

## DUAL TRIP TEMPERATURE SWITCH IC

[www.sii-ic.com](http://www.sii-ic.com)

© Seiko Instruments Inc., 2008-2010

Rev.2.0\_00

The S-5842A Series is a dual trip temperature switch IC which detects two points of temperature. The S-5842A Series operates with a low supply voltage down to 2.5 V, and it has low current consumption of 10  $\mu$ A typical. The S-5842A Series consists of a negative coefficient temperature sensor, a reference voltage generation circuit, and a comparator integrated in a single IC. The package options are the SNT-6A and SOT-23-6.

### ■ Features

- Range of detection temperature :  $-10^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ ,  $1^{\circ}\text{C}$  step
- Accuracy of detection temperature :  $\pm 2.5^{\circ}\text{C}$  (is set only for either detection temperature)
- Operation with low voltage :  $V_{\text{DD}}$  (min.) = 2.5 V (Detection temperature =  $+20^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ )  
 $V_{\text{DD}}$  (min.) = 2.7 V (Detection temperature =  $0^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ )  
 $V_{\text{DD}}$  (min.) = 2.8 V (Detection temperature =  $-10^{\circ}\text{C}$  to  $+110^{\circ}\text{C}$ )
- Low current consumption : 10  $\mu$ A typ. ( $T_{\text{a}}$  =  $+25^{\circ}\text{C}$ )
- The range of operation temperature :  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Selectable output type, logic and form
- Lead-free, Sn 100%, halogen-free<sup>\*1</sup>

\*1. Refer to “■ Product Name Structure” for details.

### ■ Applications

- Fan control
- Air-conditioning system
- Mobile phones
- Game consoles
- Various electronics devices

### ■ Packages

- SNT-6A
- SOT-23-6

■ Block Diagram

1. S-5842A with CMOS output (output : Separate type)

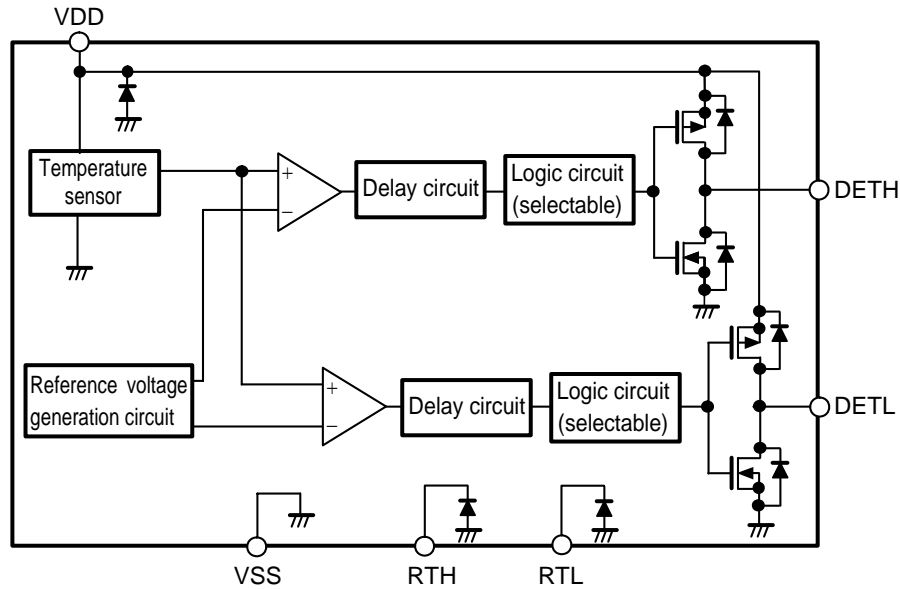


Figure 1

2. S-5842A with Nch open drain output (output : Separate type)

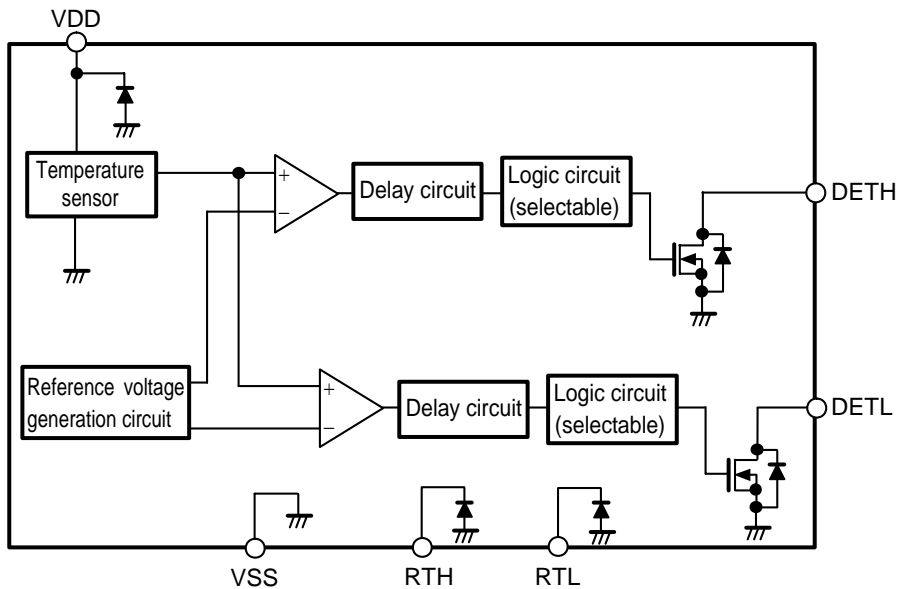


Figure 2

3. S-5842A with CMOS output (output : Integrate type)

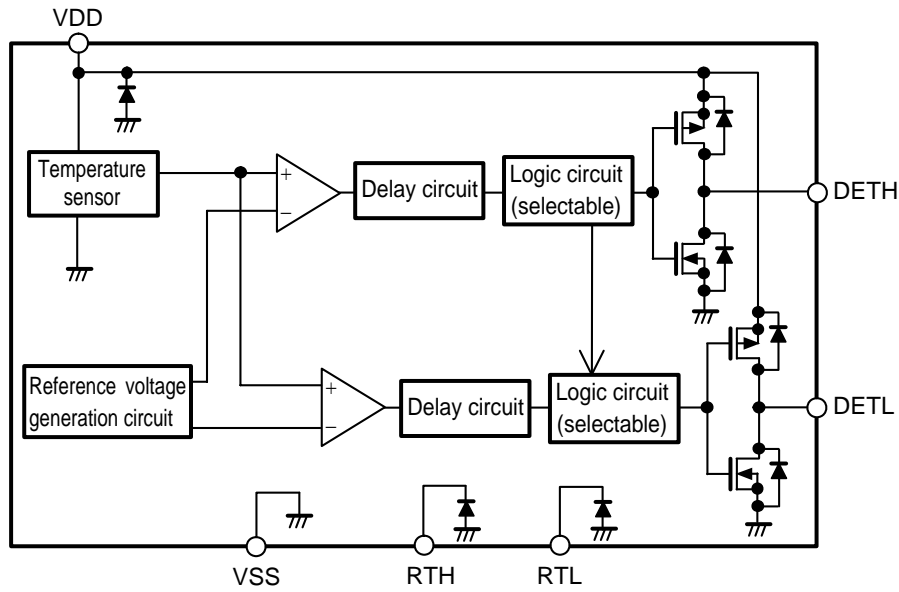


Figure 3

4. S-5842A with Nch open drain output (output : Integrate type)

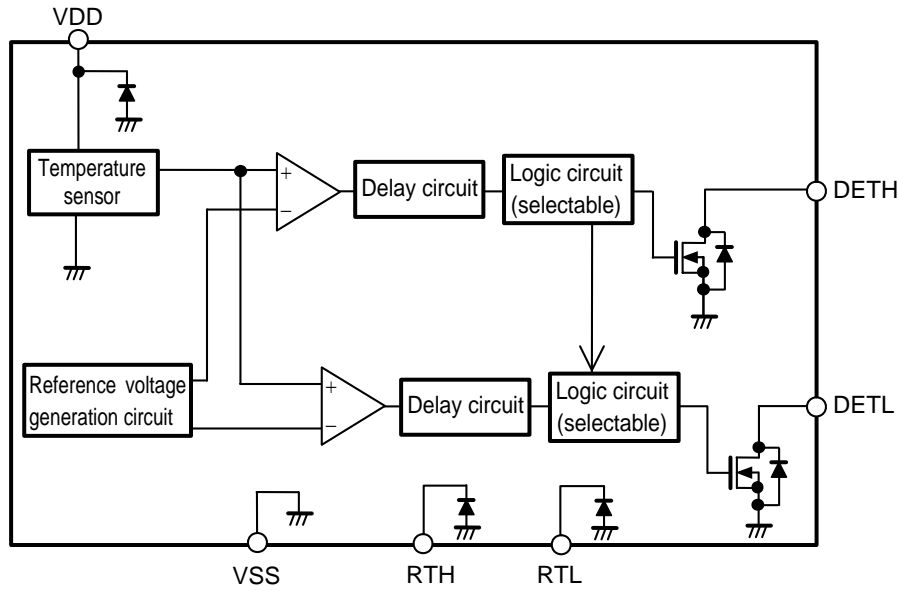


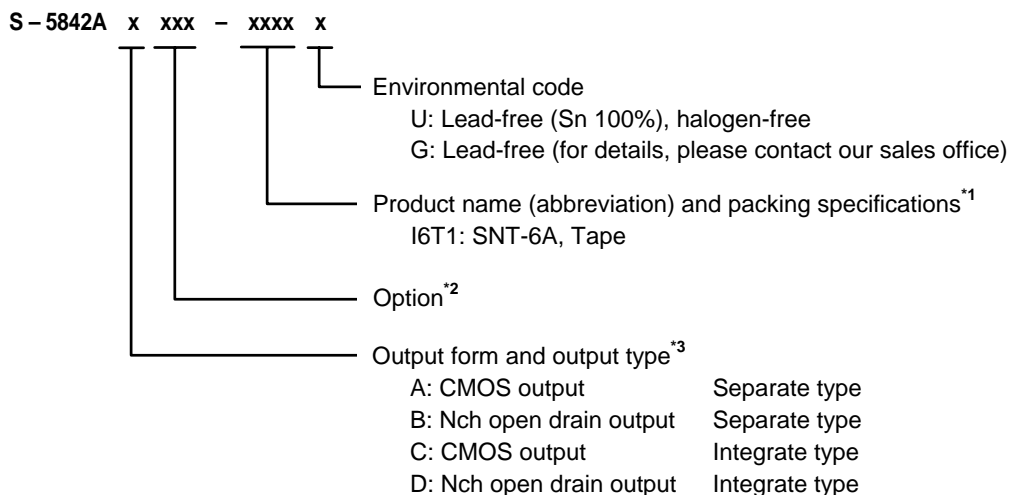
Figure 4

**■ Product Name Structure**

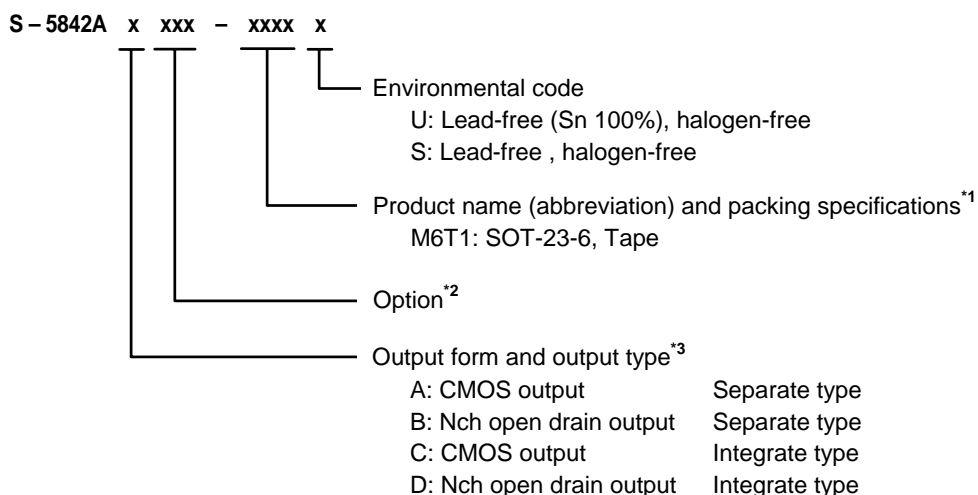
Users are able to select the output form and type, option for detection temperature's spec and package for the S-5842A Series.

**1. Product Name**

**(1) SNT-6A**



**(2) SOT-23-6**



- \*1. Refer to tape specifications.
- \*2. Refer to "■ Selection of Product Option".  
 Settings are available in alphabetical order as AAA to ZZZ.
- \*3. Refer to "■ Selection of Product Option".

**2. Package**

Package Name	Drawing Code			
	Package	Tape	Reel	Land
SNT-6A	PG006-A-P-SD	PG006-A-C-SD	PG006-A-R-SD	PG006-A-L-SD
SOT-23-6	MP006-A-P-SD	MP006-A-C-SD	MP006-A-R-SD	—

### 3. Product Name List

#### (1) SNT-6A

**Table 1**

Product name	Output form and type	Option for detection temperature's spec							
		DETH pin (for higher temperature)				DETL pin (for lower temperature)			
		Detection temperature (T <sub>DH</sub> )	Accuracy of detection temperature <sup>*1</sup>	Hysteresis temperature (T <sub>HVSH</sub> )	Output logic	Detection temperature (T <sub>DL</sub> )	Accuracy of detection temperature <sup>*1</sup>	Hysteresis temperature (T <sub>HVSL</sub> )	Output logic
S-5842ABAAA-I6T1x	Nch open drain, Separate	+62°C	—	+2°C	"H"	-3°C	±2.5°C	-2°C	"L"
S-5842ABAAC-I6T1x	Nch open drain, Separate	+60°C	—	-2°C	"H"	0°C	±2.5°C	+2°C	"L"

\*1 Either of two detection temperatures (T<sub>DH</sub>, T<sub>DL</sub>), an accuracy of ±2.5°C is set only for the one that user specifies a higher accuracy than the other (T<sub>DH</sub>, T<sub>DL</sub>).

- Remark 1.** Please contact our sales office for products other than those specified above. Refer to "■ Selection of Product Option" for details.
2. x: G or U
  3. Please select products of environmental code = U for Sn 100%, halogen-free products.

#### (2) SOT-23-6

**Table 2**

Product name	Output form and type	Option for detection temperature's spec							
		DETH pin (for higher temperature)				DETL pin (for lower temperature)			
		Detection temperature (T <sub>DH</sub> )	Accuracy of detection temperature <sup>*1</sup>	Hysteresis temperature (T <sub>HVSH</sub> )	Output logic	Detection temperature (T <sub>DL</sub> )	Accuracy of detection temperature <sup>*1</sup>	Hysteresis temperature (T <sub>HVSL</sub> )	Output logic
S-5842AAAAF-M6T1y	CMOS, Separate	+95°C	—	-5°C	"L"	+55°C	±2.5°C	-5°C	"L"

\*1 Either of two detection temperatures (T<sub>DH</sub>, T<sub>DL</sub>), an accuracy of ±2.5°C is set only for the one that user specifies a higher accuracy than the other (T<sub>DH</sub>, T<sub>DL</sub>).

- Remark 1.** Please contact our sales office for products other than those specified above. Refer to "■ Selection of Product Option" for details.
2. y: S or U
  3. Please select products of environmental code = U for Sn 100%, halogen-free products.

■ Pin Configuration

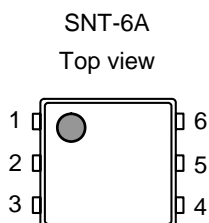


Figure 5

Table 3

Pin No.	Symbol	Description
1	DETH	Output pin for higher temperature detection
2	VSS	GND
3	RTH <sup>*1</sup>	TEST
4	RTL <sup>*2</sup>	TEST
5	DETL	Output pin for lower temperature detection
6	VDD	Power supply

\*1. Set the RTH pin open in use.

\*2. Set the RTL pin open in use.

**Remark** See Dimensions for details of the package drawings.

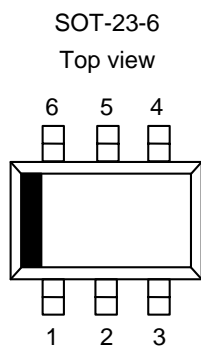


Figure 6

Table 4

Pin No.	Symbol	Description
1	VDD	Power supply
2	DETL	Output pin for lower temperature detection
3	RTL <sup>*1</sup>	TEST
4	RTH <sup>*2</sup>	TEST
5	VSS	GND
6	DETH	Output pin for higher temperature detection

\*1. Set the RTL pin open in use.

\*2. Set the RTH pin open in use.

**Remark** See Dimensions for details of the package drawings.

## ■ Absolute Maximum Ratings

Table 5

(Ta = +25°C unless otherwise specified)

Item		Symbol	Absolute Maximum Ratings	Unit
Power supply voltage ( $V_{SS} = 0$ V)		$V_{DD}$	$V_{SS}+6.5$	V
Pin voltage		$V_{RTH}, V_{RTL}$	$V_{SS}-0.3$ to $V_{DD}+0.3$	V
Output voltage	CMOS output	$V_{DETH}, V_{DETL}$	$V_{SS}-0.3$ to $V_{DD}+0.3$	V
	Nch open drain output		$V_{SS}-0.3$ to $V_{SS}+6.5$	V
Output pin current		$I_{OHH}, I_{OHL}$	13	mA
		$I_{OLH}, I_{OLL}$	13	mA
Power dissipation	SNT-6A	$P_D$	$400^{*1}$	mW
	SOT-23-6		$650^{*1}$	mW
Operation ambient temperature		$T_{opr}$	-40 to +125	°C
Storage temperature		$T_{stg}$	-65 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. S-5842A with CMOS output

**Table 6**

(Ta = +25°C, unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test Circuit
Power supply voltage	V <sub>DD</sub>	Detection temperature = +20°C to +110°C	2.5	—	5.5	V	1
		Detection temperature = 0°C to +110°C	2.7	—	5.5	V	1
		Detection temperature = -10°C to +110°C	2.8	—	5.5	V	1
Detection temperature *1	T <sub>DH</sub> or T <sub>DL</sub>	—	T <sub>DET</sub> -2.5	T <sub>DET</sub>	T <sub>DET</sub> +2.5	°C	1
Difference of detection temperature *2	ΔT <sub>D</sub>	V <sub>DD</sub> = 3.5 V	—	ΔT <sub>DET</sub>	—	°C	1
Hysteresis temperature of DETH pin *3	T <sub>HYSH</sub>	V <sub>DD</sub> = 3.5 V	—	T <sub>HYH</sub>	—	°C	1
Hysteresis temperature of DETL pin *3	T <sub>HYSL</sub>	V <sub>DD</sub> = 3.5 V	—	T <sub>HYL</sub>	—	°C	1
Output current "H" of DETH pin	I <sub>OHH</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETH</sub> = 3.0 V	0.5	3.2	—	mA	2
Output current "H" of DETL pin	I <sub>OHL</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETL</sub> = 3.0 V	0.5	3.2	—	mA	2
Output current "L" of DETH pin	I <sub>OLH</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETH</sub> = 0.5 V	0.5	3.0	—	mA	2
Output current "L" of DETL pin	I <sub>OLL</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETL</sub> = 0.5 V	0.5	3.0	—	mA	2
Current consumption during operation	I <sub>DD</sub>	V <sub>DD</sub> = 3.5 V	—	10	16	μA	1

- \*1. T<sub>DET</sub> : set value for detection temperature, T<sub>DH</sub> : actual detection temperature for higher temperature, T<sub>DL</sub> : actual detection temperature for lower temperature  
 Either of two detection temperatures (T<sub>DH</sub>, T<sub>DL</sub>), an accuracy of ±2.5°C is set only for the one that user specifies a higher accuracy than the other (T<sub>DH</sub>, T<sub>DL</sub>).
- \*2. ΔT<sub>DET</sub> : set value for detection temperature for higher temperature – set value for detection temperature for lower temperature  
 ΔT<sub>D</sub> : actual difference of detection temperature  
 Set two points of detection temperature so that the difference of detection temperature (ΔT<sub>D</sub>) is in 0°C to 65°C. Users are able to set ΔT<sub>D</sub> in 0°C, 5°C, 10°C ... 60°C, 65°C.
- \*3. T<sub>HYH</sub>, T<sub>HYL</sub> : set value for hysteresis temperature, T<sub>HYSH</sub>, T<sub>HYSL</sub> : actual hysteresis temperature  
 Users are able to select the hysteresis temperature (T<sub>HYSH</sub>, T<sub>HYSL</sub>) in -5°C, -2°C, +2°C, or +5°C.

**[Fahrenheit ↔ Celsius Conversion equation]**

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5 / 9$$

$$^{\circ}\text{F} = 32 + ^{\circ}\text{C} \times 9 / 5$$

## 2. S-5842A with Nch open drain output

Table 7

(Ta = +25°C, unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test Circuit
Power supply voltage	V <sub>DD</sub>	Detection temperature = +20°C to +110°C	2.5	—	5.5	V	1
		Detection temperature = 0°C to +110°C	2.7	—	5.5	V	1
		Detection temperature = -10°C to +110°C	2.8	—	5.5	V	1
Detection temperature *1	T <sub>DH</sub> or T <sub>DL</sub>	—	T <sub>DET</sub> -2.5	T <sub>DET</sub>	T <sub>DET</sub> +2.5	°C	1
Difference of detection temperature *2	ΔT <sub>D</sub>	V <sub>DD</sub> = 3.5 V	—	ΔT <sub>DET</sub>	—	°C	1
Hysteresis temperature of DETH pin *3	T <sub>HYSH</sub>	V <sub>DD</sub> = 3.5 V	—	T <sub>HYH</sub>	—	°C	1
Hysteresis temperature of DETL pin *3	T <sub>HYSL</sub>	V <sub>DD</sub> = 3.5 V	—	T <sub>HYL</sub>	—	°C	1
Leakage current of DETH pin	I <sub>LEAKH</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETH</sub> = 5.5 V	—	—	100	nA	2
Leakage current of DETL pin	I <sub>LEAKL</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETL</sub> = 5.5 V	—	—	100	nA	2
Output current "L" of DETH pin	I <sub>OLH</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETH</sub> = 0.5 V	0.5	3.0	—	mA	2
Output current "L" of DETL pin	I <sub>OLL</sub>	V <sub>DD</sub> = 3.5 V, V <sub>DETL</sub> = 0.5 V	0.5	3.0	—	mA	2
Current consumption during operation	I <sub>DD</sub>	V <sub>DD</sub> = 3.5 V	—	10	16	μA	1

- \*1. T<sub>DET</sub> : set value for detection temperature, T<sub>DH</sub> : actual detection temperature for higher temperature, T<sub>DL</sub> : actual detection temperature for lower temperature  
Either of two detection temperatures (T<sub>DH</sub>, T<sub>DL</sub>), an accuracy of ±2.5°C is set only for the one that user specifies a higher accuracy than the other (T<sub>DH</sub>, T<sub>DL</sub>).
- \*2. ΔT<sub>DET</sub> : set value for detection temperature for higher temperature – set value for detection temperature for lower temperature  
ΔT<sub>D</sub> : actual difference of detection temperature  
Set two points of detection temperature so that the difference of detection temperature (ΔT<sub>D</sub>) is in 0°C to 65°C. Users are able to set ΔT<sub>D</sub> in 0°C, 5°C, 10°C ... 60°C, 65°C.
- \*3. T<sub>HYH</sub>, T<sub>HYL</sub> : set value for hysteresis temperature, T<sub>HYSH</sub>, T<sub>HYSL</sub> : actual hysteresis temperature  
Users are able to select the hysteresis temperature (T<sub>HYSH</sub>, T<sub>HYSL</sub>) in -5°C, -2°C, +2°C, or +5°C.

## [Fahrenheit ↔ Celsius Conversion equation]

°C = (°F - 32) × 5 / 9

°F = 32 + °C × 9 / 5

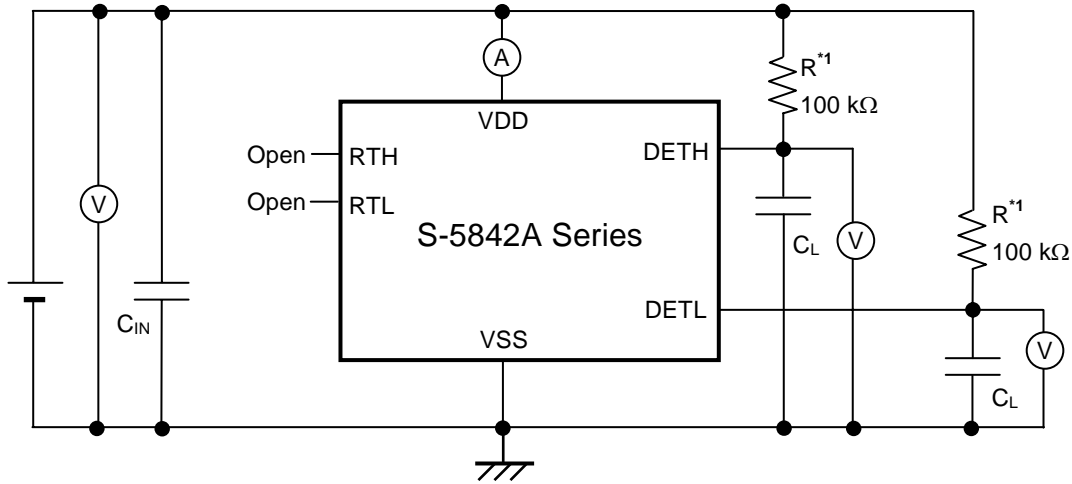
## ■ AC Electrical Characteristics

Table 8

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test Circuit
Noise suppression time	t <sub>delay</sub>	V <sub>DD</sub> = 3.5 V, Ta = detection temperature	—	550	—	μs	—

■ Test Circuit

1.



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

Figure 7

2.

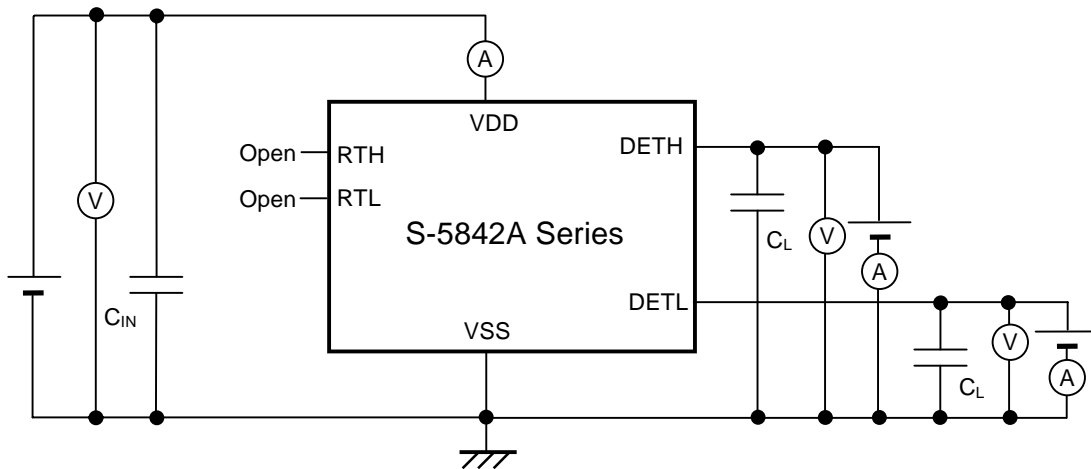


Figure 8

## ■ Selection of Product Option

### 1. Selection of product option

The S-5842A Series is a temperature switch IC which detects two points of temperature, and outputs a signal to the exterior.

Users are able to select the combination of output type, form and logic, two detection temperatures ( $T_{DH}$ ,  $T_{DL}$ ), and hysteresis temperature ( $T_{HYSH}$ ,  $T_{HYSL}$ ).

Output form : Set the output logic for each DETH, DETL pin.

- CMOS output
- Nch open drain output

Output type : for DETH, DETL pins, users are able to select two types of output as follows.

- Separate type : the DETH pin's output inverts during detection of higher temperature  
the DETL pin's output inverts during detection of lower temperature
- Integrate type : the DETH pin's output inverts during detection of higher temperature  
the DETL pin's output inverts during detection of higher and lower temperature

Detection temperature ( $T_{DH}$ ,  $T_{DL}$ ) :

$T_{DH}$  is the detection temperature for higher temperature,  $T_{DL}$  is the detection temperature for lower temperature. Of two points of detection temperatures ( $T_{DH}$ ,  $T_{DL}$ ), select the detection temperature that is to be set the higher accuracy ( $\pm 2.5^\circ\text{C}$  accuracy). \*1

The detection temperature for higher temperature is selectable in  $+20^\circ\text{C}$  to  $+110^\circ\text{C}$ , in  $1^\circ\text{C}$  step.

The detection temperature for lower temperature is selectable in  $-10^\circ\text{C}$  to  $+110^\circ\text{C}$ , in  $1^\circ\text{C}$  step.

Set two points of detection temperature so that the difference of detection temperature ( $\Delta T_D$ ) is in  $0^\circ\text{C}$  to  $65^\circ\text{C}$ . Users are able to set  $\Delta T_D$  in  $0^\circ\text{C}$ ,  $5^\circ\text{C}$ ,  $10^\circ\text{C}$  ...  $60^\circ\text{C}$ ,  $65^\circ\text{C}$ .

The minimum operation voltage varies according to the detection temperature for lower temperature.

- Detection temperature =  $+20^\circ\text{C}$  to  $+110^\circ\text{C}$  :  $V_{DD}$  (min.) = 2.5 V
- Detection temperature =  $0^\circ\text{C}$  to  $+110^\circ\text{C}$  :  $V_{DD}$  (min.) = 2.7 V
- Detection temperature =  $-10^\circ\text{C}$  to  $+110^\circ\text{C}$  :  $V_{DD}$  (min.) = 2.8 V

\*1 Either of two detection temperatures ( $T_{DH}$ ,  $T_{DL}$ ), an accuracy of  $\pm 2.5^\circ\text{C}$  is set only for the one that user specifies a higher accuracy than the other ( $T_{DH}$ ,  $T_{DL}$ ).

Hysteresis temperature ( $T_{HYSH}$ ,  $T_{HYSL}$ ) :

$T_{HYSH}$  is the hysteresis temperature for detection temperature for higher temperature,  $T_{HYSL}$  is the hysteresis temperature for detection temperature for lower temperature. These are selectable in  $-5^\circ\text{C}$ ,  $-2^\circ\text{C}$ ,  $+2^\circ\text{C}$ , or  $+5^\circ\text{C}$ .

- $-5^\circ\text{C}$  : Output recovers when temperature has dropped to  $5^\circ\text{C}$  from the detection temperature.
- $-2^\circ\text{C}$  : Output recovers when temperature has dropped to  $2^\circ\text{C}$  from the detection temperature.
- $+2^\circ\text{C}$  : Output recovers when temperature has risen to  $2^\circ\text{C}$  from the detection temperature.
- $+5^\circ\text{C}$  : Output recovers when temperature has risen to  $5^\circ\text{C}$  from the detection temperature.

Output logic : Set the output logic for each DETH, DETL pin in  $T_a >$  detection temperature ( $T_{DH}$ ,  $T_{DL}$ ) or release temperature ( $T_{DH} + T_{HYSH}$ ,  $T_{DL} + T_{HYSL}$ ).

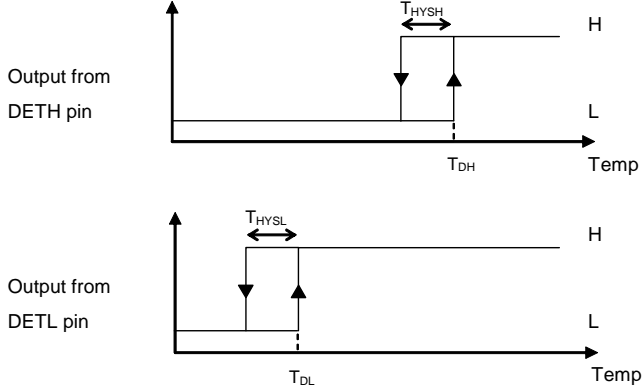
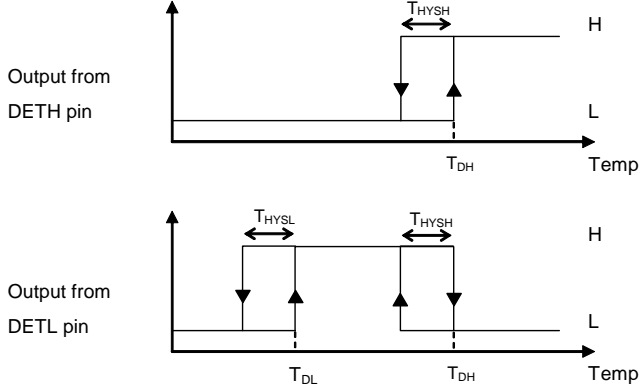
(1) Hysteresis temperature :  $-5^\circ\text{C}$ ,  $-2^\circ\text{C}$

- "H" : The output logic is in "H" in  $T_a >$  detection temperature
- "L" : The output logic is in "L" in  $T_a >$  detection temperature

(2) Hysteresis temperature :  $+2^\circ\text{C}$ ,  $+5^\circ\text{C}$

- "H" : The output logic is in "H" in  $T_a >$  release temperature
- "L" : The output logic is in "L" in  $T_a >$  release temperature

**2. Example of product spec**

Example of product spec	Operation
<p>Output form : CMOS output                      Output type : Separate type</p> <p>[DETH pin]                      Detection voltage : <math>T_{DH}</math>                      Hysteresis temperature : <math>T_{HYSH} (&lt; 0)</math>                      Output logic : "H"</p> <p>[DETL pin]                      Detection voltage : <math>T_{DL}</math>                      Hysteresis temperature : <math>T_{HYSL} (&lt; 0)</math>                      Output logic : "H"</p>	 <p><b>Figure 9 Operation, CMOS and Separate Type</b></p>
<p>Output form : CMOS output                      Output type : Integrate type</p> <p>[DETH pin]                      Detection temperature : <math>T_{DH}</math>                      Hysteresis temperature : <math>T_{HYSH} (&lt; 0)</math>                      Output logic : "H"</p> <p>[DETL pin]                      Detection temperature : <math>T_{DL}</math>                      Hysteresis temperature : <math>T_{HYSL} (&lt; 0)</math>                      Output logic : "H"</p>	 <p><b>Figure 10 Operation, CMOS and Integrate Type</b></p>





### 3. Noise suppression time

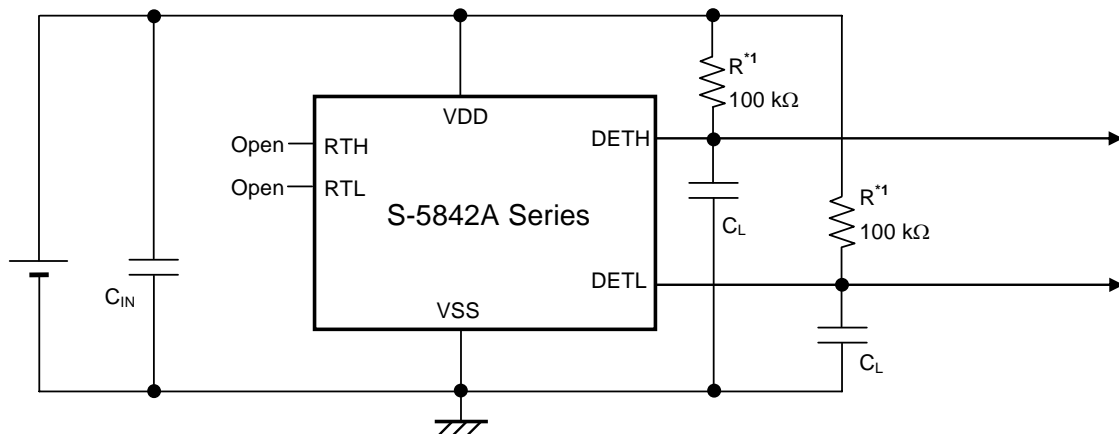
The S-5842A Series has a delay circuit to suppress noise.

The followings are the operation of output from DETH when the output logic is "H".

- The temperature is the detection temperature or less  
The output from a comparator is "H", and the output from DETH pin is "L". Due to noise or others, the output from a comparator is inverted to "L" once; however, the output from the DETH pin keeps "L" if this status is noise suppression time or shorter.
- The temperature exceeds the detection temperature  
The output from a comparator gets "L". And the output from the DETH pin gets "H" after the period has passed noise suppression time ( $t_{\text{delay}}$ ) or longer.

Noise suppression time is available for the DETL pin as well.

### ■ Application Circuit



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

Figure 13 Application Circuit

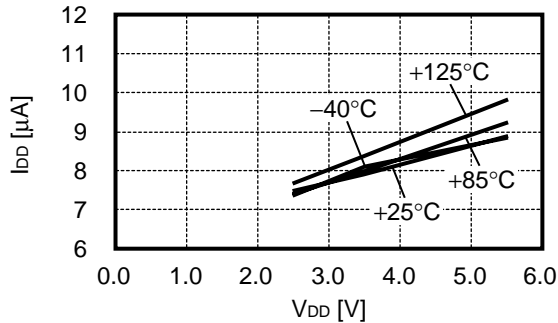
**Caution** The above connection diagram will not guarantee successful operation. Perform thorough evaluation using actual application to set the constant.

■ **Precautions**

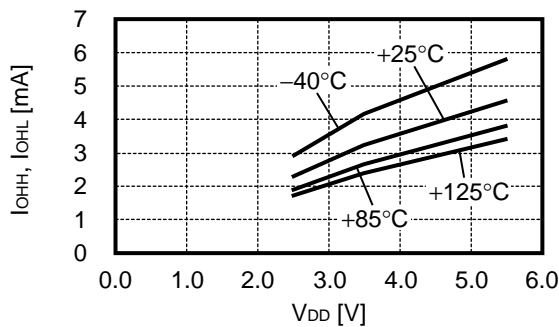
- Either of two detection temperatures ( $T_{DH}$ ,  $T_{DL}$ ), an accuracy of  $\pm 2.5^{\circ}\text{C}$  is set only for the one that user specifies a higher accuracy than the other ( $T_{DH}$ ,  $T_{DL}$ ).
- Set a capacitor ( $C_{IN}$ ) of approx.  $0.1\ \mu\text{F}$  between VDD and VSS for stabilization.
- To prevent error due to noise during power-on, set a capacitor ( $C_L$ ) of approx.  $0.1\ \mu\text{F}$  for the DETH and DETL pin.
- The S-5842A Series may oscillate by connecting a capacitor to the RTH/RTL pin. Set the RTH and RTL pin open in use.
- The DETH and DETL pins output a signal that of ( $T_a >$  detection temperature) by short-circuit the RTH/RTL pin to VSS.
- Do not apply an electrostatic discharge to this IC that exceeds the performance ratings of the built-in electrostatic protection circuit.
- SII 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)

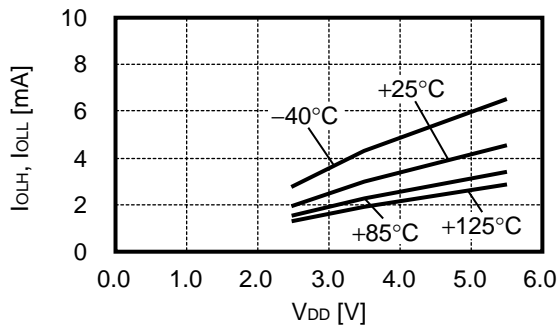
1. Current consumption during operation ( $I_{DD}$ ) vs. Power supply voltage ( $V_{DD}$ ) characteristics



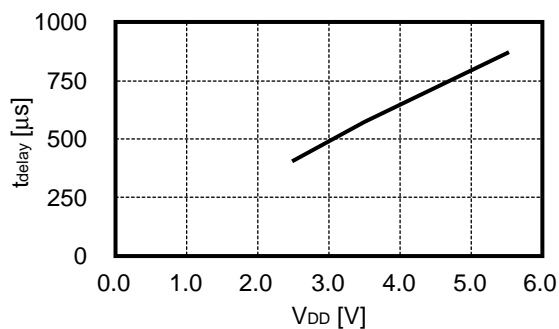
2. Output current "H" of DETH/DETL pin ( $I_{OH}/I_{OHL}$ ) vs. Power supply voltage ( $V_{DD}$ ) characteristics (CMOS output product only)



3. Output current "L" of DETH/DETL pin ( $I_{OL}/I_{OLL}$ ) vs. Power supply voltage ( $V_{DD}$ ) characteristics



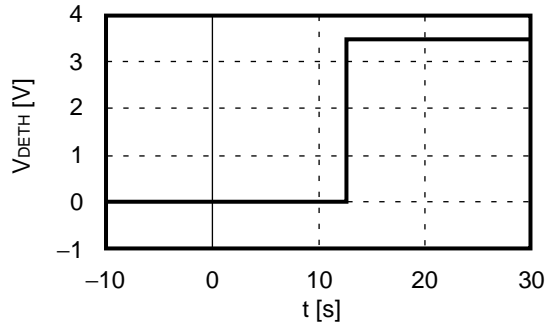
4. Noise suppression time ( $t_{delay}$ ) vs. Power supply voltage ( $V_{DD}$ ) characteristics



5. Response against heat Output voltage ( $V_{DETH}$ ) vs. Time (t)

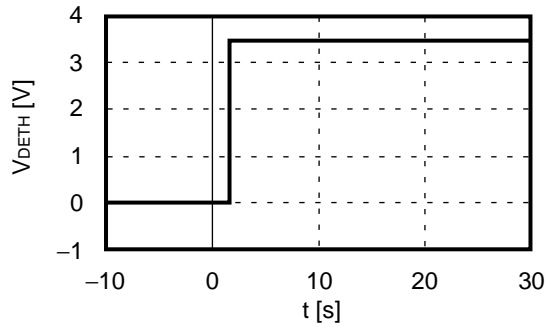
(1) When SNT-6A is put into the air of +100 degrees from the air of +25 degrees at t = 0 [s]

$V_{DD} = 3.5\text{ V}$ ,  $C_L = 0\ \mu\text{F}$ , Detection temperature = +62°C, Output logic "H"



(2) When SNT-6A is put into the liquid of +100 degrees from the air of +25 degrees at t = 0 [s]

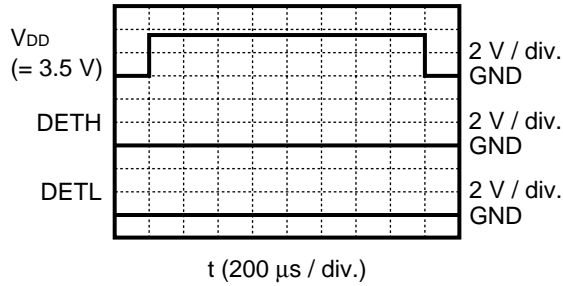
$V_{DD} = 3.5\text{ V}$ ,  $C_L = 0\ \mu\text{F}$ , Detection temperature = +62°C, Output logic "H"



**6. Response against startup**

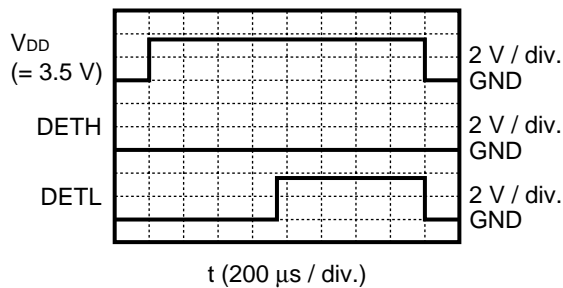
**(1) Power-on at Ta = +25°C**

T<sub>DH</sub> = +110°C, T<sub>DL</sub> = +45°C, Output logic "H", C<sub>L</sub> = 0 μF



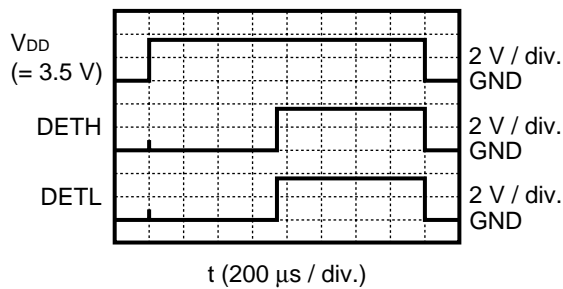
**(2) Power-on at Ta = +80°C**

T<sub>DH</sub> = +110°C, T<sub>DL</sub> = +45°C, Output logic "H", C<sub>L</sub> = 0 μF



**(3) Power-on at Ta = +120°C**

T<sub>DH</sub> = +110°C, T<sub>DL</sub> = +45°C, Output logic "H", C<sub>L</sub> = 0 μF



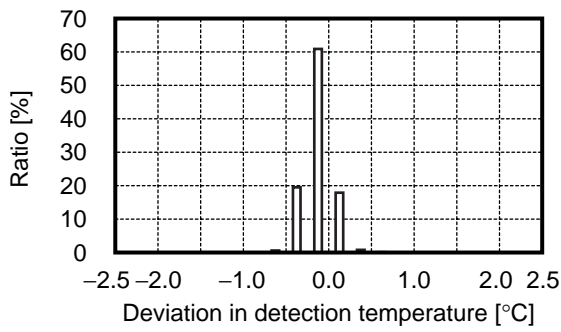
7. Accuracy of detection temperature

High accuracy detection voltage :  $T_{DH}$ ,

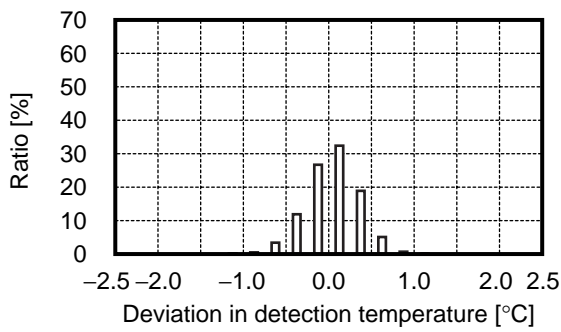
$T_{DH} = +110^{\circ}\text{C}$ ,  $T_{DL} = +45^{\circ}\text{C}$

Measured data on one wafer picked up

(1) Accuracy of detection temperature at  $T_{DH} = +110^{\circ}\text{C}$  (higher accuracy)

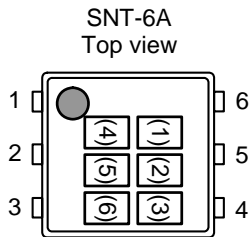


(2) Accuracy of detection temperature at  $T_{DL} = +45^{\circ}\text{C}$



■ Marking Specification

1. SNT-6A



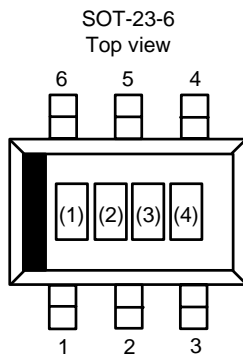
(1) to (3) : Product code (refer to **Product name vs. Product code**)  
(4) to (6) : Lot number

Product name vs. Product code

Product name	Product code		
	(1)	(2)	(3)
S-5842ABAAA-I6T1x	U	H	A
S-5842ABAAC-I6T1x	U	H	C

- Remark 1.** Please contact our sales office for the products other than those specified above.  
**2.** x: G or U  
**3.** Please select products of environmental code = U for Sn 100%, halogen-free products.

2. SOT-23-6

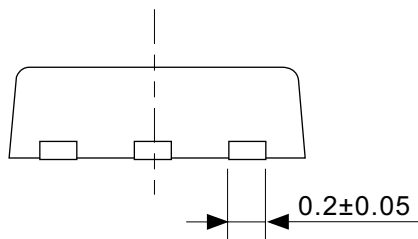
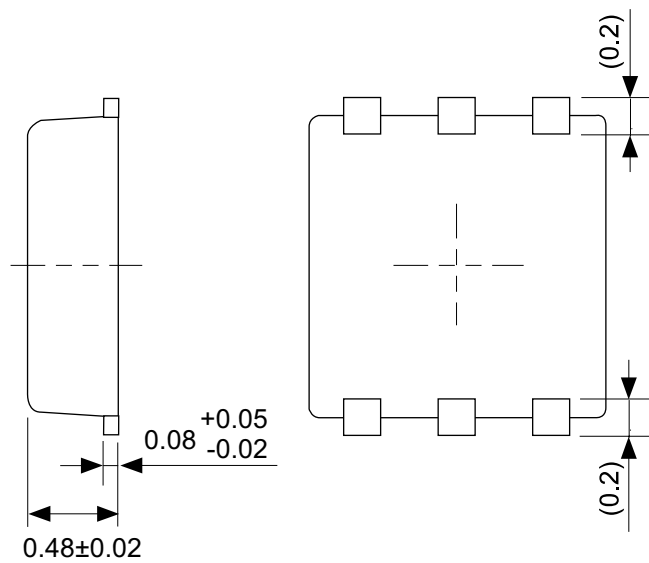
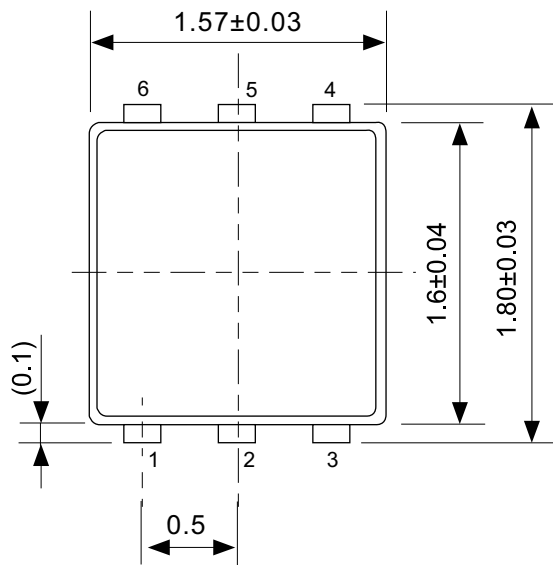


(1) to (3) : Product code (refer to **Product name vs. Product code**)  
(4) : Lot number

Product name vs. Product code

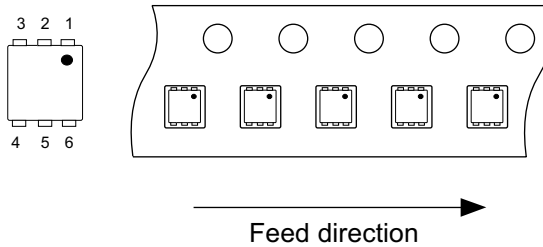
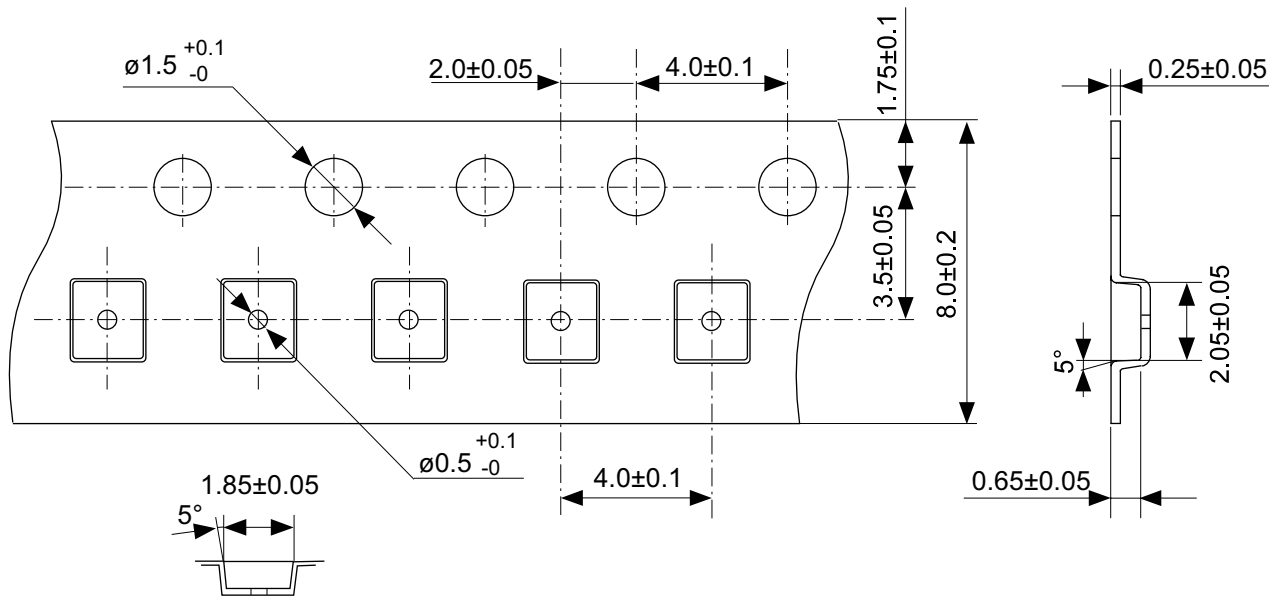
Product name	Product code		
	(1)	(2)	(3)
S-5842AAAAF-M6T1y	U	I	F

- Remark 1.** Please contact our sales office for the products other than those specified above.  
**2.** y: S or U  
**3.** Please select products of environmental code = U for Sn 100%, halogen-free products.



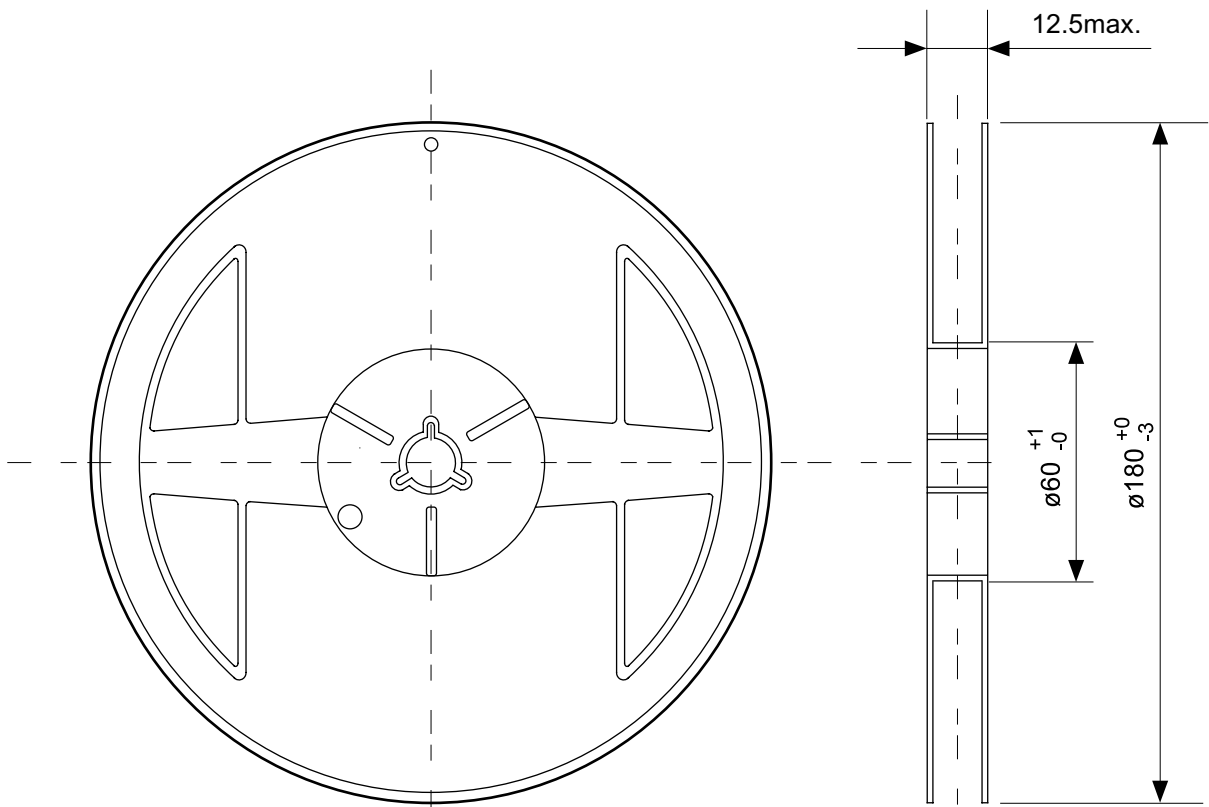
No. PG006-A-P-SD-2.0

TITLE	SNT-6A-A-PKG Dimensions
No.	PG006-A-P-SD-2.0
SCALE	
UNIT	mm
Seiko Instruments Inc.	

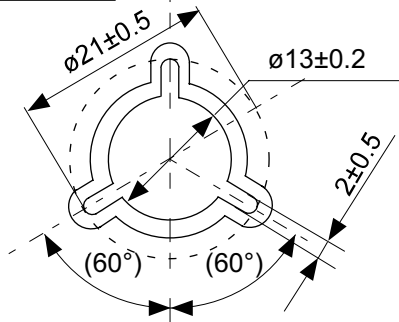


No. PG006-A-C-SD-1.0

TITLE	SNT-6A-A-Carrier Tape
No.	PG006-A-C-SD-1.0
SCALE	
UNIT	mm
Seiko Instruments Inc.	

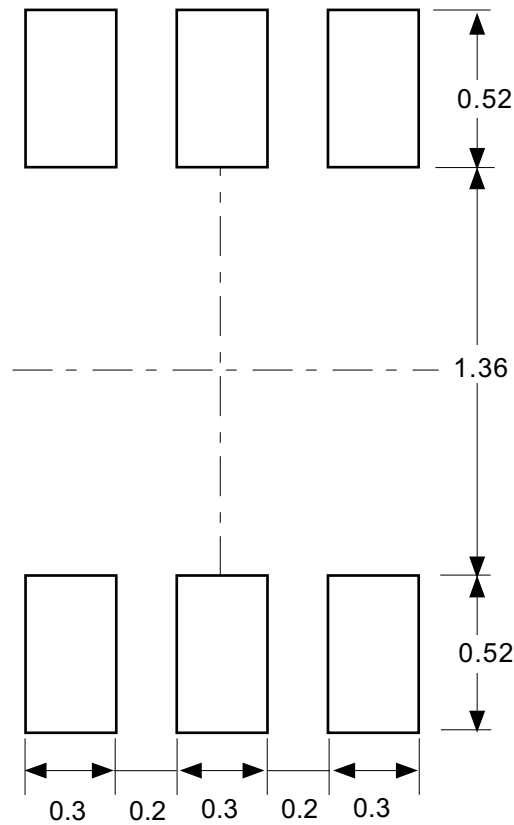


Enlarged drawing in the central part



No. PG006-A-R-SD-1.0

TITLE	SNT-6A-A-Reel		
No.	PG006-A-R-SD-1.0		
SCALE		QTY.	5,000
UNIT	mm		
Seiko Instruments Inc.			

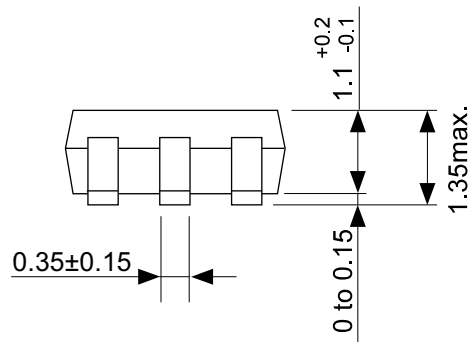
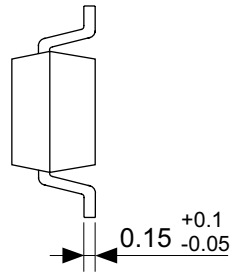
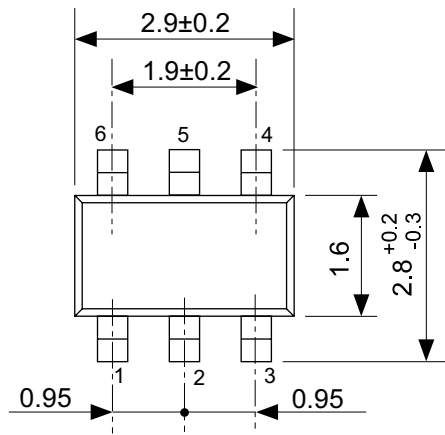


Caution Making the wire pattern under the package is possible. However, note that the package may be upraised due to the thickness made by the silk screen printing and of a solder resist on the pattern because this package does not have the standoff.

注意 パッケージ下への配線パターン形成は可能ですが、本パッケージはスタンドオフが無いので、パターン上のレジスト厚み、シルク印刷の厚みによってパッケージが持ち上がる場合がありますのでご配慮ください。

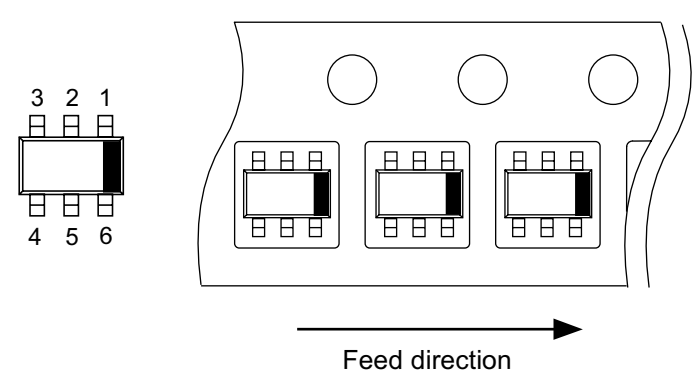
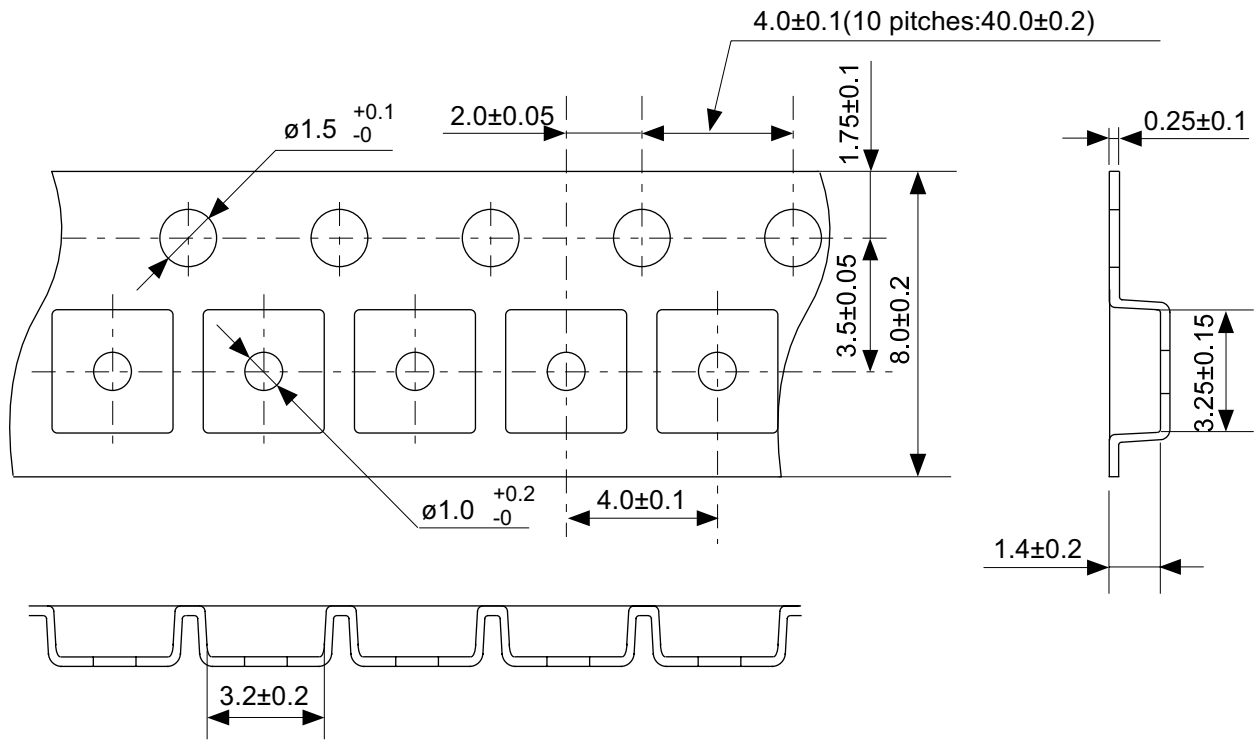
No. PG006-A-L-SD-3.0

TITLE	SNT-6A-A-Land Recommendation
No.	PG006-A-L-SD-3.0
SCALE	
UNIT	mm
Seiko Instruments Inc.	



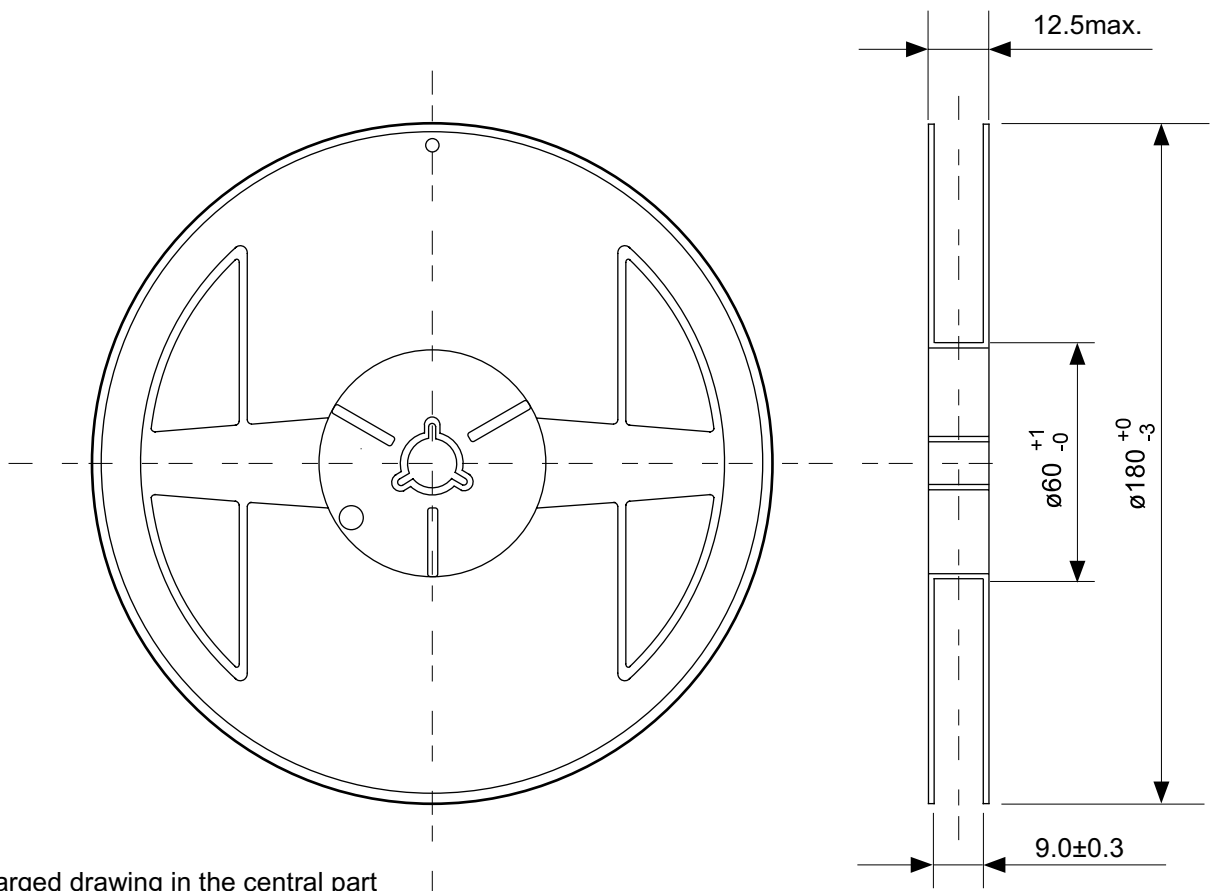
No. MP006-A-P-SD-1.1

TITLE	SOT236-A-PKG Dimensions
No.	MP006-A-P-SD-1.1
SCALE	
UNIT	mm
Seiko Instruments Inc.	

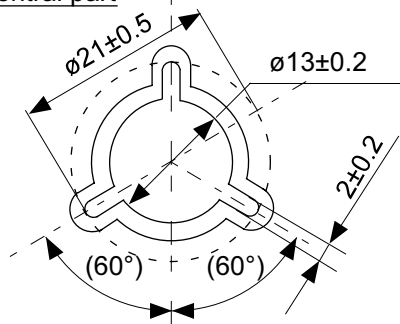


No. MP006-A-C-SD-3.1

TITLE	SOT236-A-Carrier Tape
No.	MP006-A-C-SD-3.1
SCALE	
UNIT	mm
Seiko Instruments Inc.	



Enlarged drawing in the central part



No. MP006-A-R-SD-2.1

TITLE	SOT236-A-Reel		
No.	MP006-A-R-SD-2.1		
SCALE		QTY	3,000
UNIT	mm		
Seiko Instruments Inc.			



Seiko Instruments Inc.  
[www.sii-ic.com](http://www.sii-ic.com)

- The information described herein is subject to change without notice.
- Seiko Instruments Inc. is not responsible for any problems caused by circuits or diagrams described herein whose related industrial properties, patents, or other rights belong to third parties. The application circuit examples explain typical applications of the products, and do not guarantee the success of any specific mass-production design.
- When the products described herein are regulated products subject to the Wassenaar Arrangement or other agreements, they may not be exported without authorization from the appropriate governmental authority.
- Use of the information described herein for other purposes and/or reproduction or copying without the express permission of Seiko Instruments Inc. is strictly prohibited.
- The products described herein cannot be used as part of any device or equipment affecting the human body, such as exercise equipment, medical equipment, security systems, gas equipment, or any apparatus installed in airplanes and other vehicles, without prior written permission of Seiko Instruments Inc.
- Although Seiko Instruments Inc. exerts the greatest possible effort to ensure high quality and reliability, the failure or malfunction of semiconductor products may occur. The user of these products should therefore give thorough consideration to safety design, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue.