




SPECIFICATION SHEET

| | |
|--------------------------------|---|
| SPECIFICATION SHEET NO. | N1230- SMAFSS54000S54 |
| DATE | Dec. 30, 2021 |
| REVISION | A0 |
| DESCRIPTION | SMD Schottky Barrier Rectifier, 2 Pads, SMAF series, SS54F Type Reverse Voltage 40V Max. Forward Current 5.0A Max. Operating Temp. Range -50°C ~+125°C Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant |
| CUSTOMER | |
| CUSTOMER PART NUMBER | |
| CROSS REF. PART NUMBER | |
| ORIGINAL PART NUMBER | MDD SS54F |
| PART CODE | SMAFSS54000S54 |

| | | | |
|-------------------------|---|--|---|
| VENDOR APPROVE | | | |
| Issued/Checked/Approved |  |  |  |
| DATE: Dec. 30, 2021 | | | |

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

1/4/2022

SMD SCHOTTKY BARRIER RECTIFIER SMAF SERIES

MAIN FEATURE

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Low power loss and high efficiency
- Built-in strain relief,
- High forward surge current capability
- Metal silicon junction, majority carrier conduction
- High temperature soldering guaranteed: 260°C/ 10 seconds at terminals



APPLICATION

- For surface mounted applications

RFQ

[Request For Quotation](#)

PART CODE GUIDE

| SMAF | SS54000 | S | 54 |
|------|---------|---|----|
| 1 | 2 | 3 | 4 |

- 1) **SMAF**: SMD Schottky Barrier Rectifier, 2 Pads, SMAF series,
- 2) **SS54000**: Type code for original part number SS54
- 3) **S**: Package code, Tape/reel, 3000pcs/reel.
- 4) **54**: Specification code for. Forward Current 5.0A Max, Reverse Voltage 40V Max.

SMD SCHOTTKY BARRIER RECTIFIER SMAF SERIES

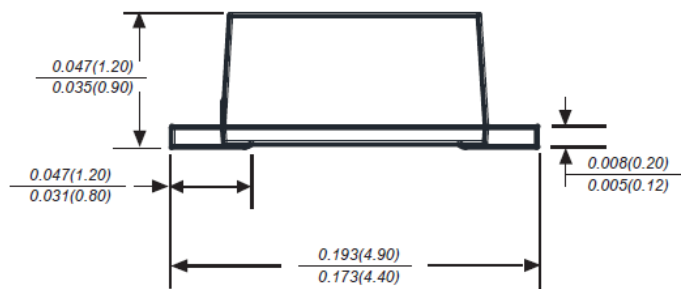
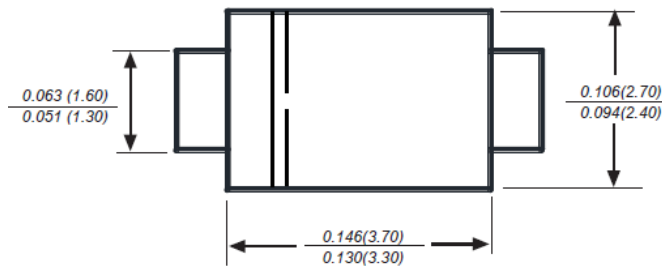
DIMENSION (Unit: Inch/mm)

Image for reference

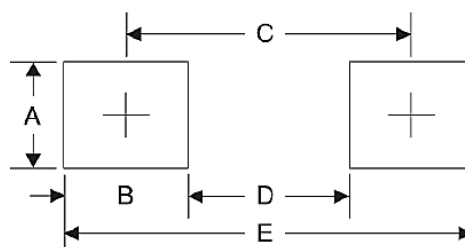


Marking: SS54F

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 |

SMD SCHOTTKY BARRIER 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 | 0.0018 Ounce, 0.0640 grams |

MAX. RATING & CHARACTERISTICS

| Parameter | SYMBOLS | VALUE | | | UNITS |
|--|------------------|-------|---------|------|-------|
| | | Min. | Typical | Max. | |
| Repetitive peak reverse voltage | V _{RRM} | | | 40 | Volts |
| RMS voltage | V _{RMS} | | | 28 | Volts |
| DC blocking voltage | V _{DC} | | | 40 | Volts |
| Average forward output rectified current at TL(see fig.1) | I _{AV} | | | 5.0 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I _{FSM} | | 150 | | A |
| Instantaneous forward voltage at 5.0A | V _F | | | 0.55 | Volts |
| DC reverse current at rated DC blocking voltage | I _R | | | 0.50 | mA |
| | | | | 20.0 | mA |
| Junction capacitance (Note 2) | C _J | | 200 | | pF |
| Thermal resistance (Note 3) | R _{θJA} | | 50 | | °C/W |
| | R _{θJC} | | - | | |
| Operating junction temperature range | T _J | -55 | | +125 | °C |
| Storage temperature range | T _{STG} | -55 | | +150 | °C |

Note

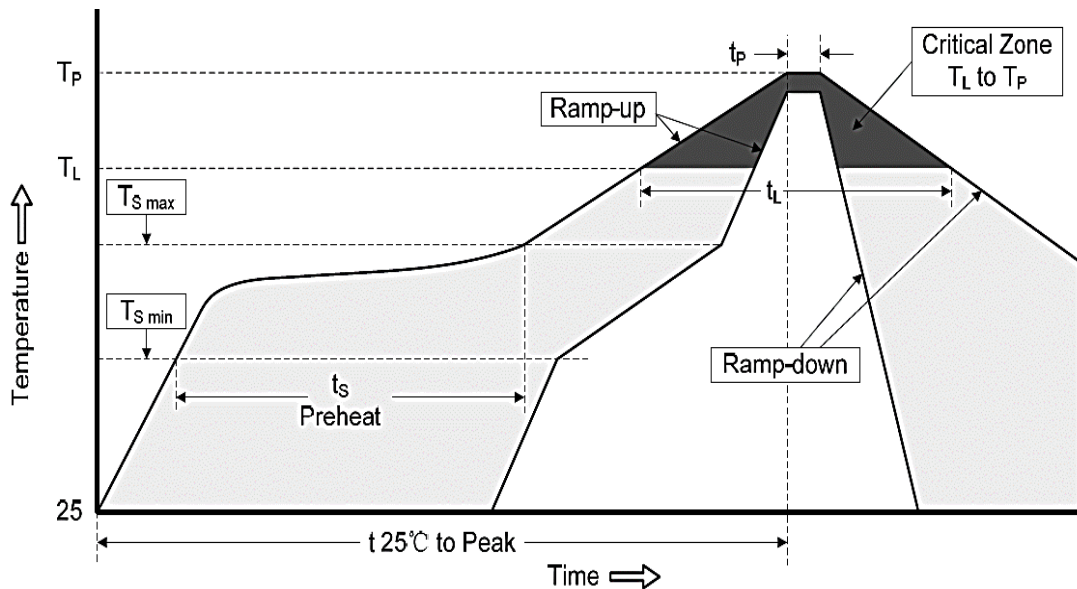
1. Ratings at 25 C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.
2. Measured at 1.0MHz and applied reverse voltage of 4.0Voltage
3. P.C.B. mounted with 0.2x0.2”(5.0x5.0mm) copper pad areas.

SMD SCHOTTKY BARRIER 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 | TA=100°C for 1000 Hours at VR=80% Rated VR | 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, TA=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 | TA=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 |

SMD SCHOTTKY BARRIER RECTIFIER SMAF SERIES

SUGGESTED REFLOW PROFILE (For Reference Only)

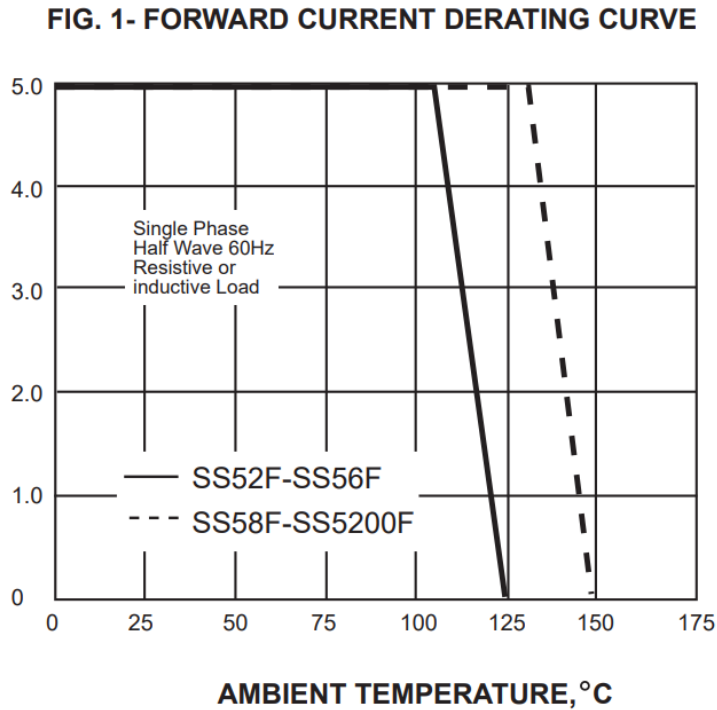


| | | |
|--|----------------------------------|-------------------|
| Profile Feature | | Pb-Free Assembly |
| Average Ramp-up Rate (Ts Max to Tp) | | 3°C/second Max |
| Preheat | Temperature Min (Ts Min.) | 150°C |
| | Temperature Max (Ts Max.) | 200°C |
| | Time (ts Min. to ts Max.) | 60 ~ 180 seconds |
| Time maintained above | Temperature (Tl) | 217°C |
| | Time (tL) | 60 ~ 150 seconds |
| Peak/Classification Temperature (Tp) | | 260 °C |
| Time within 5°C of actual Peak Temperature (tp) | | 10 seconds |
| Ramp-down rate | | 6 °C /Second Max. |
| Time 25 °C to Peak Temperature | | 6 minutes Max. |
| Suggest reflow times | | 3 Times Max. |

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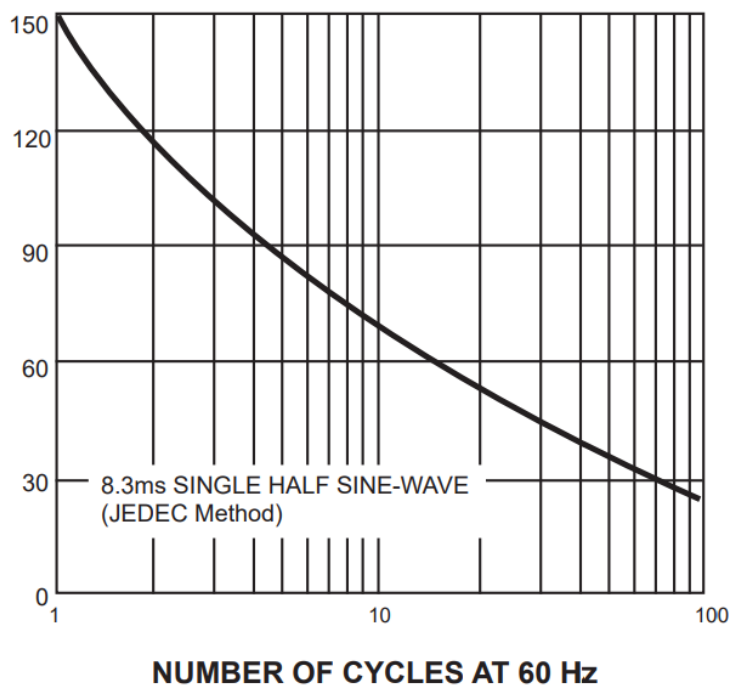
RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

**AVERAGE FORWARD RECTIFIED CURRENT,
AMPERES**



**PEAK FORWARD SURGE CURRENT,
AMPERES**

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



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RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

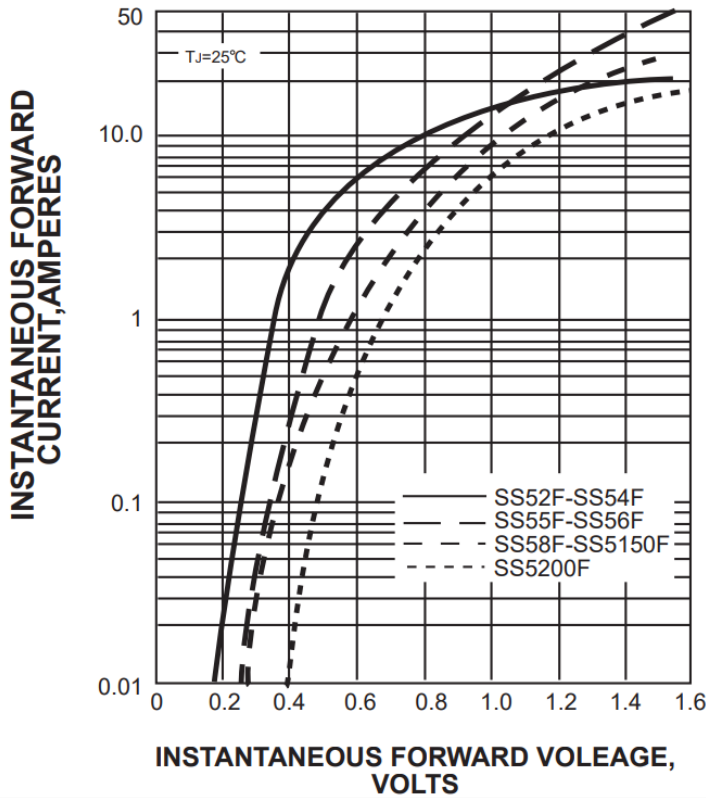
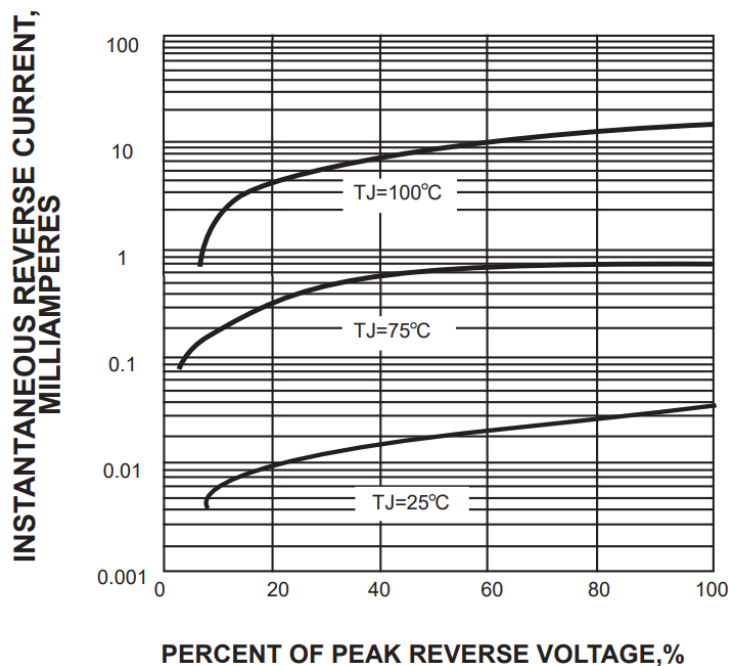


FIG. 4-TYPICAL REVERSE CHARACTERISTICS



SMD SCHOTTKY BARRIER RECTIFIER SMAF SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

FIG. 5-TYPICAL JUNCTION CAPACITANCE

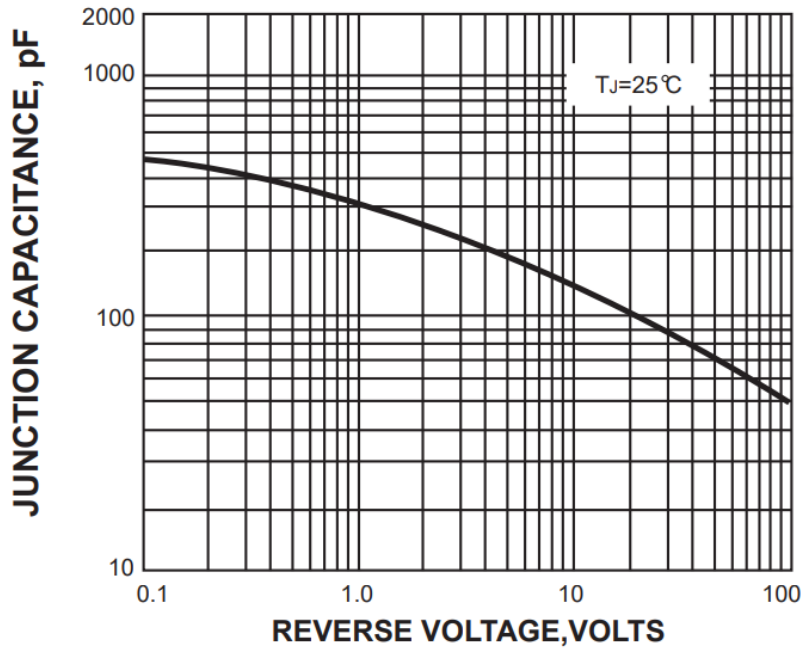
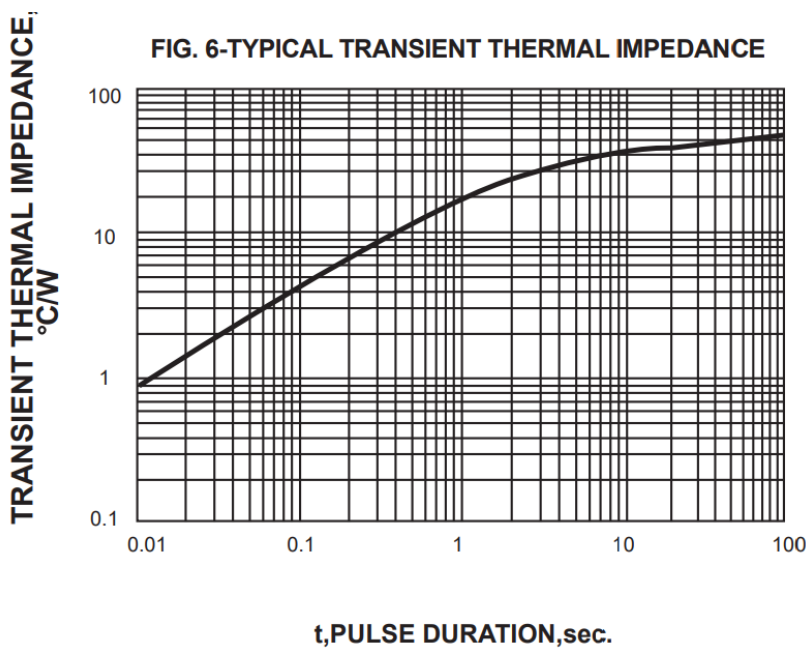


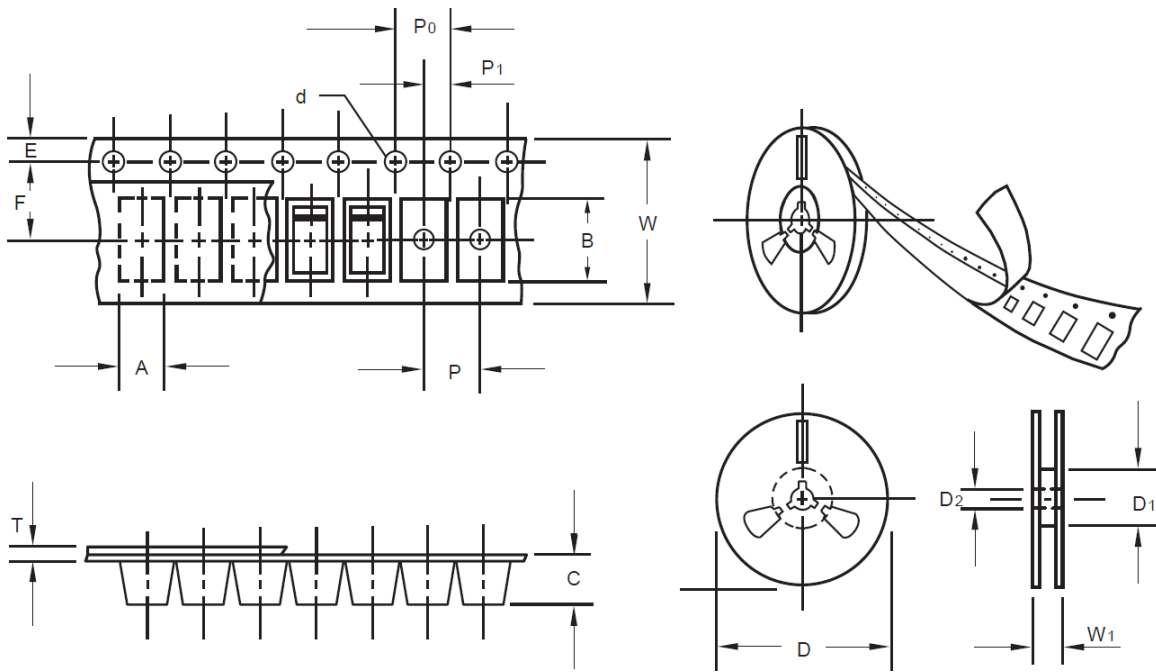
FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



SMD SCHOTTKY BARRIER RECTIFIER SMAF SERIES

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 |

SMD SCHOTTKY BARRIER 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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