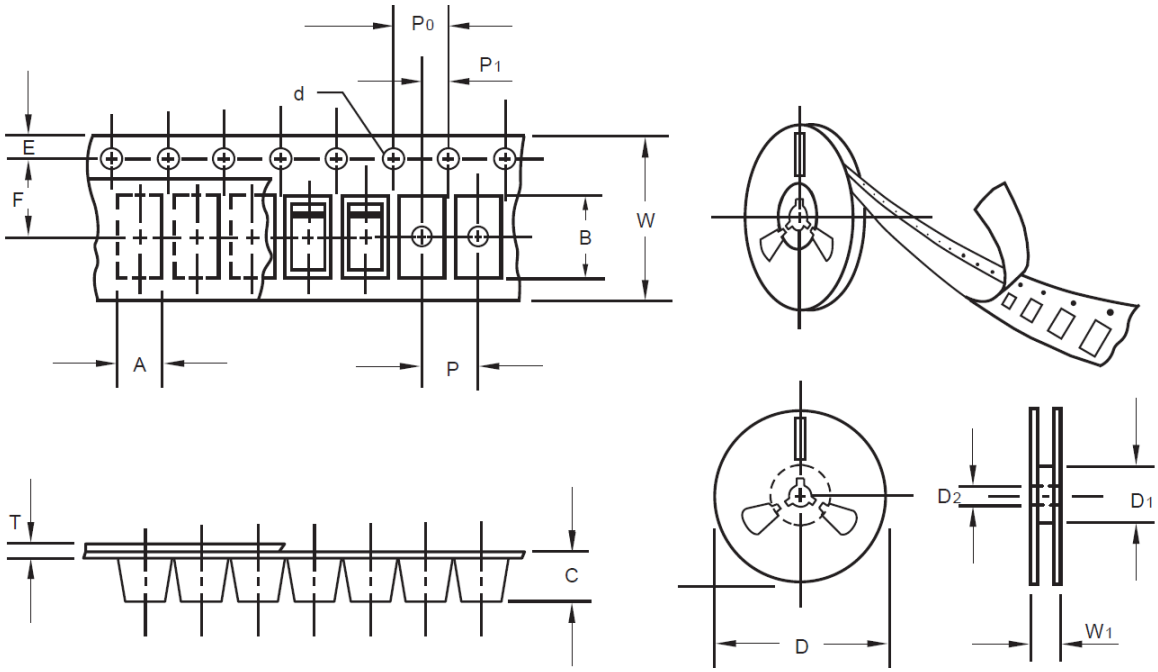
## TAPE/REEL (Unit: mm)

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




| Item | Symbol | Tolerance | SMAF |
|---|---|---|---|
| **Carrier width** | A | 0.1 | 2.80 |
| **Carrier Length** | B | 0.1 | 4.75 |
| **Carrier Depth** | C | 0.1 | 1.42 |
| **Sprocket hole** | d | 0.05 | 1.50 |
| **7”Reel outside diameter** | D | 2.0 | 178.00 |
| **7”Reel inner diameter** | D1 | Min. | 54.40 |
| **Feed hole diameter** | D2 | 0.5 | 13.00 |
| **Sprocket hole position** | E | 0.1 | 1.75 |
| **Punch hole position** | F | 0.1 | 5.05 |
| **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 | 0.30 |
| **Tape width** | W | 0.3 | 8.00 |
| **Reel width** | W1 | 1.0 | 12.30 |

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# SMD HIGH EFFICIENCY RECTIFIER SMAF SERIES

## PACKAGE For Reference

| Case Code | SMAF |
|---|---|
| Reel Size | 7” |
| Reel Size | 178 mm |
| MPQ/Reel | 3000 pcs |
| Qty. /Box | 6000 pcs |
| G.W/Box | 1 lbs |

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