

TEMPERATURE SWITCH IC (THERMOSTAT IC)

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Rev.2.6_01

The S-5844A Series is a temperature switch IC (thermostat IC) which detects the temperature with a temperature accuracy of $\pm 2.5^{\circ}\text{C}$. The output inverts when temperature reaches the detection temperature. The S-5844A Series restores the output voltage when the temperature drops to the level of release temperature.

The S-5844A Series operates at the lower power supply voltage of 1.65 V and its current consumption is 0.18 μA typ. due to CMOS configuration.

A temperature sensor with the negative temperature coefficient, a reference voltage generation circuit and a comparator are integrated on one chip, and enclosed into the packages SOT-23-5 and SNT-4A, and the super-small package HSNT-4 (1010).

■ Features

- Detection temperature: $T_{\text{DET}} = +50^{\circ}\text{C}$ to $+100^{\circ}\text{C}$, $+5^{\circ}\text{C}$ step, detection accuracy: $\pm 2.5^{\circ}\text{C}$
- Low voltage operation: $V_{\text{DD}} = 1.65 \text{ V min.}$
- Low current consumption: $I_{\text{DD}} = 0.18 \mu\text{A typ.}$ ($T_{\text{a}} = +25^{\circ}\text{C}$)
- Hysteresis temperature: selectable in 5°C , 10°C , 15°C or 20°C
- Selectable output logic in active "H" or active "L"
- Selectable output form in CMOS or Nch open-drain
- Operation temperature range: $T_{\text{a}} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
- Lead-free (Sn 100%), halogen-free

■ Applications

- Fan control
- Air conditioning system
- Mobile phone
- Game console
- Various electronic devices

■ Packages

- SOT-23-5
- SNT-4A
- HSNT-4 (1010)

■ Block Diagrams

1. CMOS output product

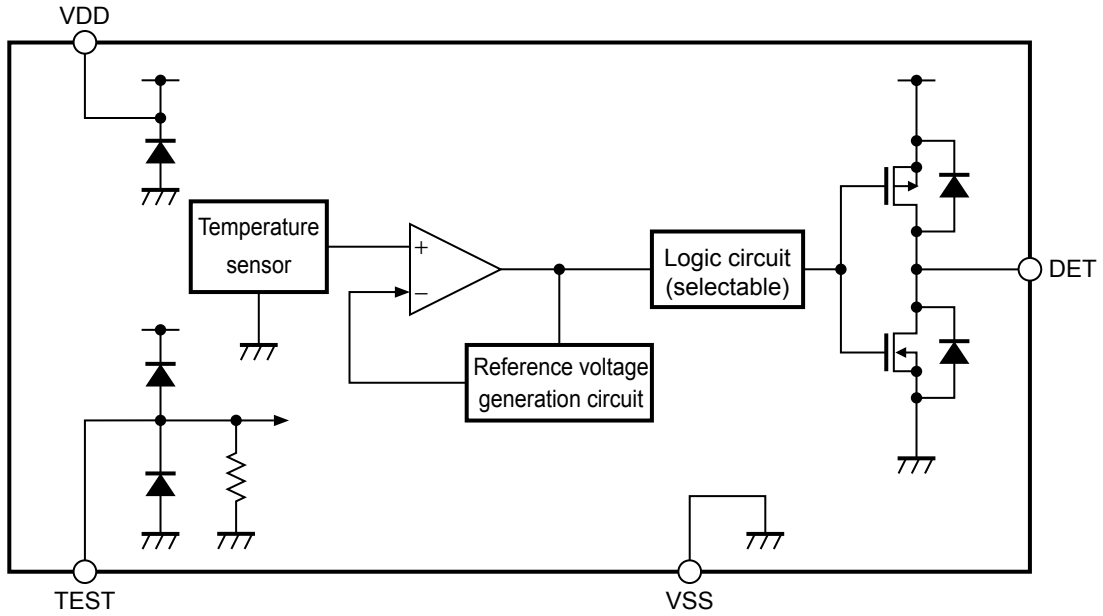


Figure 1

2. Nch open-drain output product

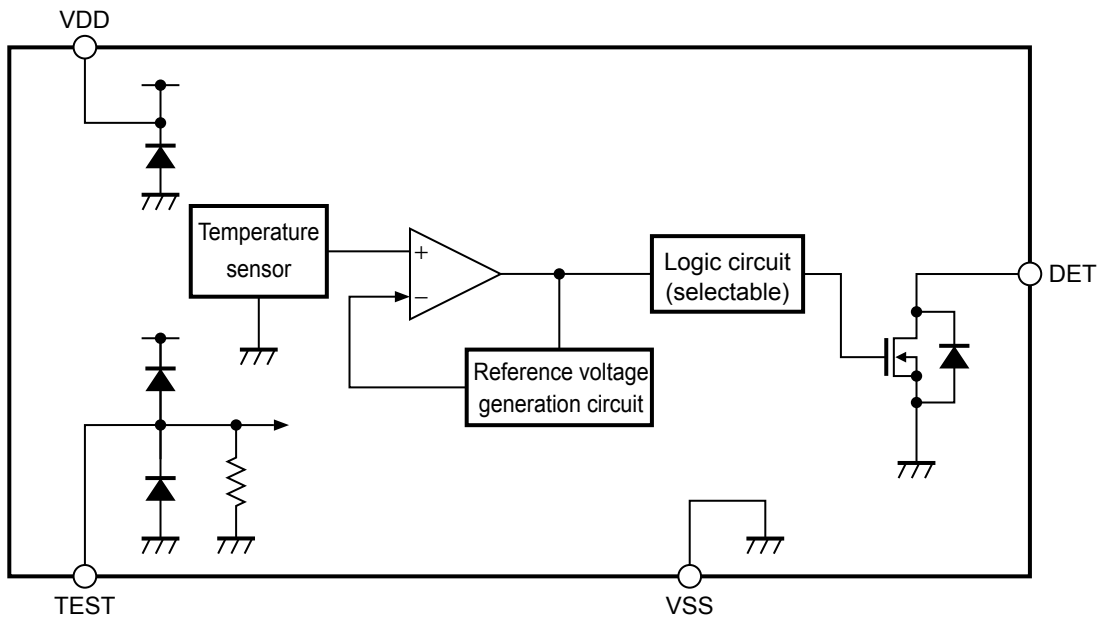
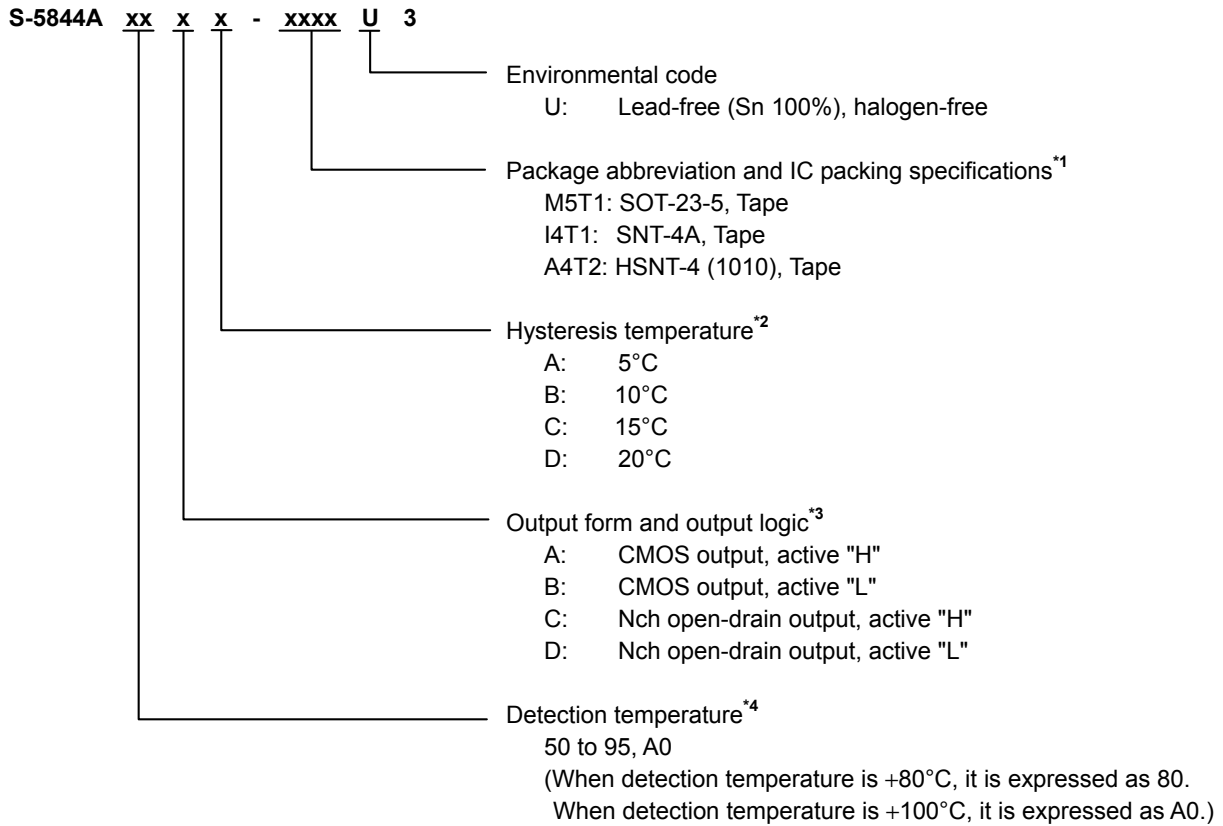


Figure 2

■ Product Name Structure

Users are able to select the detection temperature, output form and logic, hysteresis temperature, and package for the S-5844A Series.

1. Product name



- *1. Refer to the tape drawing.
- *2. The hysteresis temperature is selectable in 5°C, 10°C, 15°C, or 20°C.
However, if the detection temperature is +50°C, select the hysteresis temperature in 5°C or 10°C.
- *3. For the DET pin output, selectable the output logic active "H" or active "L".
For the DET pin output, selectable the output form CMOS or Nch open-drain.
- *4. Detection temperature (T_{DET}) is settable in +50°C to +100°C, in +5°C step.

2. Packages

Table 1 Package Drawing Codes

| Package Name | Dimension | Tape | Reel | Land |
|---------------|--------------|--------------|--------------|--------------|
| SOT-23-5 | MP005-A-P-SD | MP005-A-C-SD | MP005-A-R-SD | — |
| SNT-4A | PF004-A-P-SD | PF004-A-C-SD | PF004-A-R-SD | PF004-A-L-SD |
| HSNT-4 (1010) | PL004-A-P-SD | PL004-A-C-SD | PL004-A-R-SD | PL004-A-L-SD |

3. Product name list

3.1 SOT-23-5

Table 2

| Product Name | Detection Temperature (T _{DET}) | DET Pin Output Form | DET Pin Output Logic | Hysteresis Temperature (T _{HYS}) |
|--------------------|---|---------------------|----------------------|--|
| S-5844A50DB-M5T1U3 | +50°C | Nch open-drain | Active "L" | 10°C |
| S-5844A55CB-M5T1U3 | +55°C | Nch open-drain | Active "H" | 10°C |
| S-5844A55CC-M5T1U3 | +55°C | Nch open-drain | Active "H" | 15°C |
| S-5844A55CD-M5T1U3 | +55°C | Nch open-drain | Active "H" | 20°C |
| S-5844A55DB-M5T1U3 | +55°C | Nch open-drain | Active "L" | 10°C |
| S-5844A60CB-M5T1U3 | +60°C | Nch open-drain | Active "H" | 10°C |
| S-5844A60CC-M5T1U3 | +60°C | Nch open-drain | Active "H" | 15°C |
| S-5844A60CD-M5T1U3 | +60°C | Nch open-drain | Active "H" | 20°C |
| S-5844A60DB-M5T1U3 | +60°C | Nch open-drain | Active "L" | 10°C |
| S-5844A65CB-M5T1U3 | +65°C | Nch open-drain | Active "H" | 10°C |
| S-5844A65CC-M5T1U3 | +65°C | Nch open-drain | Active "H" | 15°C |
| S-5844A65CD-M5T1U3 | +65°C | Nch open-drain | Active "H" | 20°C |
| S-5844A65DA-M5T1U3 | +65°C | Nch open-drain | Active "L" | 5°C |
| S-5844A65DB-M5T1U3 | +65°C | Nch open-drain | Active "L" | 10°C |
| S-5844A70CB-M5T1U3 | +70°C | Nch open-drain | Active "H" | 10°C |
| S-5844A70CC-M5T1U3 | +70°C | Nch open-drain | Active "H" | 15°C |
| S-5844A70CD-M5T1U3 | +70°C | Nch open-drain | Active "H" | 20°C |
| S-5844A70DB-M5T1U3 | +70°C | Nch open-drain | Active "L" | 10°C |
| S-5844A75CB-M5T1U3 | +75°C | Nch open-drain | Active "H" | 10°C |
| S-5844A75CC-M5T1U3 | +75°C | Nch open-drain | Active "H" | 15°C |
| S-5844A75CD-M5T1U3 | +75°C | Nch open-drain | Active "H" | 20°C |
| S-5844A75DB-M5T1U3 | +75°C | Nch open-drain | Active "L" | 10°C |
| S-5844A80CB-M5T1U3 | +80°C | Nch open-drain | Active "H" | 10°C |
| S-5844A80CC-M5T1U3 | +80°C | Nch open-drain | Active "H" | 15°C |
| S-5844A80CD-M5T1U3 | +80°C | Nch open-drain | Active "H" | 20°C |
| S-5844A80DB-M5T1U3 | +80°C | Nch open-drain | Active "L" | 10°C |
| S-5844A85CB-M5T1U3 | +85°C | Nch open-drain | Active "H" | 10°C |
| S-5844A85CC-M5T1U3 | +85°C | Nch open-drain | Active "H" | 15°C |
| S-5844A85CD-M5T1U3 | +85°C | Nch open-drain | Active "H" | 20°C |
| S-5844A85DB-M5T1U3 | +85°C | Nch open-drain | Active "L" | 10°C |
| S-5844A90CB-M5T1U3 | +90°C | Nch open-drain | Active "H" | 10°C |
| S-5844A90CC-M5T1U3 | +90°C | Nch open-drain | Active "H" | 15°C |
| S-5844A90CD-M5T1U3 | +90°C | Nch open-drain | Active "H" | 20°C |
| S-5844A90DB-M5T1U3 | +90°C | Nch open-drain | Active "L" | 10°C |
| S-5844A95CB-M5T1U3 | +95°C | Nch open-drain | Active "H" | 10°C |
| S-5844A95CC-M5T1U3 | +95°C | Nch open-drain | Active "H" | 15°C |
| S-5844A95CD-M5T1U3 | +95°C | Nch open-drain | Active "H" | 20°C |
| S-5844A95DB-M5T1U3 | +95°C | Nch open-drain | Active "L" | 10°C |

Remark Please contact our sales office for products with specifications other than the above.

TEMPERATURE SWITCH IC (THERMOSTAT IC)
S-5844A Series

Rev.2.6_01

3.2 SNT-4A

Table 3

| Product Name | Detection Temperature (T _{DET}) | DET Pin Output Form | DET Pin Output Logic | Hysteresis Temperature (T _{HYS}) |
|--------------------|---|---------------------|----------------------|--|
| S-5844A50DB-I4T1U3 | +50°C | Nch open-drain | Active "L" | 10°C |
| S-5844A55CB-I4T1U3 | +55°C | Nch open-drain | Active "H" | 10°C |
| S-5844A55CC-I4T1U3 | +55°C | Nch open-drain | Active "H" | 15°C |
| S-5844A55CD-I4T1U3 | +55°C | Nch open-drain | Active "H" | 20°C |
| S-5844A55DB-I4T1U3 | +55°C | Nch open-drain | Active "L" | 10°C |
| S-5844A60CB-I4T1U3 | +60°C | Nch open-drain | Active "H" | 10°C |
| S-5844A60CC-I4T1U3 | +60°C | Nch open-drain | Active "H" | 15°C |
| S-5844A60CD-I4T1U3 | +60°C | Nch open-drain | Active "H" | 20°C |
| S-5844A60DB-I4T1U3 | +60°C | Nch open-drain | Active "L" | 10°C |
| S-5844A65CB-I4T1U3 | +65°C | Nch open-drain | Active "H" | 10°C |
| S-5844A65CC-I4T1U3 | +65°C | Nch open-drain | Active "H" | 15°C |
| S-5844A65CD-I4T1U3 | +65°C | Nch open-drain | Active "H" | 20°C |
| S-5844A65DB-I4T1U3 | +65°C | Nch open-drain | Active "L" | 10°C |
| S-5844A70CB-I4T1U3 | +70°C | Nch open-drain | Active "H" | 10°C |
| S-5844A70CC-I4T1U3 | +70°C | Nch open-drain | Active "H" | 15°C |
| S-5844A70CD-I4T1U3 | +70°C | Nch open-drain | Active "H" | 20°C |
| S-5844A70DB-I4T1U3 | +70°C | Nch open-drain | Active "L" | 10°C |
| S-5844A75CB-I4T1U3 | +75°C | Nch open-drain | Active "H" | 10°C |
| S-5844A75CC-I4T1U3 | +75°C | Nch open-drain | Active "H" | 15°C |
| S-5844A75CD-I4T1U3 | +75°C | Nch open-drain | Active "H" | 20°C |
| S-5844A75DB-I4T1U3 | +75°C | Nch open-drain | Active "L" | 10°C |
| S-5844A80CB-I4T1U3 | +80°C | Nch open-drain | Active "H" | 10°C |
| S-5844A80CC-I4T1U3 | +80°C | Nch open-drain | Active "H" | 15°C |
| S-5844A80CD-I4T1U3 | +80°C | Nch open-drain | Active "H" | 20°C |
| S-5844A80DB-I4T1U3 | +80°C | Nch open-drain | Active "L" | 10°C |
| S-5844A85CB-I4T1U3 | +85°C | Nch open-drain | Active "H" | 10°C |
| S-5844A85CC-I4T1U3 | +85°C | Nch open-drain | Active "H" | 15°C |
| S-5844A85CD-I4T1U3 | +85°C | Nch open-drain | Active "H" | 20°C |
| S-5844A85DB-I4T1U3 | +85°C | Nch open-drain | Active "L" | 10°C |
| S-5844A90CB-I4T1U3 | +90°C | Nch open-drain | Active "H" | 10°C |
| S-5844A90CC-I4T1U3 | +90°C | Nch open-drain | Active "H" | 15°C |
| S-5844A90CD-I4T1U3 | +90°C | Nch open-drain | Active "H" | 20°C |
| S-5844A90DB-I4T1U3 | +90°C | Nch open-drain | Active "L" | 10°C |
| S-5844A95CB-I4T1U3 | +95°C | Nch open-drain | Active "H" | 10°C |
| S-5844A95CC-I4T1U3 | +95°C | Nch open-drain | Active "H" | 15°C |
| S-5844A95CD-I4T1U3 | +95°C | Nch open-drain | Active "H" | 20°C |
| S-5844A95DB-I4T1U3 | +95°C | Nch open-drain | Active "L" | 10°C |

Remark Please contact our sales office for products with specifications other than the above.

3.3 HSNT-4 (1010)

Table 4

| Product Name | Detection Temperature (T _{DET}) | DET Pin Output Form | DET Pin Output Logic | Hysteresis Temperature (T _{HYS}) |
|--------------------|---|---------------------|----------------------|--|
| S-5844A50DB-A4T2U3 | +50°C | Nch open-drain | Active "L" | 10°C |
| S-5844A55CB-A4T2U3 | +55°C | Nch open-drain | Active "H" | 10°C |
| S-5844A55CC-A4T2U3 | +55°C | Nch open-drain | Active "H" | 15°C |
| S-5844A55CD-A4T2U3 | +55°C | Nch open-drain | Active "H" | 20°C |
| S-5844A55DB-A4T2U3 | +55°C | Nch open-drain | Active "L" | 10°C |
| S-5844A60CB-A4T2U3 | +60°C | Nch open-drain | Active "H" | 10°C |
| S-5844A60CC-A4T2U3 | +60°C | Nch open-drain | Active "H" | 15°C |
| S-5844A60CD-A4T2U3 | +60°C | Nch open-drain | Active "H" | 20°C |
| S-5844A60DB-A4T2U3 | +60°C | Nch open-drain | Active "L" | 10°C |
| S-5844A65CB-A4T2U3 | +65°C | Nch open-drain | Active "H" | 10°C |
| S-5844A65CC-A4T2U3 | +65°C | Nch open-drain | Active "H" | 15°C |
| S-5844A65CD-A4T2U3 | +65°C | Nch open-drain | Active "H" | 20°C |
| S-5844A65DB-A4T2U3 | +65°C | Nch open-drain | Active "L" | 10°C |
| S-5844A70CB-A4T2U3 | +70°C | Nch open-drain | Active "H" | 10°C |
| S-5844A70CC-A4T2U3 | +70°C | Nch open-drain | Active "H" | 15°C |
| S-5844A70CD-A4T2U3 | +70°C | Nch open-drain | Active "H" | 20°C |
| S-5844A70DB-A4T2U3 | +70°C | Nch open-drain | Active "L" | 10°C |
| S-5844A75CB-A4T2U3 | +75°C | Nch open-drain | Active "H" | 10°C |
| S-5844A75CC-A4T2U3 | +75°C | Nch open-drain | Active "H" | 15°C |
| S-5844A75CD-A4T2U3 | +75°C | Nch open-drain | Active "H" | 20°C |
| S-5844A75DB-A4T2U3 | +75°C | Nch open-drain | Active "L" | 10°C |
| S-5844A80CB-A4T2U3 | +80°C | Nch open-drain | Active "H" | 10°C |
| S-5844A80CC-A4T2U3 | +80°C | Nch open-drain | Active "H" | 15°C |
| S-5844A80CD-A4T2U3 | +80°C | Nch open-drain | Active "H" | 20°C |
| S-5844A80DB-A4T2U3 | +80°C | Nch open-drain | Active "L" | 10°C |
| S-5844A85CB-A4T2U3 | +85°C | Nch open-drain | Active "H" | 10°C |
| S-5844A85CC-A4T2U3 | +85°C | Nch open-drain | Active "H" | 15°C |
| S-5844A85CD-A4T2U3 | +85°C | Nch open-drain | Active "H" | 20°C |
| S-5844A85DB-A4T2U3 | +85°C | Nch open-drain | Active "L" | 10°C |
| S-5844A90CB-A4T2U3 | +90°C | Nch open-drain | Active "H" | 10°C |
| S-5844A90CC-A4T2U3 | +90°C | Nch open-drain | Active "H" | 15°C |
| S-5844A90CD-A4T2U3 | +90°C | Nch open-drain | Active "H" | 20°C |
| S-5844A90DB-A4T2U3 | +90°C | Nch open-drain | Active "L" | 10°C |
| S-5844A95CB-A4T2U3 | +95°C | Nch open-drain | Active "H" | 10°C |
| S-5844A95CC-A4T2U3 | +95°C | Nch open-drain | Active "H" | 15°C |
| S-5844A95CD-A4T2U3 | +95°C | Nch open-drain | Active "H" | 20°C |
| S-5844A95DB-A4T2U3 | +95°C | Nch open-drain | Active "L" | 10°C |

Remark Please contact our sales office for products with specifications other than the above.

■ Pin Configurations

1. SOT-23-5

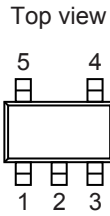


Figure 3

Table 5

| Pin No. | Symbol | Description |
|---------|--------|------------------|
| 1 | TEST*1 | Test pin |
| 2 | VSS | GND pin |
| 3 | DET | Output pin |
| 4 | NC*2 | No connection |
| 5 | VDD | Power supply pin |

- *1. Connect the TEST pin to the VSS pin, or leave it open.
- *2. The NC pin is electrically open.
The NC pin can be connected to the VDD pin or the VSS pin.

2. SNT-4A

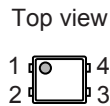


Figure 4

Table 6

| Pin No. | Symbol | Description |
|---------|--------|------------------|
| 1 | DET | Output pin |
| 2 | VSS | GND pin |
| 3 | TEST*1 | Test pin |
| 4 | VDD | Power supply pin |

- *1. Connect the TEST pin to the VSS pin, or leave it open.

3. HSNT-4 (1010)

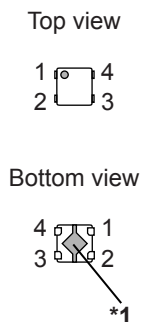


Table 7

| Pin No. | Symbol | Description |
|---------|--------|------------------|
| 1 | DET | Output pin |
| 2 | VSS | GND pin |
| 3 | TEST*1 | Test pin |
| 4 | VDD | Power supply pin |

- *1. Connect the TEST pin to the VSS pin, or leave it open.

- *1. Connect the heat sink of backside at shadowed area to the board, and set electric potential open or GND. However, do not use it as the function of electrode.

Figure 5

■ Absolute Maximum Ratings

Table 8

(Ta = +25°C unless otherwise specified)

| Item | Symbol | Absolute Maximum Rating | Unit |
|--|-------------------------------|--|--|
| Power supply voltage (V _{SS} = 0 V) | V _{DD} | V _{SS} + 6.0 | V |
| Pin voltage | V _{TEST} | V _{SS} - 0.3 to V _{DD} + 0.3 | V |
| Output voltage | CMOS output product | V _{DET} | V _{SS} - 0.3 to V _{DD} + 0.3 |
| | Nch open-drain output product | | V _{SS} - 0.3 to V _{SS} + 6.0 |
| Output pin current | Pch driving current | I _{DETH} | 10 |
| | Nch driving current | I _{DETL} | 10 |
| Power dissipation | SOT-23-5 | P _D | 600*1 |
| | SNT-4A | | 300*1 |
| | HSNT-4 (1010) | | 340*1 |
| Operation ambient temperature | T _{opr} | -40 to +125 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

*1. When mounted on board

[Mounted board]

(1) Board size: 114.3 mm × 76.2 mm × t1.6 mm

(2) Board name: JEDEC STANDARD51-7

Caution The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

■ **DC Electrical Characteristics**

1. CMOS output product

Table 9

(V_{DD} = 3.0 V, Ta = +25°C unless otherwise specified)

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit | Test Circuit |
|--------------------------------------|-------------------|----------------------------|------------------------|------------------|------------------------|------|--------------|
| Power supply voltage | V _{DD} | – | 1.65 | – | 5.5 | V | 1 |
| Detection temperature*1 | +T _D | – | T _{DET} – 2.5 | T _{DET} | T _{DET} + 2.5 | °C | 1 |
| Hysteresis temperature*2 | T _{HYS} | – | – | 5, 10, 15, 20 | – | °C | 1 |
| Output voltage | V _{DETH} | I _{DETH} = 0.5 mA | V _{DD} – 0.5 | – | – | V | 2 |
| | V _{DETL} | I _{DETL} = 0.5 mA | – | – | 0.5 | V | 3 |
| Current consumption during operation | I _{DD} | – | – | 0.18 | 0.5 | μA | 1 |

*1. T_{DET}: Set value of detection temperature

*2. The hysteresis temperature is selectable in 5°C, 10°C, 15°C, or 20°C.

However, if the detection temperature is +50°C, select the hysteresis temperature in 5°C or 10°C.

2. Nch open-drain output product

Table 10

(V_{DD} = 3.0 V, Ta = +25°C unless otherwise specified)

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit | Test Circuit |
|--------------------------------------|-------------------|----------------------------|------------------------|------------------|------------------------|------|--------------|
| Power supply voltage | V _{DD} | – | 1.65 | – | 5.5 | V | 1 |
| Detection temperature*1 | +T _D | – | T _{DET} – 2.5 | T _{DET} | T _{DET} + 2.5 | °C | 1 |
| Hysteresis temperature*2 | T _{HYS} | – | – | 5, 10, 15, 20 | – | °C | 1 |
| Output voltage | V _{DETL} | I _{DETL} = 0.5 mA | – | – | 0.5 | V | 3 |
| Leakage current | I _{LEAK} | V _{DET} = 5.5 V | – | – | 0.1 | μA | 4 |
| Current consumption during operation | I _{DD} | – | – | 0.18 | 0.5 | μA | 1 |

*1. T_{DET}: Set value of detection temperature

*2. The hysteresis temperature is selectable in 5°C, 10°C, 15°C, or 20°C.

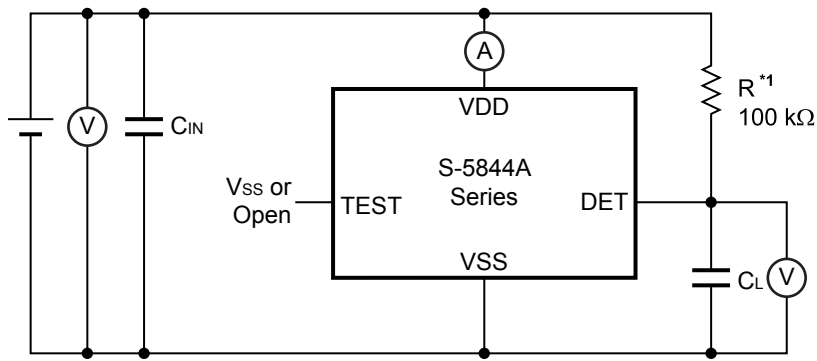
However, if the detection temperature is +50°C, select the hysteresis temperature in 5°C or 10°C.

[Fahrenheit ⇔ Celsius conversion equation]

$$°C = (°F - 32) \times 5 / 9$$

$$°F = 32 + °C \times 9 / 5$$

■ Test Circuits



*1. Resistor (R) is unnecessary for the CMOS output product.

Figure 6 Test Circuit 1

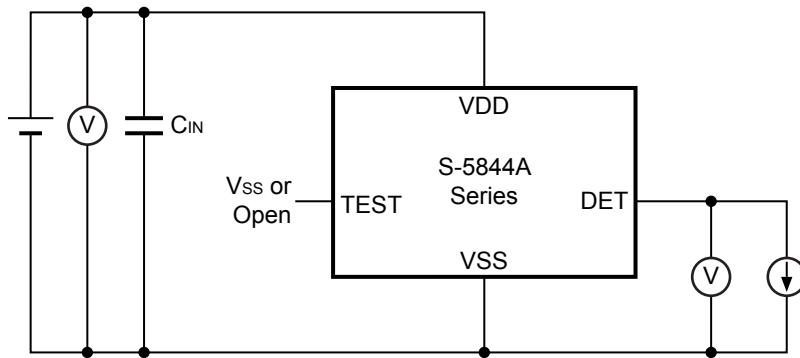


Figure 7 Test Circuit 2

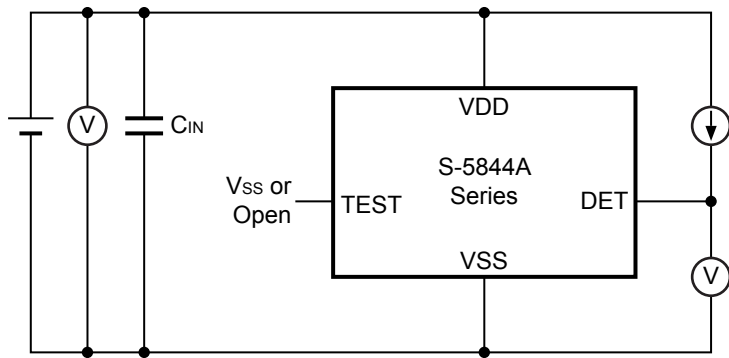


Figure 8 Test Circuit 3

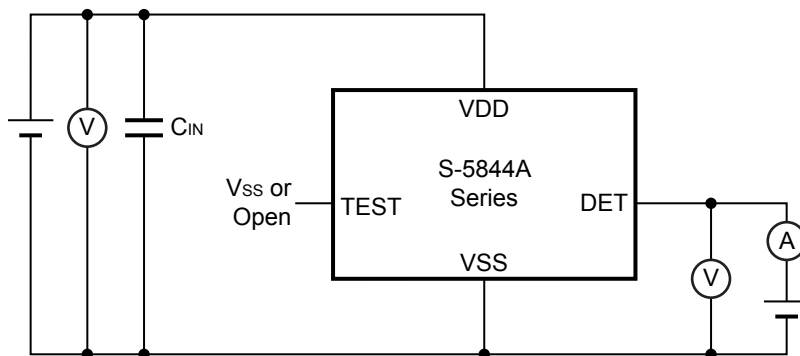


Figure 9 Test Circuit 4

■ **Operation**

The S-5844A Series is a temperature switch IC (thermostat IC) which detects temperature and sends a signal to an external device.

The users can select various combinations of the parameters such as the detection temperature, the output form and logic, and hysteresis temperature.

Following is about the operation when the DET pin output logic is active "H".

After applying the power supply, the S-5844A Series starts to detect the temperature. If the temperature is lower than the detection temperature ($+T_D$), the DET pin output keeps "L". After that, the temperature rises and exceeds the detection temperature, and the DET pin goes in "H".

After the detection, the temperature drops and reaches the release temperature ($+T_D - T_{HYS}$), the DET pin output returns to "L".

Figure 10 is the timing chart.

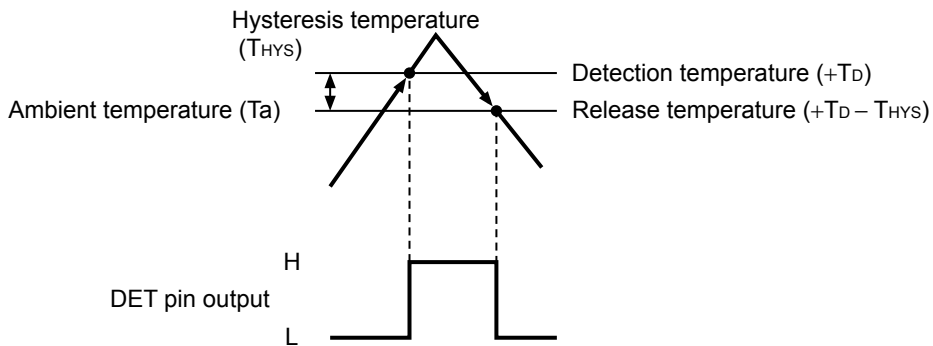
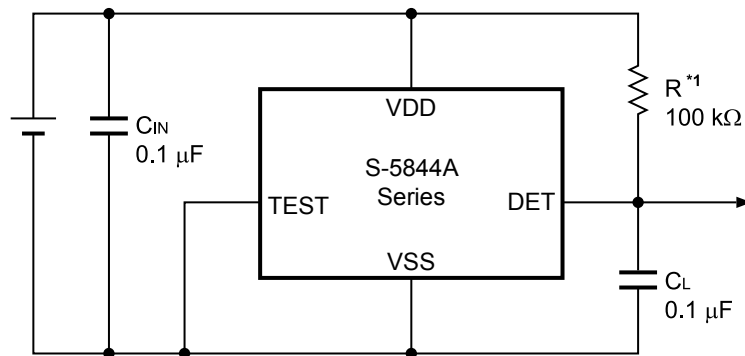


Figure 10 Operation when the DET Pin Output Logic is Active "H"

■ Standard Circuit



*1. Resistor (R) is unnecessary for the CMOS output product.

Figure 11

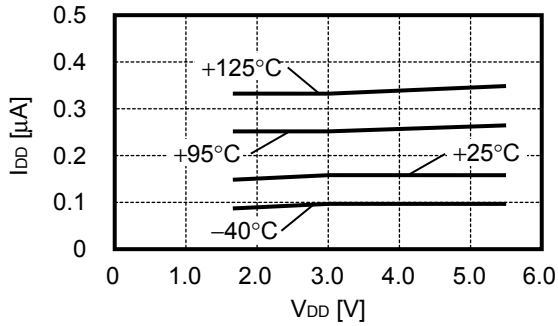
Caution The above connection diagram will not guarantee successful operation. Perform thorough evaluation using actual application to set the constant.

■ Precautions

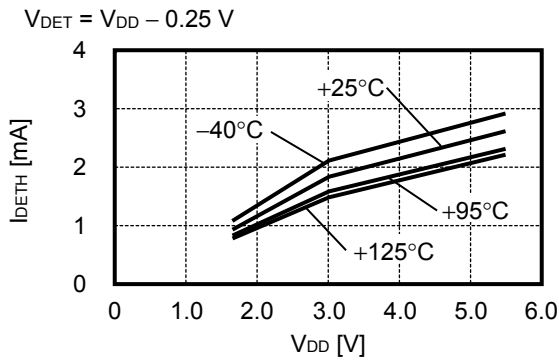
- If power impedance is high, the S-5844A Series may malfunction due to voltage drop caused by feed-through current. Set wire patterns carefully for lower power impedance.
- It is recommended to set a capacitor (C_{IN}) of 0.1 μF or more between the VDD pin and VSS pin for stabilization.
- The S-5844A Series may malfunction if the power supply voltage changes suddenly.
- The S-5844A Series is more easily affected by disturbance or noise if the TEST pin is left open.
- It is recommended to set a capacitor (C_L) of about 0.1 μF for the DET pin to prevent malfunction caused by the noise when the power supply is applied.
- The S-5844A Series may malfunction if the power supply voltage is lower than the minimum operation voltage.
- Do not apply an electrostatic discharge to this IC that exceeds the performance ratings of the built-in electrostatic protection circuit.
- SII Semiconductor Corporation claims no responsibility for any disputes arising out of or in connection with any infringement by products, including this IC, of patents owned by a third party.

■ Characteristics (Typical Data)

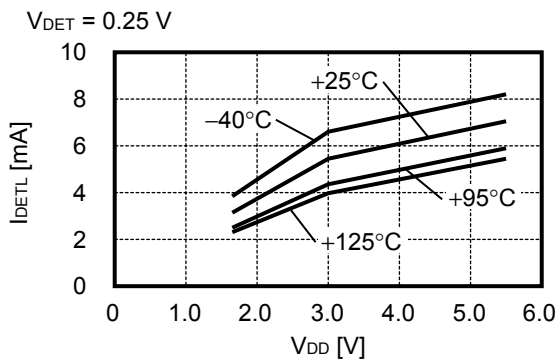
1. Current consumption vs. Power supply voltage characteristics



2. DET pin current "H" vs. Power supply voltage characteristics (CMOS output product only)

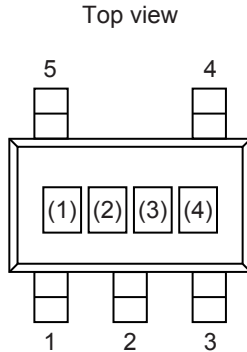


3. DET pin current "L" vs. Power supply voltage characteristics



■ Marking Specifications

1. SOT-23-5



(1) to (3):
(4):

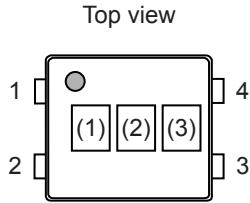
Product code (refer to **Product name vs. Product code**)
Lot number

Product name vs. Product code

| Product Name | Product Code | | |
|--------------------|--------------|-----|-----|
| | (1) | (2) | (3) |
| S-5844A50DB-M5T1U3 | 2 | M | 4 |
| S-5844A55CB-M5T1U3 | 2 | M | F |
| S-5844A55CC-M5T1U3 | 2 | O | F |
| S-5844A55CD-M5T1U3 | 2 | Q | F |
| S-5844A55DB-M5T1U3 | 2 | M | X |
| S-5844A60CB-M5T1U3 | 2 | M | G |
| S-5844A60CC-M5T1U3 | 2 | O | G |
| S-5844A60CD-M5T1U3 | 2 | Q | G |
| S-5844A60DB-M5T1U3 | 2 | M | Y |
| S-5844A65CB-M5T1U3 | 2 | M | H |
| S-5844A65CC-M5T1U3 | 2 | O | H |
| S-5844A65CD-M5T1U3 | 2 | Q | H |
| S-5844A65DA-M5T1U3 | 2 | K | U |
| S-5844A65DB-M5T1U3 | 2 | M | Z |
| S-5844A70CB-M5T1U3 | 2 | M | I |
| S-5844A70CC-M5T1U3 | 2 | O | I |
| S-5844A70CD-M5T1U3 | 2 | Q | I |
| S-5844A70DB-M5T1U3 | 2 | M | 3 |
| S-5844A75CB-M5T1U3 | 2 | M | A |

| Product Name | Product Code | | |
|--------------------|--------------|-----|-----|
| | (1) | (2) | (3) |
| S-5844A75CC-M5T1U3 | 2 | O | A |
| S-5844A75CD-M5T1U3 | 2 | Q | A |
| S-5844A75DB-M5T1U3 | 2 | M | R |
| S-5844A80CB-M5T1U3 | 2 | M | B |
| S-5844A80CC-M5T1U3 | 2 | O | B |
| S-5844A80CD-M5T1U3 | 2 | Q | B |
| S-5844A80DB-M5T1U3 | 2 | M | S |
| S-5844A85CB-M5T1U3 | 2 | M | C |
| S-5844A85CC-M5T1U3 | 2 | O | C |
| S-5844A85CD-M5T1U3 | 2 | Q | C |
| S-5844A85DB-M5T1U3 | 2 | M | T |
| S-5844A90CB-M5T1U3 | 2 | M | D |
| S-5844A90CC-M5T1U3 | 2 | O | D |
| S-5844A90CD-M5T1U3 | 2 | Q | D |
| S-5844A90DB-M5T1U3 | 2 | M | U |
| S-5844A95CB-M5T1U3 | 2 | M | E |
| S-5844A95CC-M5T1U3 | 2 | O | E |
| S-5844A95CD-M5T1U3 | 2 | Q | E |
| S-5844A95DB-M5T1U3 | 2 | M | V |

2. SNT-4A



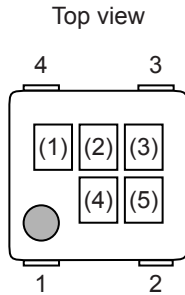
(1) to (3): Product code (refer to **Product name vs. Product code**)

Product name vs. Product code

| Product Name | Product Code | | |
|--------------------|--------------|-----|-----|
| | (1) | (2) | (3) |
| S-5844A50DB-I4T1U3 | 2 | M | 4 |
| S-5844A55CB-I4T1U3 | 2 | M | F |
| S-5844A55CC-I4T1U3 | 2 | O | F |
| S-5844A55CD-I4T1U3 | 2 | Q | F |
| S-5844A55DB-I4T1U3 | 2 | M | X |
| S-5844A60CB-I4T1U3 | 2 | M | G |
| S-5844A60CC-I4T1U3 | 2 | O | G |
| S-5844A60CD-I4T1U3 | 2 | Q | G |
| S-5844A60DB-I4T1U3 | 2 | M | Y |
| S-5844A65CB-I4T1U3 | 2 | M | H |
| S-5844A65CC-I4T1U3 | 2 | O | H |
| S-5844A65CD-I4T1U3 | 2 | Q | H |
| S-5844A65DB-I4T1U3 | 2 | M | Z |
| S-5844A70CB-I4T1U3 | 2 | M | I |
| S-5844A70CC-I4T1U3 | 2 | O | I |
| S-5844A70CD-I4T1U3 | 2 | Q | I |
| S-5844A70DB-I4T1U3 | 2 | M | 3 |
| S-5844A75CB-I4T1U3 | 2 | M | A |
| S-5844A75CC-I4T1U3 | 2 | O | A |

| Product Name | Product Code | | |
|--------------------|--------------|-----|-----|
| | (1) | (2) | (3) |
| S-5844A75CD-I4T1U3 | 2 | Q | A |
| S-5844A75DB-I4T1U3 | 2 | M | R |
| S-5844A80CB-I4T1U3 | 2 | M | B |
| S-5844A80CC-I4T1U3 | 2 | O | B |
| S-5844A80CD-I4T1U3 | 2 | Q | B |
| S-5844A80DB-I4T1U3 | 2 | M | S |
| S-5844A85CB-I4T1U3 | 2 | M | C |
| S-5844A85CC-I4T1U3 | 2 | O | C |
| S-5844A85CD-I4T1U3 | 2 | Q | C |
| S-5844A85DB-I4T1U3 | 2 | M | T |
| S-5844A90CB-I4T1U3 | 2 | M | D |
| S-5844A90CC-I4T1U3 | 2 | O | D |
| S-5844A90CD-I4T1U3 | 2 | Q | D |
| S-5844A90DB-I4T1U3 | 2 | M | U |
| S-5844A95CB-I4T1U3 | 2 | M | E |
| S-5844A95CC-I4T1U3 | 2 | O | E |
| S-5844A95CD-I4T1U3 | 2 | Q | E |
| S-5844A95DB-I4T1U3 | 2 | M | V |

3. HSNT-4 (1010)



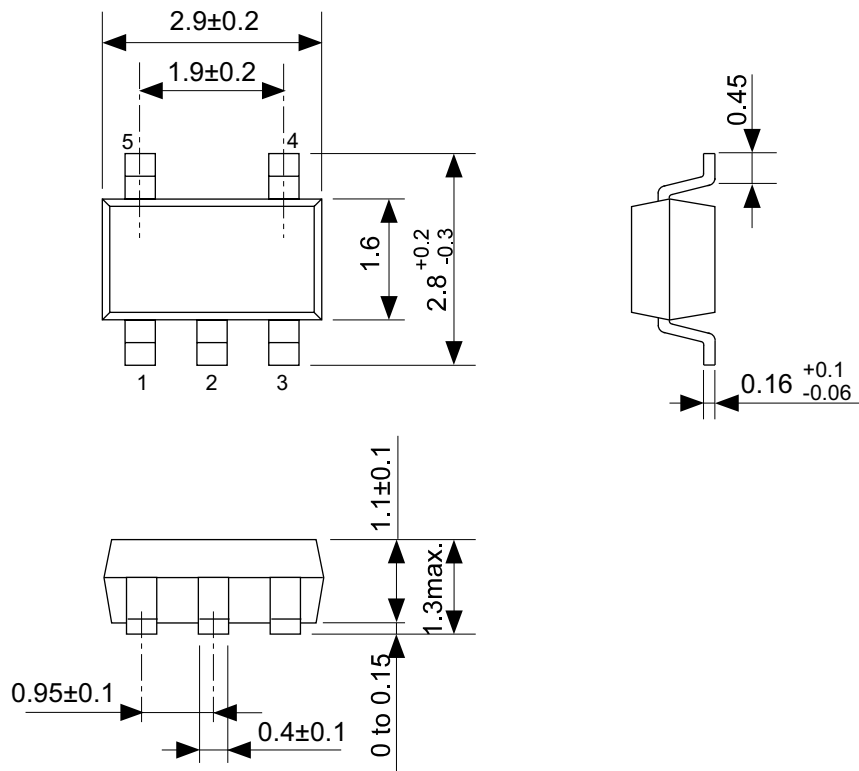
(1) to (3):
 (4), (5):

Product code (refer to **Product name vs. Product code**)
 Lot number

Product name vs. Product code

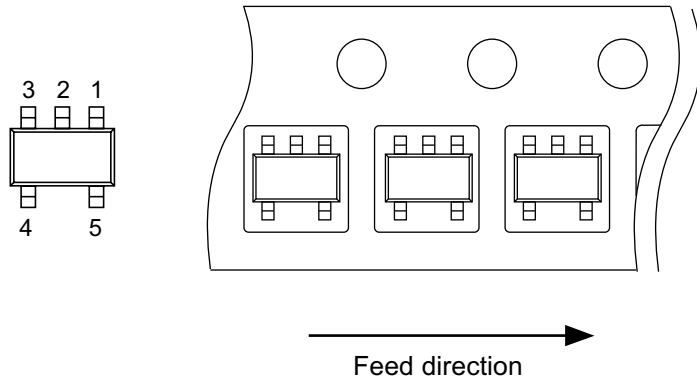
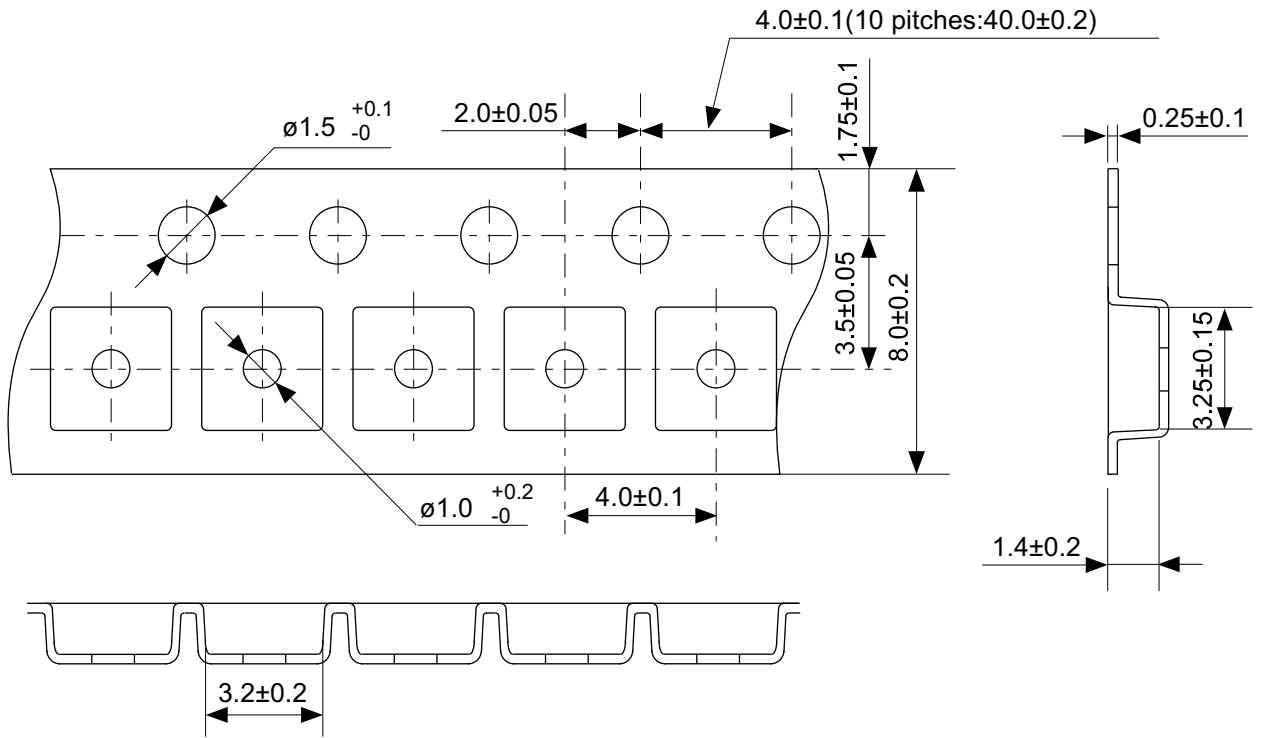
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| S-5844A55CB-A4T2U3 | 2 | M | F |
| S-5844A55CC-A4T2U3 | 2 | O | F |
| S-5844A55CD-A4T2U3 | 2 | Q | F |
| S-5844A55DB-A4T2U3 | 2 | M | X |
| S-5844A60CB-A4T2U3 | 2 | M | G |
| S-5844A60CC-A4T2U3 | 2 | O | G |
| S-5844A60CD-A4T2U3 | 2 | Q | G |
| S-5844A60DB-A4T2U3 | 2 | M | Y |
| S-5844A65CB-A4T2U3 | 2 | M | H |
| S-5844A65CC-A4T2U3 | 2 | O | H |
| S-5844A65CD-A4T2U3 | 2 | Q | H |
| S-5844A65DB-A4T2U3 | 2 | M | Z |
| S-5844A70CB-A4T2U3 | 2 | M | I |
| S-5844A70CC-A4T2U3 | 2 | O | I |
| S-5844A70CD-A4T2U3 | 2 | Q | I |
| S-5844A70DB-A4T2U3 | 2 | M | 3 |
| S-5844A75CB-A4T2U3 | 2 | M | A |
| S-5844A75CC-A4T2U3 | 2 | O | A |

| Product Name | Product Code | | |
|--------------------|--------------|-----|-----|
| | (1) | (2) | (3) |
| S-5844A75CD-A4T2U3 | 2 | Q | A |
| S-5844A75DB-A4T2U3 | 2 | M | R |
| S-5844A80CB-A4T2U3 | 2 | M | B |
| S-5844A80CC-A4T2U3 | 2 | O | B |
| S-5844A80CD-A4T2U3 | 2 | Q | B |
| S-5844A80DB-A4T2U3 | 2 | M | S |
| S-5844A85CB-A4T2U3 | 2 | M | C |
| S-5844A85CC-A4T2U3 | 2 | O | C |
| S-5844A85CD-A4T2U3 | 2 | Q | C |
| S-5844A85DB-A4T2U3 | 2 | M | T |
| S-5844A90CB-A4T2U3 | 2 | M | D |
| S-5844A90CC-A4T2U3 | 2 | O | D |
| S-5844A90CD-A4T2U3 | 2 | Q | D |
| S-5844A90DB-A4T2U3 | 2 | M | U |
| S-5844A95CB-A4T2U3 | 2 | M | E |
| S-5844A95CC-A4T2U3 | 2 | O | E |
| S-5844A95CD-A4T2U3 | 2 | Q | E |
| S-5844A95DB-A4T2U3 | 2 | M | V |



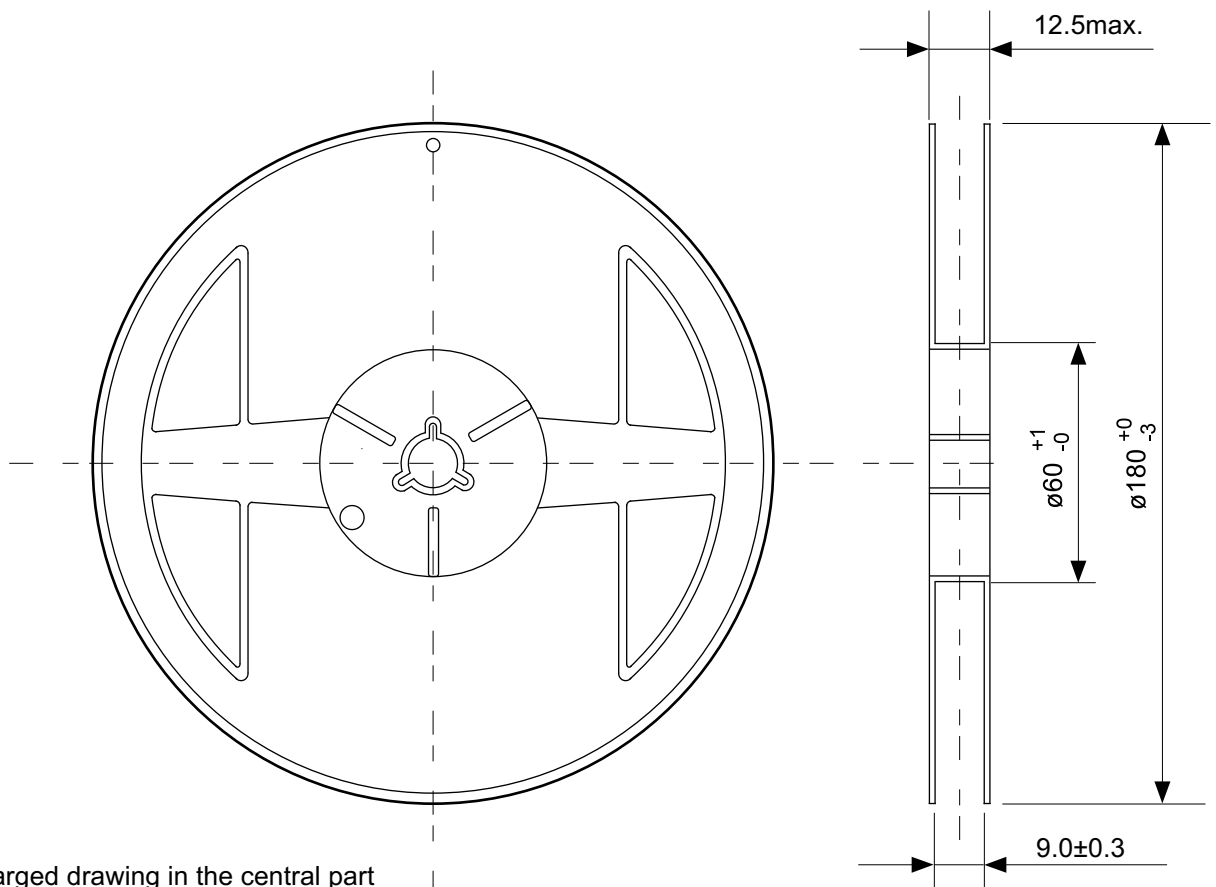
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| SCALE | |
| UNIT | mm |
| SII Semiconductor Corporation | |



No. MP005-A-C-SD-2.1

| | |
|-------------------------------|-----------------------|
| TITLE | SOT235-A-Carrier Tape |
| No. | MP005-A-C-SD-2.1 |
| SCALE | |
| UNIT | mm |
| SII Semiconductor Corporation | |

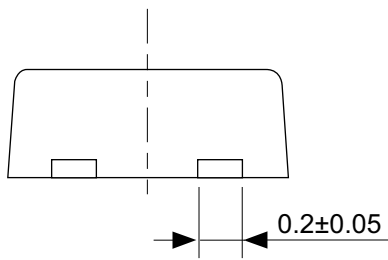
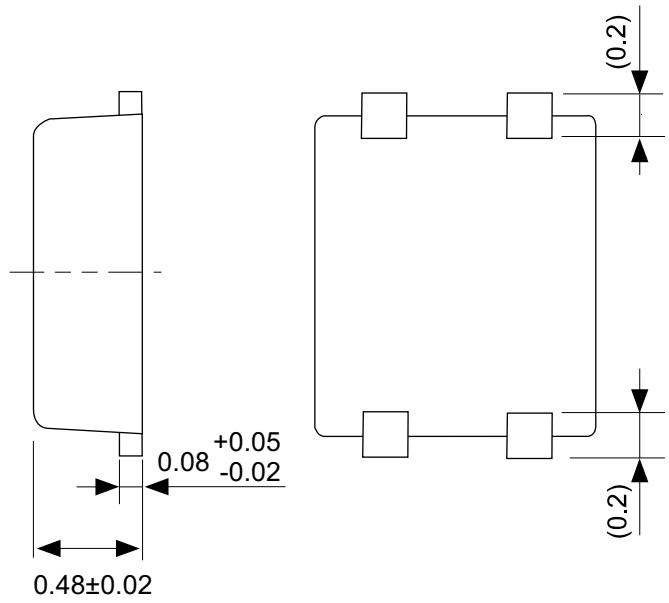
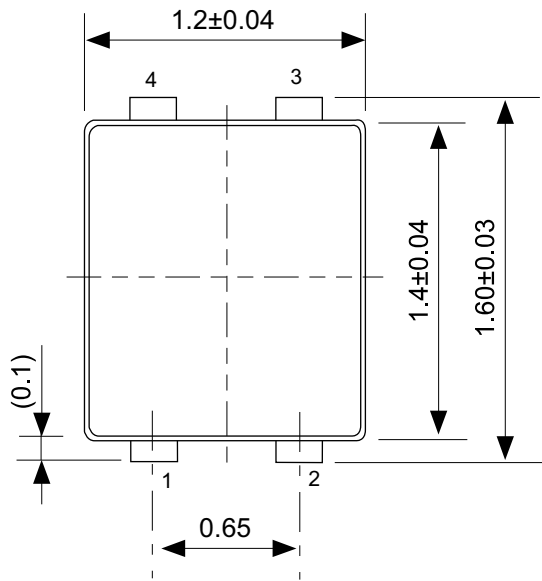


Enlarged drawing in the central part



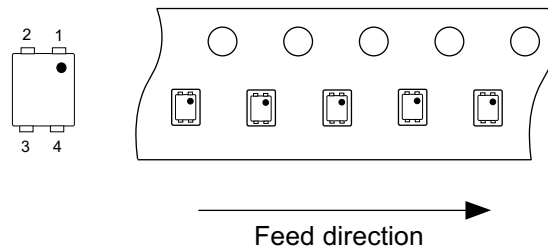
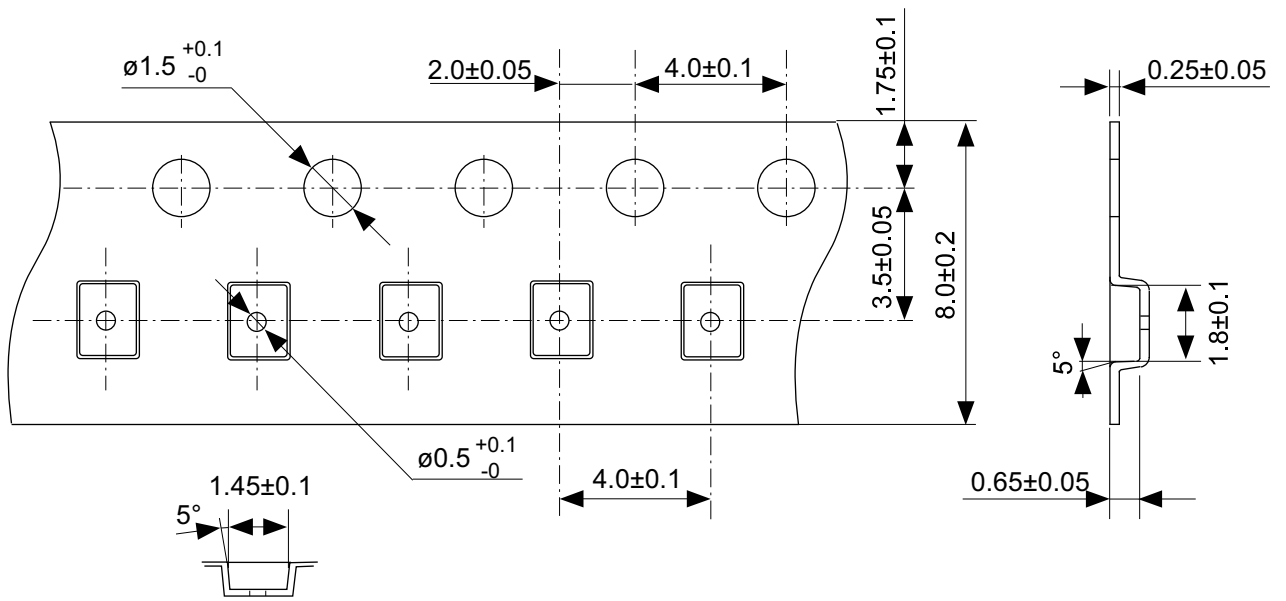
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| No. | MP005-A-R-SD-1.1 | | |
| SCALE | | QTY. | 3,000 |
| UNIT | mm | | |
| | | | |
| SII Semiconductor Corporation | | | |



No. PF004-A-P-SD-4.0

| | |
|-------------------------------|-------------------------|
| TITLE | SNT-4A-A-PKG Dimensions |
| No. | PF004-A-P-SD-4.0 |
| SCALE | |
| UNIT | mm |
| SII Semiconductor Corporation | |

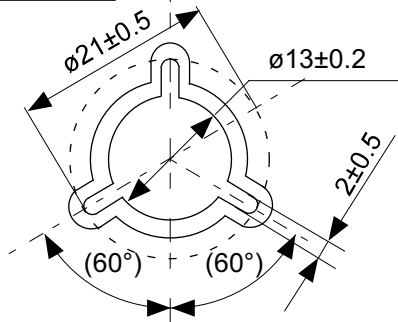


No. PF004-A-C-SD-1.0

| | |
|-------------------------------|-----------------------|
| TITLE | SNT-4A-A-Carrier Tape |
| No. | PF004-A-C-SD-1.0 |
| SCALE | |
| UNIT | mm |
| | |
| SII Semiconductor Corporation | |

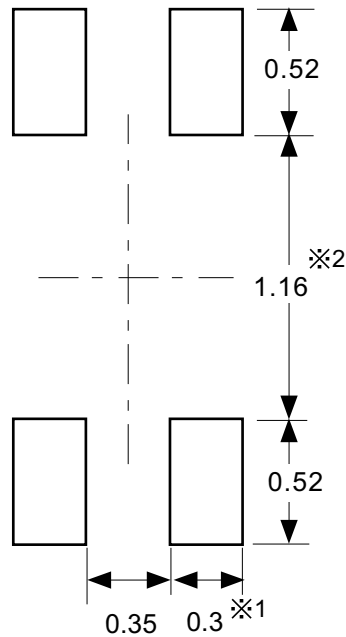


Enlarged drawing in the central part



No. PF004-A-R-SD-1.0

| | | | |
|-------------------------------|------------------|------|-------|
| TITLE | SNT-4A-A-Reel | | |
| No. | PF004-A-R-SD-1.0 | | |
| SCALE | | QTY. | 5,000 |
| UNIT | mm | | |
| | | | |
| SII Semiconductor Corporation | | | |



※1. ランドパターンの幅に注意してください (0.25 mm min. / 0.30 mm typ.).

※2. パッケージ中央にランドパターンを広げないでください (1.10 mm ~ 1.20 mm)。

- 注意
1. パッケージのモールド樹脂下にシルク印刷やハンダ印刷などしないでください。
 2. パッケージ下の配線上のソルダーレジストなどの厚みをランドパターン表面から0.03 mm 以下にしてください。
 3. マスク開口サイズと開口位置はランドパターンと合わせてください。
 4. 詳細は "SNTパッケージ活用の手引き" を参照してください。

※1. Pay attention to the land pattern width (0.25 mm min. / 0.30 mm typ.).

※2. Do not widen the land pattern to the center of the package (1.10 mm to 1.20 mm).

- Caution**
1. Do not do silkscreen printing and solder printing under the mold resin of the package.
 2. The thickness of the solder resist on the wire pattern under the package should be 0.03 mm or less from the land pattern surface.
 3. Match the mask aperture size and aperture position with the land pattern.
 4. Refer to "SNT Package User's Guide" for details.

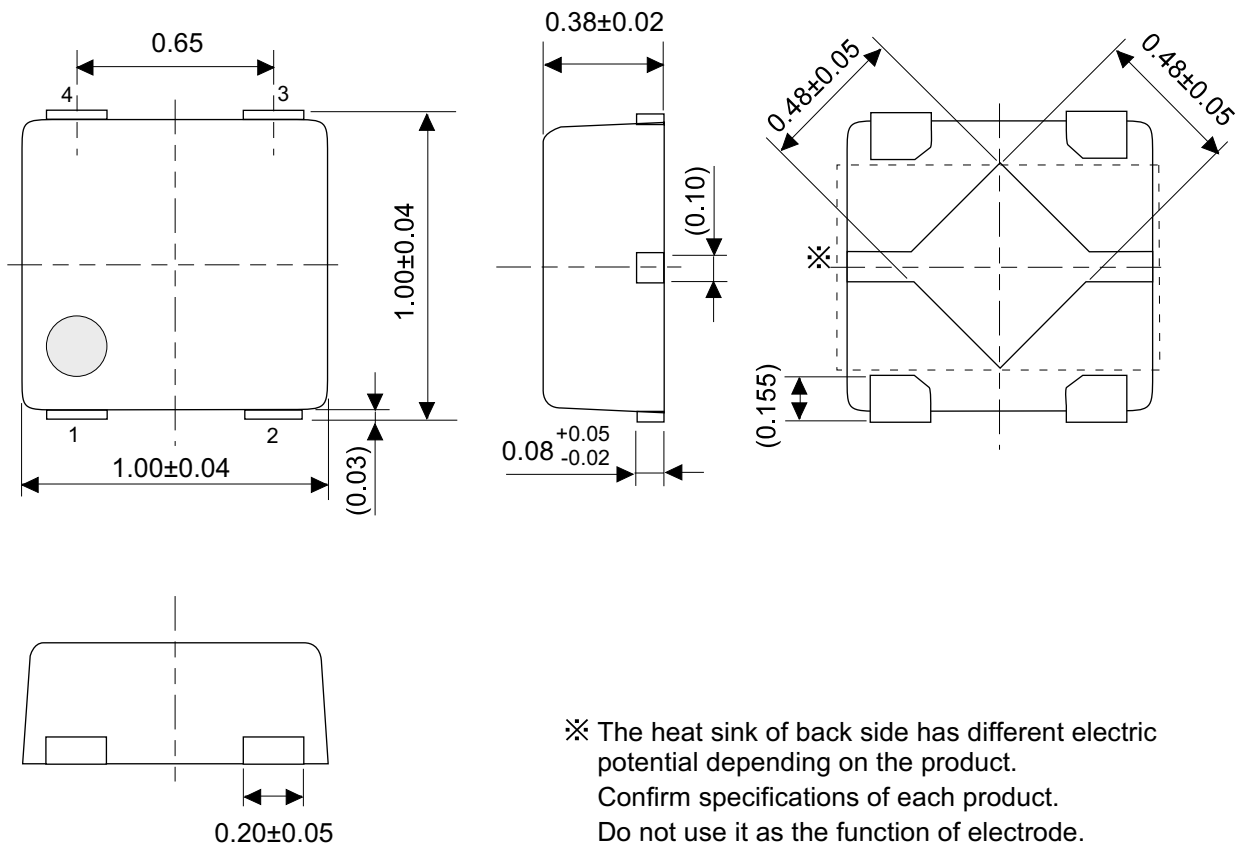
※1. 请注意焊盘模式的宽度 (0.25 mm min. / 0.30 mm typ.).

※2. 请勿向封装中间扩展焊盘模式 (1.10 mm ~ 1.20 mm)。

- 注意
1. 请勿在树脂型封装的下面印刷丝网、焊锡。
 2. 在封装下、布线上的阻焊膜厚度 (从焊盘模式表面起) 请控制在 0.03 mm 以下。
 3. 钢网的开口尺寸和开口位置请与焊盘模式对齐。
 4. 详细内容请参阅 "SNT 封装的应用指南"。

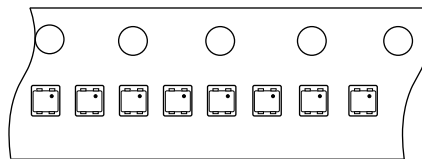
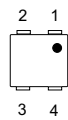
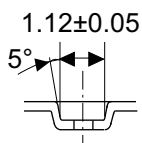
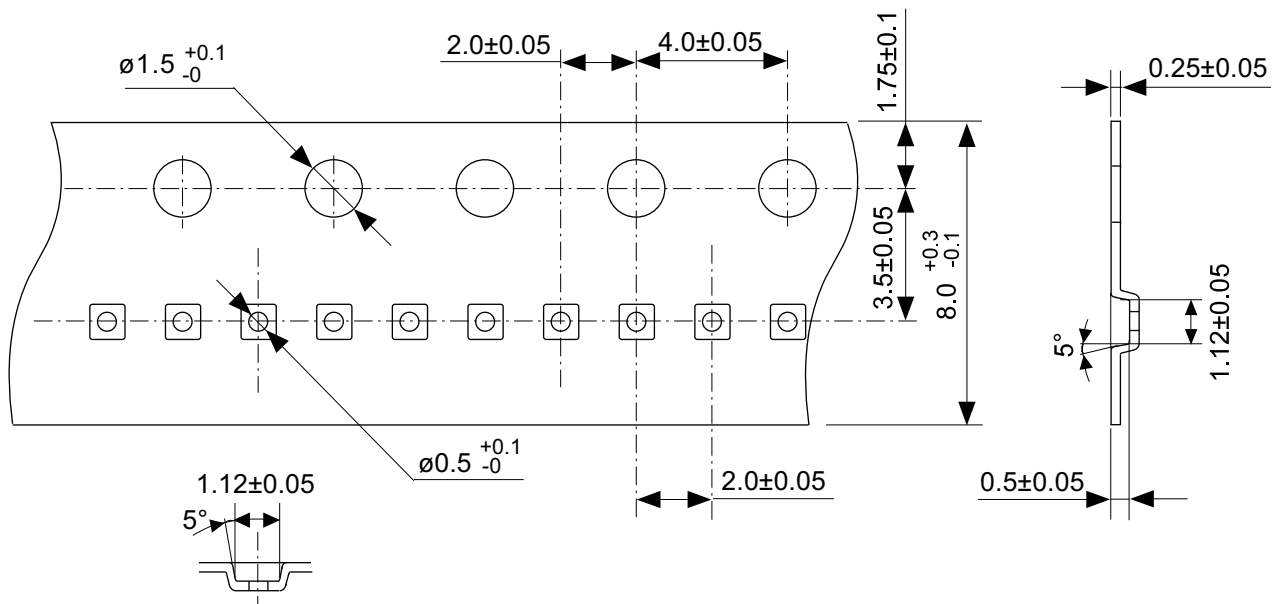
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| No. | PF004-A-L-SD-4.1 |
| SCALE | |
| UNIT | mm |
| SII Semiconductor Corporation | |



No. PL004-A-P-SD-1.0

| | |
|-------------------------------|-------------------------|
| TITLE | HSNT-4-B-PKG Dimensions |
| No. | PL004-A-P-SD-1.0 |
| SCALE | |
| UNIT | mm |
| | |
| SII Semiconductor Corporation | |



Feed direction →

No. PL004-A-C-SD-1.0

| | |
|-------------------------------|-----------------------|
| TITLE | HSNT-4-B-Carrier Tape |
| No. | PL004-A-C-SD-1.0 |
| SCALE | |
| UNIT | mm |
| | |
| SII Semiconductor Corporation | |



Enlarged drawing in the central part



No. PL004-A-R-SD-1.0

| | | | |
|-------------------------------|------------------|------|--------|
| TITLE | HSNT-4-B-Reel | | |
| No. | PL004-A-R-SD-1.0 | | |
| SCALE | | QTY. | 10,000 |
| UNIT | mm | | |
| | | | |
| SII Semiconductor Corporation | | | |

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The entire system must be sufficiently evaluated and applied on customer's own responsibility.
10. The products described herein are not designed to be radiation-proof. The necessary radiation measures should be taken in the product design by the customer depending on the intended use.
11. The products described herein do not affect human health under normal use. However, they contain chemical substances and heavy metals and should therefore not be put in the mouth. The fracture surfaces of wafers and chips may be sharp. Take care when handling these with the bare hands to prevent injuries, etc.
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14. For more details on the information described herein, contact our sales office.

1.0-2016.01



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