



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



The S-808xxC series is a series of high-precision voltage detectors developed using CMOS process. The detection voltage is fixed internally with an accuracy of $\pm 2.0\%$. Two output forms, Nch open-drain and CMOS output, are available. Super-low current consumption and miniature package lineup can meet demand from the portable device applications.

■ Features

- Super-low current consumption 1.3 μA typ. (detection voltage ≤ 1.4 V, at $V_{\text{DD}} = 1.5$ V)
0.8 μA typ. (detection voltage ≥ 1.5 V, at $V_{\text{DD}} = 3.5$ V)
- High-precision detection voltage $\pm 2.0\%$
- Operating voltage range 0.65 V to 5.0 V (detection voltage ≤ 1.4 V)
0.95 V to 10.0 V (detection voltage ≥ 1.5 V)
- Hysteresis characteristics 5% typ.
- Detection voltage 0.8 V to 6.0 V (0.1 V step)
- Output form Nch open-drain output (Active Low)
CMOS output (Active Low)
- Lead-free, Sn 100%, halogen-free^{*1}

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

■ Applications

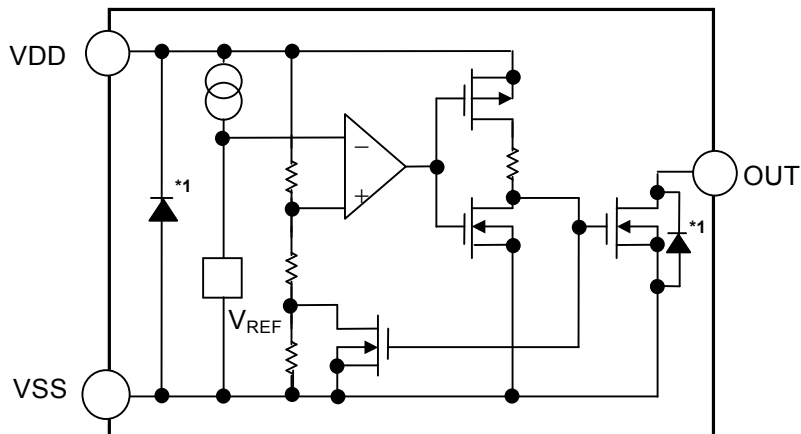
- Battery checkers
- Power failure detectors
- Power monitor for portable equipments such as pagers, calculators, electronic notebooks and remote controllers.
- Constant voltage power monitor for cameras, video equipments and communication devices.
- Power monitor for microcomputers and reset for CPUs.

■ Packages

- SC-82AB
- SOT-23-5
- SOT-89-3
- SNT-4A
- TO-92

■ Block Diagrams

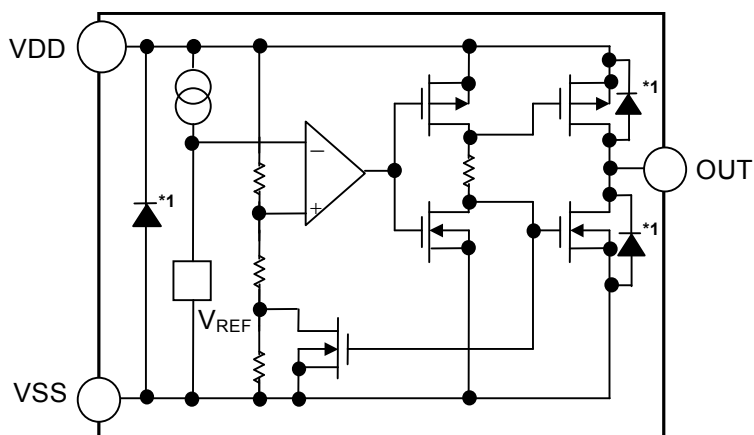
1. Nch Open-drain Output Products



*1. Parasitic diode

Figure 1

2. CMOS Output Products



*1. Parasitic diode

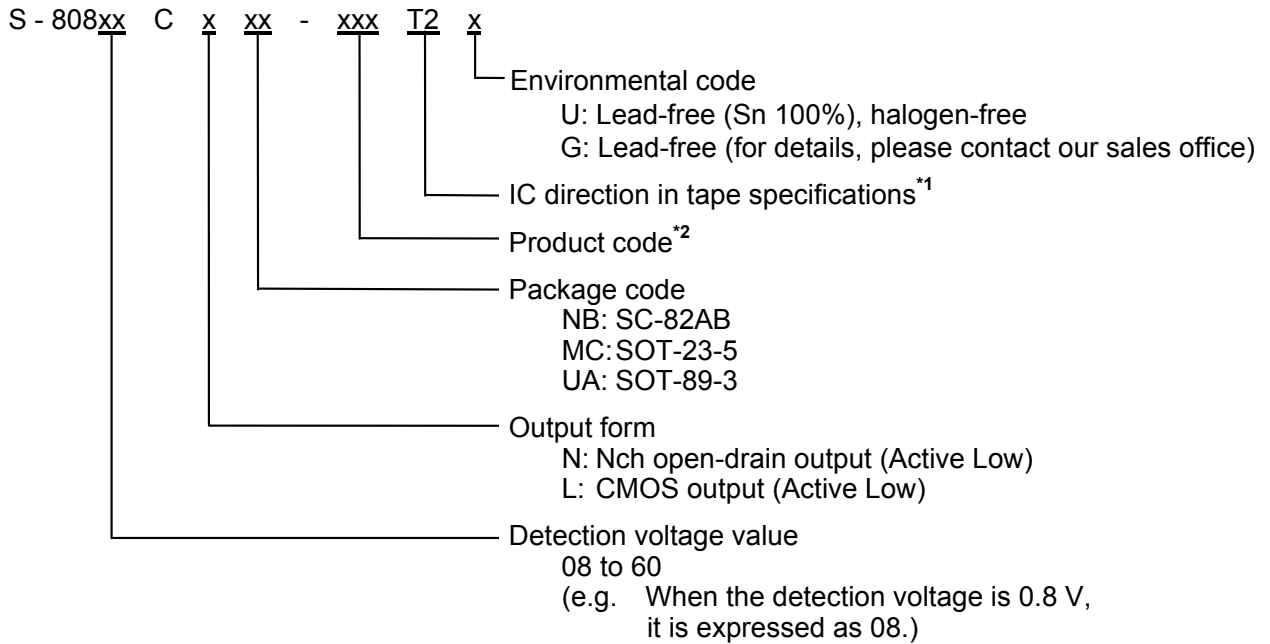
Figure 2

■ **Product Name Structure**

The detection voltage, output form and packages for S-808xxC Series can be selected at the user's request. Refer to the "1. Product Name" for the construction of the product name, "2. Packages" regarding the package drawings and "3. Product Name List" for the full product names.

1. Product Name

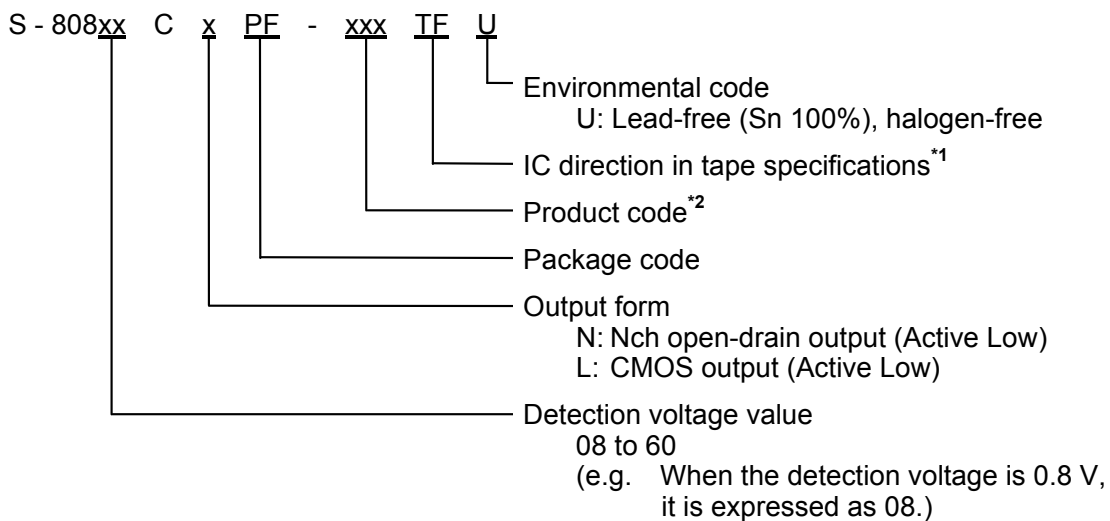
1-1. SC-82AB, SOT-23-5, SOT-89-3



*1. Refer to the tape specifications at the end of this book.

*2. Refer to the **Table 1 and 3** in the "3. Product Name List"

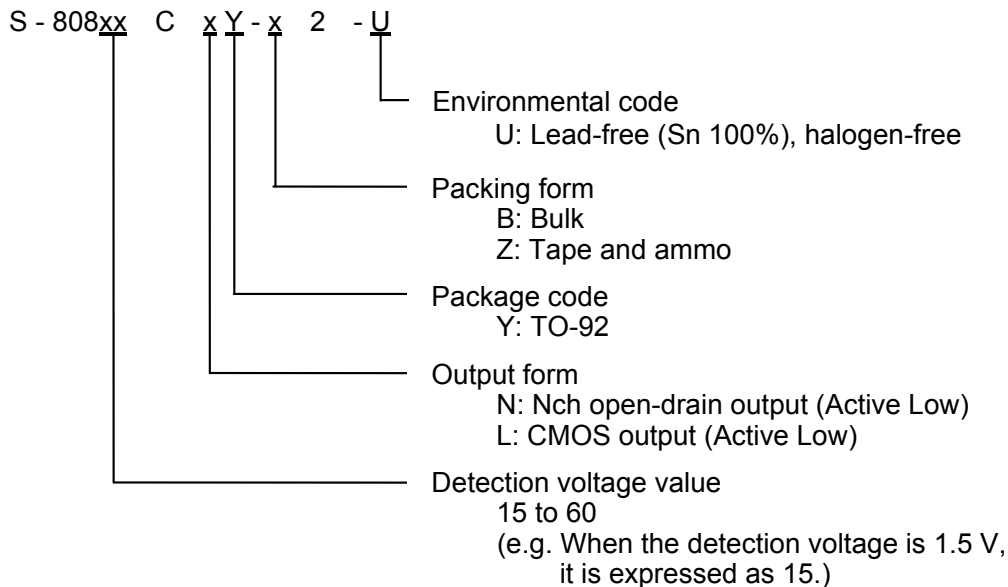
1-2. SNT-4A



*1. Refer to the tape specifications at the end of this book.

*2. Refer to the **Table 2 and 4** in the "3. Product Name List"

1-3. TO-92



2. Packages

Package name	Drawing code				
	Package	Tape	Reel	Zigzag	Land
SC-82AB	NP004-A-P-SD	NP004-A-C-SD NP004-A-C-S1	NP004-A-R-SD	—	—
SOT-23-5	MP005-A-P-SD	MP005-A-C-SD	MP005-A-R-SD	—	—
SOT-89-3	UP003-A-P-SD	UP003-A-C-SD	UP003-A-R-SD	—	—
SNT-4A	PF004-A-P-SD	PF004-A-C-SD	PF004-A-R-SD	—	PF004-A-L-SD
TO-92 (Bulk)	YS003-D-P-SD	—	—	—	—
TO-92 (Tape and ammo)	YZ003-E-P-SD	YZ003-E-C-SD	—	YZ003-E-Z-SD	—

3. Product Name List

3-1. Nch Open-drain Output Products

Table 1 (1/2)

Detection voltage range	Hysteresis width (Typ.)	SC-82AB	SOT-23-5	SOT-89-3
0.8 V±2.0 %	0.034 V	S-80808CNNB-B9MT2x	—	—
0.9 V±2.0 %	0.044 V	S-80809CNNB-B9NT2x	—	—
1.0 V±2.0 %	0.054 V	S-80810CNNB-B9OT2x	—	—
1.1 V±2.0 %	0.064 V	S-80811CNNB-B9PT2x	—	—
1.2 V±2.0 %	0.073 V	S-80812CNNB-B9QT2x	—	—
1.3 V±2.0 %	0.083 V	S-80813CNNB-B9RT2x	—	—
1.4 V±2.0 %	0.093 V	S-80814CNNB-B9ST2x	—	—
1.5 V±2.0 %	0.075 V	S-80815CNNB-B8AT2x	S-80815CNMC-B8AT2x	S-80815CNUA-B8AT2x
1.6 V±2.0 %	0.080 V	S-80816CNNB-B8BT2x	S-80816CNMC-B8BT2x	S-80816CNUA-B8BT2x
1.7 V±2.0 %	0.085 V	S-80817CNNB-B8CT2x	S-80817CNMC-B8CT2x	S-80817CNUA-B8CT2x
1.8 V±2.0 %	0.090 V	S-80818CNNB-B8DT2x	S-80818CNMC-B8DT2x	S-80818CNUA-B8DT2x
1.9 V±2.0 %	0.095 V	S-80819CNNB-B8ET2x	S-80819CNMC-B8ET2x	S-80819CNUA-B8ET2x
2.0 V±2.0 %	0.100 V	S-80820CNNB-B8FT2x	S-80820CNMC-B8FT2x	S-80820CNUA-B8FT2x
2.1 V±2.0 %	0.105 V	S-80821CNNB-B8GT2x	S-80821CNMC-B8GT2x	S-80821CNUA-B8GT2x
2.2 V±2.0 %	0.110 V	S-80822CNNB-B8HT2x	S-80822CNMC-B8HT2x	S-80822CNUA-B8HT2x
2.3 V±2.0 %	0.115 V	S-80823CNNB-B8IT2x	S-80823CNMC-B8IT2x	S-80823CNUA-B8IT2x
2.4 V±2.0 %	0.120 V	S-80824CNNB-B8JT2x	S-80824CNMC-B8JT2x	S-80824CNUA-B8JT2x
2.4 V typ.	4.4 ± 0.1 V ^{*1}	—	—	S-80824KNUA-D2BT2x ^{*2}
2.5 V±2.0 %	0.125 V	S-80825CNNB-B8KT2x	S-80825CNMC-B8KT2x	S-80825CNUA-B8KT2x
2.6 V±2.0 %	0.130 V	S-80826CNNB-B8LT2x	S-80826CNMC-B8LT2x	S-80826CNUA-B8LT2x
2.7 V±2.0 %	0.135 V	S-80827CNNB-B8MT2x	S-80827CNMC-B8MT2x	S-80827CNUA-B8MT2x
2.8 V±2.0 %	0.140 V	S-80828CNNB-B8NT2x	S-80828CNMC-B8NT2x	S-80828CNUA-B8NT2x
2.9 V±2.0 %	0.145 V	S-80829CNNB-B8OT2x	S-80829CNMC-B8OT2x	S-80829CNUA-B8OT2x
3.0 V±2.0 %	0.150 V	S-80830CNNB-B8PT2x	S-80830CNMC-B8PT2x	S-80830CNUA-B8PT2x
3.1 V±2.0 %	0.155 V	S-80831CNNB-B8QT2x	S-80831CNMC-B8QT2x	S-80831CNUA-B8QT2x
3.2 V±2.0 %	0.160 V	S-80832CNNB-B8RT2x	S-80832CNMC-B8RT2x	S-80832CNUA-B8RT2x
3.3 V±2.0 %	0.165 V	S-80833CNNB-B8ST2x	S-80833CNMC-B8ST2x	S-80833CNUA-B8ST2x
3.4 V±2.0 %	0.170 V	S-80834CNNB-B8TT2x	S-80834CNMC-B8TT2x	S-80834CNUA-B8TT2x
3.5 V±2.0 %	0.175 V	S-80835CNNB-B8UT2x	S-80835CNMC-B8UT2x	S-80835CNUA-B8UT2x
3.6 V±2.0 %	0.180 V	S-80836CNNB-B8VT2x	S-80836CNMC-B8VT2x	S-80836CNUA-B8VT2x
3.7 V±2.0 %	0.185 V	S-80837CNNB-B8WT2x	S-80837CNMC-B8WT2x	S-80837CNUA-B8WT2x
3.8 V±2.0 %	0.190 V	S-80838CNNB-B8XT2x	S-80838CNMC-B8XT2x	S-80838CNUA-B8XT2x
3.9 V±2.0 %	0.195 V	S-80839CNNB-B8YT2x	S-80839CNMC-B8YT2x	S-80839CNUA-B8YT2x

Table 1 (2/2)

Detection voltage range	Hysteresis width (Typ.)	SC-82AB	SOT-23-5	SOT-89-3
4.0 V±2.0 %	0.200 V	S-80840CNNB-B8ZT2x	S-80840CNMC-B8ZT2x	S-80840CNUA-B8ZT2x
4.1 V±2.0 %	0.205 V	S-80841CNNB-B82T2x	S-80841CNMC-B82T2x	S-80841CNUA-B82T2x
4.2 V±2.0 %	0.210 V	S-80842CNNB-B83T2x	S-80842CNMC-B83T2x	S-80842CNUA-B83T2x
4.3 V±2.0 %	0.215 V	S-80843CNNB-B84T2x	S-80843CNMC-B84T2x	S-80843CNUA-B84T2x
4.4 V±2.0 %	0.220 V	S-80844CNNB-B85T2x	S-80844CNMC-B85T2x	S-80844CNUA-B85T2x
4.5 V±2.0 %	0.225 V	S-80845CNNB-B86T2x	S-80845CNMC-B86T2x	S-80845CNUA-B86T2x
4.6 V±2.0 %	0.230 V	S-80846CNNB-B87T2x	S-80846CNMC-B87T2x	S-80846CNUA-B87T2x
4.6 V±0.10 V	0.10 V max.	—	—	S-80846KNUA-D2CT2x ^{*3}
4.7 V±2.0 %	0.235 V	S-80847CNNB-B88T2x	S-80847CNMC-B88T2x	S-80847CNUA-B88T2x
4.8 V±2.0 %	0.240 V	S-80848CNNB-B89T2x	S-80848CNMC-B89T2x	S-80848CNUA-B89T2x
4.9 V±2.0 %	0.245 V	S-80849CNNB-B9AT2x	S-80849CNMC-B9AT2x	S-80849CNUA-B9AT2x
5.0 V±2.0 %	0.250 V	S-80850CNNB-B9BT2x	S-80850CNMC-B9BT2x	S-80850CNUA-B9BT2x
5.1 V±2.0 %	0.255 V	S-80851CNNB-B9CT2x	S-80851CNMC-B9CT2x	S-80851CNUA-B9CT2x
5.2 V±2.0 %	0.260 V	S-80852CNNB-B9DT2x	S-80852CNMC-B9DT2x	S-80852CNUA-B9DT2x
5.3 V±2.0 %	0.265 V	S-80853CNNB-B9ET2x	S-80853CNMC-B9ET2x	S-80853CNUA-B9ET2x
5.4 V±2.0 %	0.270 V	S-80854CNNB-B9FT2x	S-80854CNMC-B9FT2x	S-80854CNUA-B9FT2x
5.5 V±2.0 %	0.275 V	S-80855CNNB-B9GT2x	S-80855CNMC-B9GT2x	S-80855CNUA-B9GT2x
5.6 V±2.0 %	0.280 V	S-80856CNNB-B9HT2x	S-80856CNMC-B9HT2x	S-80856CNUA-B9HT2x
5.7 V±2.0 %	0.285 V	S-80857CNNB-B9IT2x	S-80857CNMC-B9IT2x	S-80857CNUA-B9IT2x
5.8 V±2.0 %	0.290 V	S-80858CNNB-B9JT2x	S-80858CNMC-B9JT2x	S-80858CNUA-B9JT2x
5.9 V±2.0 %	0.295 V	S-80859CNNB-B9KT2x	S-80859CNMC-B9KT2x	S-80859CNUA-B9KT2x
6.0 V±2.0 %	0.300 V	S-80860CNNB-B9LT2x	S-80860CNMC-B9LT2x	S-80860CNUA-B9LT2x

*1. Describes the release voltage.

*2. Refer to the **Table 18** in “■ Electrical Characteristics for Customized Products” for electrical characteristics.

*3. Refer to the **Table 20** in “■ Electrical Characteristics for Customized Products” for electrical characteristics

Remark 1. x: G or U

2. Please select products of environmental code = U for Sn 100%, halogen-free products.

Table 2 (1/2)

Detection voltage range	Hysteresis width (Typ.)	SNT-4A	TO-92*1
0.8 V±2.0 %	0.034 V	S-80808CNPFB-B9MTFU	—
0.9 V±2.0 %	0.044 V	S-80809CNPFB-B9NTFU	—
1.0 V±2.0 %	0.054 V	S-80810CNPFB-B9OTFU	—
1.1 V±2.0 %	0.064 V	S-80811CNPFB-B9PTFU	—
1.2 V±2.0 %	0.073 V	S-80812CNPFB-B9QTFU	—
1.3 V±2.0 %	0.083 V	S-80813CNPFB-B9RTFU	—
1.4 V±2.0 %	0.093 V	S-80814CNPFB-B9STFU	—
1.5 V±2.0 %	0.075 V	S-80815CNPFB-B8ATFU	S-80815CNY-n2-U
1.6 V±2.0 %	0.080 V	S-80816CNPFB-B8BTFU	S-80816CNY-n2-U
1.7 V±2.0 %	0.085 V	S-80817CNPFB-B8CTFU	S-80817CNY-n2-U
1.8 V±2.0 %	0.090 V	S-80818CNPFB-B8DTFU	S-80818CNY-n2-U
1.9 V±2.0 %	0.095 V	S-80819CNPFB-B8ETFU	S-80819CNY-n2-U
2.0 V±2.0 %	0.100 V	S-80820CNPFB-B8FTFU	S-80820CNY-n2-U
2.1 V±2.0 %	0.105 V	S-80821CNPFB-B8GTFU	S-80821CNY-n2-U
2.2 V±2.0 %	0.110 V	S-80822CNPFB-B8HTFU	S-80822CNY-n2-U
2.3 V±2.0 %	0.115 V	S-80823CNPFB-B8ITFU	S-80823CNY-n2-U
2.4 V±2.0 %	0.120 V	S-80824CNPFB-B8JTFU	S-80824CNY-n2-U
2.4 V typ.	4.4 ± 0.1 V*2	—	S-80824KNY-n2-U*3
2.5 V±2.0 %	0.125 V	S-80825CNPFB-B8KTFU	S-80825CNY-n2-U
2.6 V±2.0 %	0.130 V	S-80826CNPFB-B8LTFU	S-80826CNY-n2-U
2.7 V±2.0 %	0.135 V	S-80827CNPFB-B8MTFU	S-80827CNY-n2-U
2.8 V±2.0 %	0.140 V	S-80828CNPFB-B8NTFU	S-80828CNY-n2-U
2.9 V±2.0 %	0.145 V	S-80829CNPFB-B8OTFU	S-80829CNY-n2-U
3.0 V±2.0 %	0.150 V	S-80830CNPFB-B8PTFU	S-80830CNY-n2-U
3.1 V±2.0 %	0.155 V	S-80831CNPFB-B8QTFU	S-80831CNY-n2-U
3.2 V±2.0 %	0.160 V	S-80832CNPFB-B8RTFU	S-80832CNY-n2-U
3.3 V±2.0 %	0.165 V	S-80833CNPFB-B8STFU	S-80833CNY-n2-U
3.4 V±2.0 %	0.170 V	S-80834CNPFB-B8TTFU	S-80834CNY-n2-U
3.5 V±2.0 %	0.175 V	S-80835CNPFB-B8UTFU	S-80835CNY-n2-U
3.6 V±2.0 %	0.180 V	S-80836CNPFB-B8VTFU	S-80836CNY-n2-U
3.7 V±2.0 %	0.185 V	S-80837CNPFB-B8WTFU	S-80837CNY-n2-U
3.8 V±2.0 %	0.190 V	S-80838CNPFB-B8XTFU	S-80838CNY-n2-U
3.9 V±2.0 %	0.195 V	S-80839CNPFB-B8YTFU	S-80839CNY-n2-U
4.0 V±2.0 %	0.200 V	S-80840CNPFB-B8ZTFU	S-80840CNY-n2-U
4.1 V±2.0 %	0.205 V	S-80841CNPFB-B82TFU	S-80841CNY-n2-U
4.2 V±2.0 %	0.210 V	S-80842CNPFB-B83TFU	S-80842CNY-n2-U
4.3 V±2.0 %	0.215 V	S-80843CNPFB-B84TFU	S-80843CNY-n2-U
4.4 V±2.0 %	0.220 V	S-80844CNPFB-B85TFU	S-80844CNY-n2-U
4.5 V±2.0 %	0.225 V	S-80845CNPFB-B86TFU	S-80845CNY-n2-U
4.6 V±2.0 %	0.230 V	S-80846CNPFB-B87TFU	S-80846CNY-n2-U
4.6 V±0.10 V	0.10 V max.	—	S-80846KNY-n2-U*4
4.7 V±2.0 %	0.235 V	S-80847CNPFB-B88TFU	S-80847CNY-n2-U
4.8 V±2.0 %	0.240 V	S-80848CNPFB-B89TFU	S-80848CNY-n2-U
4.9 V±2.0 %	0.245 V	S-80849CNPFB-B9ATFU	S-80849CNY-n2-U
5.0 V±2.0 %	0.250 V	S-80850CNPFB-B9BTFU	S-80850CNY-n2-U
5.1 V±2.0 %	0.255 V	S-80851CNPFB-B9CTFU	S-80851CNY-n2-U

Table 2 (2/2)

Detection voltage range	Hysteresis width (Typ.)	SNT-4A	TO-92*1
5.2 V±2.0 %	0.260 V	S-80852CNPF-B9DTFU	S-80852CNY-n2-U
5.3 V±2.0 %	0.265 V	S-80853CNPF-B9ETFU	S-80853CNY-n2-U
5.4 V±2.0 %	0.270 V	S-80854CNPF-B9FTFU	S-80854CNY-n2-U
5.5 V±2.0 %	0.275 V	S-80855CNPF-B9GTFU	S-80855CNY-n2-U
5.6 V±2.0 %	0.280 V	S-80856CNPF-B9HTFU	S-80856CNY-n2-U
5.7 V±2.0 %	0.285 V	S-80857CNPF-B9ITFU	S-80857CNY-n2-U
5.8 V±2.0 %	0.290 V	S-80858CNPF-B9JTFU	S-80858CNY-n2-U
5.9 V±2.0 %	0.295 V	S-80859CNPF-B9KTFU	S-80859CNY-n2-U
6.0 V±2.0 %	0.300 V	S-80860CNPF-B9LTFU	S-80860CNY-n2-U

*1. n changes according to the packing form in TO-92. B: Bulk, Z: Tape and ammo

*2. Describes the release voltage.

*3. Refer to the **Table 18** in “■ Electrical Characteristics for Customized Products” for electrical characteristics.

*4. Refer to the **Table 20** in “■ Electrical Characteristics for Customized Products” for electrical characteristics.

SUPER-SMALL PACKAGE HIGH-PRECISION VOLTAGE DETECTOR

Rev.6.2_02

S-808xxC Series

3-2. CMOS Output Products

Table 3 (1/2)

Detection voltage range	Hysteresis width (Typ.)	SC-82AB	SOT-23-5	SOT-89-3
0.8 V±2.0 %	0.034 V	S-80808CLNB-B7MT2x	—	—
0.9 V±2.0 %	0.044 V	S-80809CLNB-B7NT2x	—	—
1.0 V±2.0 %	0.054 V	S-80810CLNB-B7OT2x	—	—
1.1 V±2.0 %	0.064 V	S-80811CLNB-B7PT2x	—	—
1.2 V±2.0 %	0.073 V	S-80812CLNB-B7QT2x	—	—
1.3 V±2.0 %	0.083 V	S-80813CLNB-B7RT2x	—	—
1.4 V±2.0 %	0.093 V	S-80814CLNB-B7ST2x	—	—
1.5 V±2.0 %	0.075 V	S-80815CLNB-B6AT2x	S-80815CLMC-B6AT2x	S-80815CLUA-B6AT2x
1.6 V±2.0 %	0.080 V	S-80816CLNB-B6BT2x	S-80816CLMC-B6BT2x	S-80816CLUA-B6BT2x
1.7 V±2.0 %	0.085 V	S-80817CLNB-B6CT2x	S-80817CLMC-B6CT2x	S-80817CLUA-B6CT2x
1.8 V±2.0 %	0.090 V	S-80818CLNB-B6DT2x	S-80818CLMC-B6DT2x	S-80818CLUA-B6DT2x
1.9 V±2.0 %	0.095 V	S-80819CLNB-B6ET2x	S-80819CLMC-B6ET2x	S-80819CLUA-B6ET2x
2.0 V±2.0 %	0.100 V	S-80820CLNB-B6FT2x	S-80820CLMC-B6FT2x	S-80820CLUA-B6FT2x
2.1 V±2.0 %	0.105 V	S-80821CLNB-B6GT2x	S-80821CLMC-B6GT2x	S-80821CLUA-B6GT2x
2.2 V±2.0 %	0.110 V	S-80822CLNB-B6HT2x	S-80822CLMC-B6HT2x	S-80822CLUA-B6HT2x
2.3 V±2.0 %	0.115 V	S-80823CLNB-B6IT2x	S-80823CLMC-B6IT2x	S-80823CLUA-B6IT2x
2.4 V±2.0 %	0.120 V	S-80824CLNB-B6JT2x	S-80824CLMC-B6JT2x	S-80824CLUA-B6JT2x
2.5 V±2.0 %	0.125 V	S-80825CLNB-B6KT2x	S-80825CLMC-B6KT2x	S-80825CLUA-B6KT2x
2.6 V±2.0 %	0.130 V	S-80826CLNB-B6LT2x	S-80826CLMC-B6LT2x	S-80826CLUA-B6LT2x
2.7 V±2.0 %	0.135 V	S-80827CLNB-B6MT2x	S-80827CLMC-B6MT2x	S-80827CLUA-B6MT2x
2.8 V±2.0 %	0.140 V	S-80828CLNB-B6NT2x	S-80828CLMC-B6NT2x	S-80828CLUA-B6NT2x
2.9 V±2.0 %	0.145 V	S-80829CLNB-B6OT2x	S-80829CLMC-B6OT2x	S-80829CLUA-B6OT2x
3.0 V±2.0 %	0.150 V	S-80830CLNB-B6PT2x	S-80830CLMC-B6PT2x	S-80830CLUA-B6PT2x
3.1 V±2.0 %	0.155 V	S-80831CLNB-B6QT2x	S-80831CLMC-B6QT2x	S-80831CLUA-B6QT2x
3.2 V±2.0 %	0.160 V	S-80832CLNB-B6RT2x	S-80832CLMC-B6RT2x	S-80832CLUA-B6RT2x
3.3 V±2.0 %	0.165 V	S-80833CLNB-B6ST2x	S-80833CLMC-B6ST2x	S-80833CLUA-B6ST2x
3.4 V±2.0 %	0.170 V	S-80834CLNB-B6TT2x	S-80834CLMC-B6TT2x	S-80834CLUA-B6TT2x
3.5 V±2.0 %	0.175 V	S-80835CLNB-B6UT2x	S-80835CLMC-B6UT2x	S-80835CLUA-B6UT2x
3.6 V±2.0 %	0.180 V	S-80836CLNB-B6VT2x	S-80836CLMC-B6VT2x	S-80836CLUA-B6VT2x
3.7 V±2.0 %	0.185 V	S-80837CLNB-B6WT2x	S-80837CLMC-B6WT2x	S-80837CLUA-B6WT2x
3.8 V±2.0 %	0.190 V	S-80838CLNB-B6XT2x	S-80838CLMC-B6XT2x	S-80838CLUA-B6XT2x
3.9 V±2.0 %	0.195 V	S-80839CLNB-B6YT2x	S-80839CLMC-B6YT2x	S-80839CLUA-B6YT2x
4.0 V±2.0 %	0.200 V	S-80840CLNB-B6ZT2x	S-80840CLMC-B6ZT2x	S-80840CLUA-B6ZT2x
4.1 V±2.0 %	0.205 V	S-80841CLNB-B62T2x	S-80841CLMC-B62T2x	S-80841CLUA-B62T2x
4.2 V±2.0 %	0.210 V	S-80842CLNB-B63T2x	S-80842CLMC-B63T2x	S-80842CLUA-B63T2x
4.3 V±2.0 %	0.215 V	S-80843CLNB-B64T2x	S-80843CLMC-B64T2x	S-80843CLUA-B64T2x
4.4 V±2.0 %	0.220 V	S-80844CLNB-B65T2x	S-80844CLMC-B65T2x	S-80844CLUA-B65T2x
4.45 V typ.	4.70 V max.*1	—	—	S-80844KLUA-D2AT2x*2
4.5 V±2.0 %	0.225 V	S-80845CLNB-B66T2x	S-80845CLMC-B66T2x	S-80845CLUA-B66T2x
4.6 V±2.0 %	0.230 V	S-80846CLNB-B67T2x	S-80846CLMC-B67T2x	S-80846CLUA-B67T2x
4.7 V±2.0 %	0.235 V	S-80847CLNB-B68T2x	S-80847CLMC-B68T2x	S-80847CLUA-B68T2x
4.8 V±2.0 %	0.240 V	S-80848CLNB-B69T2x	S-80848CLMC-B69T2x	S-80848CLUA-B69T2x
4.9 V±2.0 %	0.245 V	S-80849CLNB-B7AT2x	S-80849CLMC-B7AT2x	S-80849CLUA-B7AT2x
5.0 V±2.0 %	0.250 V	S-80850CLNB-B7BT2x	S-80850CLMC-B7BT2x	S-80850CLUA-B7BT2x
5.1 V±2.0 %	0.255 V	S-80851CLNB-B7CT2x	S-80851CLMC-B7CT2x	S-80851CLUA-B7CT2x

Table 3 (2/2)

Detection voltage range	Hysteresis width (Typ.)	SC-82AB	SOT-23-5	SOT-89-3
5.2 V±2.0 %	0.260 V	S-80852CLNB-B7DT2x	S-80852CLMC-B7DT2x	S-80852CLUA-B7DT2x
5.3 V±2.0 %	0.265 V	S-80853CLNB-B7ET2x	S-80853CLMC-B7ET2x	S-80853CLUA-B7ET2x
5.4 V±2.0 %	0.270 V	S-80854CLNB-B7FT2x	S-80854CLMC-B7FT2x	S-80854CLUA-B7FT2x
5.5 V±2.0 %	0.275 V	S-80855CLNB-B7GT2x	S-80855CLMC-B7GT2x	S-80855CLUA-B7GT2x
5.6 V±2.0 %	0.280 V	S-80856CLNB-B7HT2x	S-80856CLMC-B7HT2x	S-80856CLUA-B7HT2x
5.7 V±2.0 %	0.285 V	S-80857CLNB-B7IT2x	S-80857CLMC-B7IT2x	S-80857CLUA-B7IT2x
5.8 V±2.0 %	0.290 V	S-80858CLNB-B7JT2x	S-80858CLMC-B7JT2x	S-80858CLUA-B7JT2x
5.9 V±2.0 %	0.295 V	S-80859CLNB-B7KT2x	S-80859CLMC-B7KT2x	S-80859CLUA-B7KT2x
6.0 V±2.0 %	0.300 V	S-80860CLNB-B7LT2x	S-80860CLMC-B7LT2x	S-80860CLUA-B7LT2x

*1. Describes the release voltage.

*2. Refer to the **Table 19** in “■ Electrical Characteristics for Customized Products” for electrical characteristics.

Remark 1. x: G or U

2. Please select products of environmental code = U for Sn 100%, halogen-free products.

Table 4 (1/2)

Detection voltage range	Hysteresis width (Typ.)	SNT-4A	TO-92*1
0.8 V±2.0 %	0.034 V	S-80808CLPF-B7MTFU	—
0.9 V±2.0 %	0.044 V	S-80809CLPF-B7NTFU	—
1.0 V±2.0 %	0.054 V	S-80810CLPF-B7OTFU	—
1.1 V±2.0 %	0.064 V	S-80811CLPF-B7PTFU	—
1.2 V±2.0 %	0.073 V	S-80812CLPF-B7QTFU	—
1.3 V±2.0 %	0.083 V	S-80813CLPF-B7RTFU	—
1.4 V±2.0 %	0.093 V	S-80814CLPF-B7STFU	—
1.5 V±2.0 %	0.075 V	S-80815CLPF-B6ATFU	S-80815CLY-n2-U
1.6 V±2.0 %	0.080 V	S-80816CLPF-B6BTFU	S-80816CLY-n2-U
1.7 V±2.0 %	0.085 V	S-80817CLPF-B6CTFU	S-80817CLY-n2-U
1.8 V±2.0 %	0.090 V	S-80818CLPF-B6DTFU	S-80818CLY-n2-U
1.9 V±2.0 %	0.095 V	S-80819CLPF-B6ETFU	S-80819CLY-n2-U
2.0 V±2.0 %	0.100 V	S-80820CLPF-B6FTFU	S-80820CLY-n2-U
2.1 V±2.0 %	0.105 V	S-80821CLPF-B6GTFU	S-80821CLY-n2-U
2.2 V±2.0 %	0.110 V	S-80822CLPF-B6HTFU	S-80822CLY-n2-U
2.3 V±2.0 %	0.115 V	S-80823CLPF-B6ITFU	S-80823CLY-n2-U
2.4 V±2.0 %	0.120 V	S-80824CLPF-B6JTFU	S-80824CLY-n2-U
2.5 V±2.0 %	0.125 V	S-80825CLPF-B6KTFU	S-80825CLY-n2-U
2.6 V±2.0 %	0.130 V	S-80826CLPF-B6LTFU	S-80826CLY-n2-U
2.7 V±2.0 %	0.135 V	S-80827CLPF-B6MTFU	S-80827CLY-n2-U
2.8 V±2.0 %	0.140 V	S-80828CLPF-B6NTFU	S-80828CLY-n2-U
2.9 V±2.0 %	0.145 V	S-80829CLPF-B6OTFU	S-80829CLY-n2-U
3.0 V±2.0 %	0.150 V	S-80830CLPF-B6PTFU	S-80830CLY-n2-U
3.1 V±2.0 %	0.155 V	S-80831CLPF-B6QTFU	S-80831CLY-n2-U
3.2 V±2.0 %	0.160 V	S-80832CLPF-B6RTFU	S-80832CLY-n2-U
3.3 V±2.0 %	0.165 V	S-80833CLPF-B6STFU	S-80833CLY-n2-U
3.4 V±2.0 %	0.170 V	S-80834CLPF-B6TTFU	S-80834CLY-n2-U
3.5 V±2.0 %	0.175 V	S-80835CLPF-B6UTFU	S-80835CLY-n2-U
3.6 V±2.0 %	0.180 V	S-80836CLPF-B6VTFU	S-80836CLY-n2-U
3.7 V±2.0 %	0.185 V	S-80837CLPF-B6WTFU	S-80837CLY-n2-U
3.8 V±2.0 %	0.190 V	S-80838CLPF-B6XTFU	S-80838CLY-n2-U

Table 4 (2/2)

Detection voltage range	Hysteresis width (Typ.)	SNT-4A	TO-92*1
3.9 V±2.0 %	0.195 V	S-80839CLPF-B6YTFU	S-80839CLY-n2-U
4.0 V±2.0 %	0.200 V	S-80840CLPF-B6ZTFU	S-80840CLY-n2-U
4.1 V±2.0 %	0.205 V	S-80841CLPF-B62TFU	S-80841CLY-n2-U
4.2 V±2.0 %	0.210 V	S-80842CLPF-B63TFU	S-80842CLY-n2-U
4.3 V±2.0 %	0.215 V	S-80843CLPF-B64TFU	S-80843CLY-n2-U
4.4 V±2.0 %	0.220 V	S-80844CLPF-B65TFU	S-80844CLY-n2-U
4.45 V typ.	4.70 V max. ^{*2}	—	S-80844KLY-n2-U ^{*3}
4.5 V±2.0 %	0.225 V	S-80845CLPF-B66TFU	S-80845CLY-n2-U
4.6 V±2.0 %	0.230 V	S-80846CLPF-B67TFU	S-80846CLY-n2-U
4.7 V±2.0 %	0.235 V	S-80847CLPF-B68TFU	S-80847CLY-n2-U
4.8 V±2.0 %	0.240 V	S-80848CLPF-B69TFU	S-80848CLY-n2-U
4.9 V±2.0 %	0.245 V	S-80849CLPF-B7ATFU	S-80849CLY-n2-U
5.0 V±2.0 %	0.250 V	S-80850CLPF-B7BTFU	S-80850CLY-n2-U
5.1 V±2.0 %	0.255 V	S-80851CLPF-B7CTFU	S-80851CLY-n2-U
5.2 V±2.0 %	0.260 V	S-80852CLPF-B7DTFU	S-80852CLY-n2-U
5.3 V±2.0 %	0.265 V	S-80853CLPF-B7ETFU	S-80853CLY-n2-U
5.4 V±2.0 %	0.270 V	S-80854CLPF-B7FTFU	S-80854CLY-n2-U
5.5 V±2.0 %	0.275 V	S-80855CLPF-B7GTFU	S-80855CLY-n2-U
5.6 V±2.0 %	0.280 V	S-80856CLPF-B7HTFU	S-80856CLY-n2-U
5.7 V±2.0 %	0.285 V	S-80857CLPF-B7ITFU	S-80857CLY-n2-U
5.8 V±2.0 %	0.290 V	S-80858CLPF-B7JTFU	S-80858CLY-n2-U
5.9 V±2.0 %	0.295 V	S-80859CLPF-B7KTFU	S-80859CLY-n2-U
6.0 V±2.0 %	0.300 V	S-80860CLPF-B7LTFU	S-80860CLY-n2-U

*1. n changes according to the packing form in TO-92. B: Bulk, Z: Tape and ammo

*2. Describes the release voltage.

*3. Refer to the **Table 19** in “■ Electrical Characteristics for Customized Products” for electrical characteristics.

■ **Output Forms**

1. **Output Forms in S-808xxC Series**

Table 5

	Nch open-drain output products (Active Low)	CMOS output products (Active Low)
S-808xxC Series	“N” is the last letter of the product name. e.g. S-80815CN	“L” is the last letter of the product name. e.g. S-80815CL

2. **Output Forms and Their Usage**

Table 6

Usage	Nch open-drain output products (Active Low)	CMOS output products (Active Low)
Different power supplies	Yes	No
Active Low reset for CPUs	Yes	Yes
Active High reset for CPUs	No	No
Detection voltage change by resistor divider	Yes	No

- Example for two power supplies
- Example for one power supply

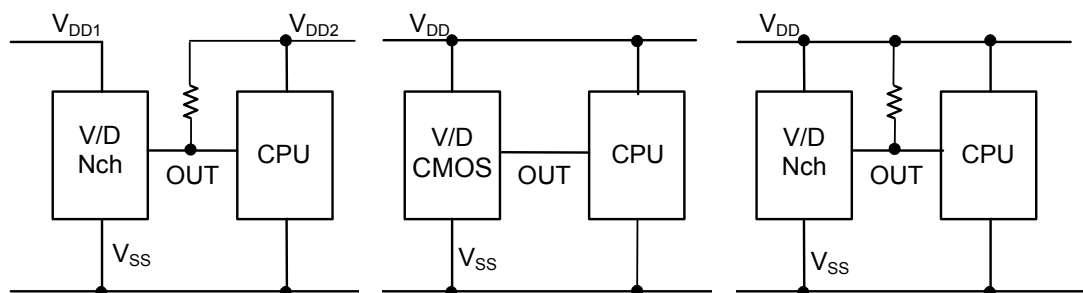


Figure 3

■ **Pin Configurations**

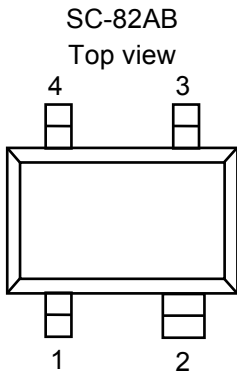


Figure 4

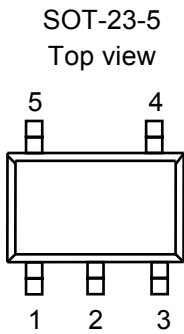


Figure 5

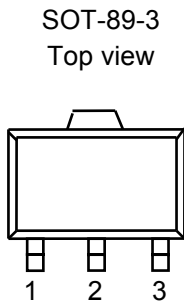


Figure 6

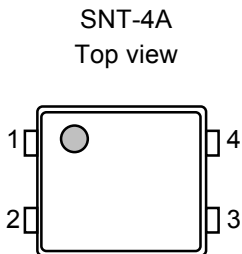


Figure 7

Table 7

Pin No.	Symbol	Description
1	OUT	Voltage detection output pin
2	VDD	Voltage input pin
3	NC ^{*1}	No connection
4	VSS	GND pin

*1. The NC pin is electrically open.
 The NC pin can be connected to VDD or VSS.

Table 8

Pin No.	Symbol	Description
1	OUT	Voltage detection output pin
2	VDD	Voltage input pin
3	VSS	GND pin
4	NC ^{*1}	No connection
5	NC ^{*1}	No connection

*1. The NC pin is electrically open.
 The NC pin can be connected to VDD or VSS.

Table 9

Pin No.	Symbol	Description
1	OUT	Voltage detection output pin
2	VDD	Voltage input pin
3	VSS	GND pin

Table 10

Pin No.	Symbol	Description
1	OUT	Voltage detection output pin
2	VSS	GND pin
3	NC ^{*1}	No connection
4	VDD	Voltage input pin

*1. The NC pin is electrically open.
 The NC pin can be connected to VDD or VSS.

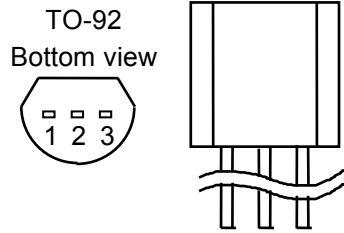


Figure 8

Table 11

Pin No.	Symbol	Description
1	OUT	Voltage detection output pin
2	VDD	Voltage input pin
3	VSS	GND pin

■ **Absolute Maximum Ratings**

1. **Detection Voltage Typ. 1.4 V or Less Products**

Table 12

(Ta = 25 °C unless otherwise specified)

Item		Symbol	Absolute maximum ratings	Unit
Power supply voltage		$V_{DD}-V_{SS}$	7	V
Output voltage	Nch open-drain output products	V_{OUT}	$V_{SS}-0.3$ to $V_{SS}+7$	V
	CMOS output products		$V_{SS}-0.3$ to $V_{DD}+0.3$	V
Output current		I_{OUT}	50	mA
Power dissipation	SC-82AB	P_D	150 (When not mounted on board)	mW
			350 ^{*1}	mW
	SNT-4A		140 (When not mounted on board)	mW
			300 ^{*1}	mW
Operating ambient temperature		T_{opr}	-40 to +85	°C
Storage temperature		T_{stg}	-40 to +125	°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.

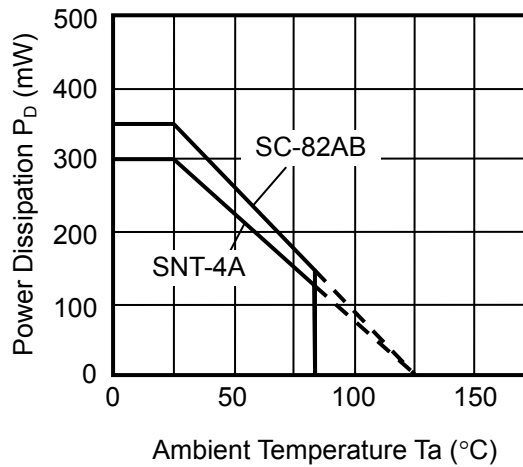


Figure 9 Power Dissipation of Package (When Mounted on Board)

2. Detection Voltage Typ. 1.5 V or More Products

Table 13

(Ta = 25 °C unless otherwise specified)

Item		Symbol	Absolute maximum ratings	Unit
Power supply voltage		$V_{DD}-V_{SS}$	12	V
Output voltage	Nch open-drain output products	V_{OUT}	$V_{SS}-0.3$ to $V_{SS}+12$	V
	CMOS output products		$V_{SS}-0.3$ to $V_{DD}+0.3$	V
Output current		I_{OUT}	50	mA
Power dissipation	SC-82AB	P_D	150 (When not mounted on board)	mW
			350 ^{*1}	mW
	SOT-23-5		250 (When not mounted on board)	mW
			600 ^{*1}	mW
	SOT-89-3		500 (When not mounted on board)	mW
			1000 ^{*1}	mW
	SNT-4A		140 (When not mounted on board)	mW
			300 ^{*1}	mW
TO-92	400 (When not mounted on board)	mW		
	800 ^{*1}	mW		
Operating ambient temperature		T_{opr}	-40 to +85	°C
Storage temperature		T_{stg}	-40 to +125	°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.

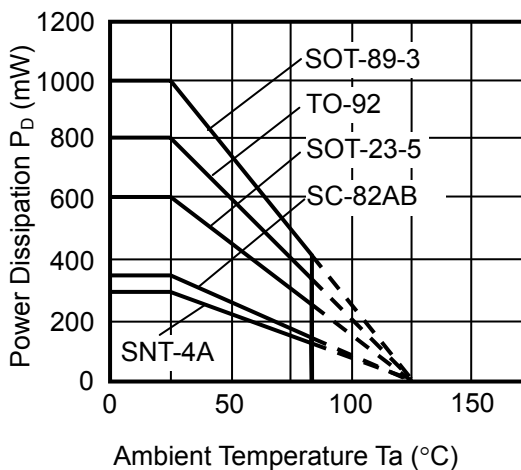


Figure 10 Power Dissipation of Package (When Mounted on Board)

SUPER-SMALL PACKAGE HIGH-PRECISION VOLTAGE DETECTOR
S-808xxC Series

Rev.6.2_02

■ **Electrical Characteristics**

1. **Nch Open-drain Output Products**

1-1. **Detection Voltage Typ.1.4 V or Less Products**

Table 14

(Ta = 25 °C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test circuit
Detection voltage*1	$-V_{DET}$	—	$-V_{DET(S)} \times 0.98$	$-V_{DET(S)}$	$-V_{DET(S)} \times 1.02$	V	1
Release voltage	$+V_{DET}$	S-80808	0.802	0.834	0.867	V	1
		S-80809	0.910	0.944	0.979	V	1
		S-80810	1.017	1.054	1.091	V	1
		S-80811	1.125	1.164	1.203	V	1
		S-80812	1.232	1.273	1.315	V	1
		S-80813	1.340	1.383	1.427	V	1
		S-80814	1.448	1.493	1.538	V	1
Hysteresis width	V_{HYS}	S-80808	0.018	0.034	0.051	V	1
		S-80809	0.028	0.044	0.061	V	1
		S-80810	0.037	0.054	0.071	V	1
		S-80811	0.047	0.064	0.081	V	1
		S-80812	0.056	0.073	0.091	V	1
		S-80813	0.066	0.083	0.101	V	1
		S-80814	0.076	0.093	0.110	V	1
Current consumption	I_{SS}	$V_{DD} = 1.5\text{ V}$ S-80808 to 09	—	1.3	3.5	μA	2
		$V_{DD} = 2.0\text{ V}$ S-80810 to 14	—	1.3	3.5	μA	2
Operating voltage	V_{DD}	—	0.65	—	5.0	V	1
Output current	I_{OUT}	Output transistor, Nch, $V_{DS} = 0.5\text{ V}$, $V_{DD} = 0.7\text{ V}$	0.04	0.2	—	mA	3
Leakage current	I_{LEAK}	Output transistor, Nch, $V_{DS} = 5.0\text{ V}$, $V_{DD} = 5.0\text{ V}$	—	—	60	nA	3
Response time	t_{PLH}	—	—	—	60	μs	1
Detection voltage temperature coefficient*2	$\frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}}$	Ta = -40 to +85 °C	—	± 100	± 350	ppm/ °C	1

*1. $-V_{DET}$: Actual detection voltage value, $-V_{DET(S)}$: Specified detection voltage value (The center value of the detection voltage range in **Table 1 to 2**.)

*2. The temperature change of the detection voltage [mV/°C] is calculated by using the following equation.

$$\frac{\Delta - V_{DET}}{\Delta Ta} [\text{mV}/^\circ\text{C}]^{*1} = -V_{DET(S)}(\text{Typ.})[\text{V}]^{*2} \times \frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}} [\text{ppm}/^\circ\text{C}]^{*3} \div 1000$$

*1. Temperature change of the detection voltage

*2. Specified detection voltage

*3. Detection voltage temperature coefficient

1-2. Detection Voltage Typ.1.5 V or More Products

Table 15

(Ta = 25 °C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test circuit	
Detection voltage* ¹	-V _{DET}	—	-V _{DET(S)} ×0.98	-V _{DET(S)}	-V _{DET(S)} ×1.02	V	1	
Hysteresis width	V _{HYS}	—	-V _{DET} ×0.03	-V _{DET} ×0.05	-V _{DET} ×0.08	V	1	
Current consumption	I _{SS}	V _{DD} = 3.5 V	S-80815 to 26	—	0.8	2.4	μA	2
		V _{DD} = 4.5 V	S-80827 to 39	—	0.8	2.4	μA	2
		V _{DD} = 6.0 V	S-80840 to 56	—	0.9	2.7	μA	2
		V _{DD} = 7.5 V	S-80857 to 60	—	0.9	2.7	μA	2
Operating voltage	V _{DD}	—	0.95	—	10.0	V	1	
Output current	I _{OUT}	Output transistor, V _{DD} = 1.2 V Nch, V _{DS} = 0.5 V	S-80815 to 60	0.59	1.36	—	mA	3
		Output transistor, V _{DD} = 2.4 V Nch, V _{DS} = 0.5 V	S-80827 to 60	2.88	4.98	—	mA	3
Leakage current	I _{LEAK}	Output transistor, Nch, V _{DS} = 10.0 V, V _{DD} = 10.0 V	—	—	100	nA	3	
Response time	t _{PLH}	—	—	—	60	μs	1	
Detection voltage temperature coefficient* ²	$\frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}}$	Ta = -40 to +85 °C	—	±100	±350	ppm/ °C	1	

*1. -V_{DET}: Actual detection voltage value, -V_{DET(S)}: Specified detection voltage value (The center value of the detection voltage range in **Table 1 to 2.**)

*2. The temperature change of the detection voltage [mV/°C] is calculated by using the following equation.

$$\frac{\Delta - V_{DET}}{\Delta Ta} [\text{mV}/^\circ\text{C}]^{*1} = -V_{DET(S)}(\text{Typ.})[\text{V}]^{*2} \times \frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}} [\text{ppm}/^\circ\text{C}]^{*3} \div 1000$$

*1. Temperature change of the detection voltage

*2. Specified detection voltage

*3. Detection voltage temperature coefficient

SUPER-SMALL PACKAGE HIGH-PRECISION VOLTAGE DETECTOR
S-808xxC Series

Rev.6.2_02

2. CMOS Output Products

2-1. Detection Voltage Typ.1.4 V or Less Products

Table 16

(Ta = 25 °C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test circuit
Detection voltage*1	$-V_{DET}$	—	$-V_{DET(S)} \times 0.98$	$-V_{DET(S)}$	$-V_{DET(S)} \times 1.02$	V	1
Release voltage	$+V_{DET}$	S-80808	0.802	0.834	0.867	V	1
		S-80809	0.910	0.944	0.979	V	1
		S-80810	1.017	1.054	1.091	V	1
		S-80811	1.125	1.164	1.203	V	1
		S-80812	1.232	1.273	1.315	V	1
		S-80813	1.340	1.383	1.427	V	1
		S-80814	1.448	1.493	1.538	V	1
Hysteresis width	V_{HYS}	S-80808	0.018	0.034	0.051	V	1
		S-80809	0.028	0.044	0.061	V	1
		S-80810	0.037	0.054	0.071	V	1
		S-80811	0.047	0.064	0.081	V	1
		S-80812	0.056	0.073	0.091	V	1
		S-80813	0.066	0.083	0.101	V	1
		S-80814	0.076	0.093	0.110	V	1
Current consumption	I_{SS}	$V_{DD} = 1.5\text{ V}$ S-80808 to 09	—	1.3	3.5	μA	2
		$V_{DD} = 2.0\text{ V}$ S-80810 to 14	—	1.3	3.5	μA	2
Operating voltage	V_{DD}	—	0.65	—	5.0	V	1
Output current	I_{OUT}	Output transistor, Nch, $V_{DS} = 0.5\text{ V}$, $V_{DD} = 0.7\text{ V}$	0.04	0.2	—	mA	3
		Output transistor, Pch, $V_{DS} = 2.1\text{ V}$, $V_{DD} = 4.5\text{ V}$	2.9	5.8	—	mA	4
Response time	t_{PLH}	—	—	—	60	μs	1
Detection voltage temperature coefficient*2	$\frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}}$	Ta = -40 to +85 °C	—	± 100	± 350	ppm/°C	1

*1. $-V_{DET}$: Actual detection voltage value, $-V_{DET(S)}$: Specified detection voltage value (The center value of the detection voltage range in **Table 3 to 4**.)

*2. The temperature change of the detection voltage [mV/°C] is calculated by using the following equation.

$$\frac{\Delta - V_{DET}}{\Delta Ta} [\text{mV}/^\circ\text{C}]^{*1} = -V_{DET(S)}(\text{Typ.})[\text{V}]^{*2} \times \frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}} [\text{ppm}/^\circ\text{C}]^{*3} \div 1000$$

*1. Temperature change of the detection voltage

*2. Specified detection voltage

*3. Detection voltage temperature coefficient

2-2. Detection Voltage Typ.1.5 V or More Products

Table 17

(Ta = 25 °C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Test circuit	
Detection voltage* ¹	-V _{DET}	—	-V _{DET(S)} ×0.98	-V _{DET(S)}	-V _{DET(S)} ×1.02	V	1	
Hysteresis width	V _{HYS}	—	-V _{DET} ×0.03	-V _{DET} ×0.05	-V _{DET} ×0.08	V	1	
Current consumption	I _{SS}	V _{DD} = 3.5 V	S-80815 to 26	—	0.8	2.4	μA	2
		V _{DD} = 4.5 V	S-80827 to 39	—	0.8	2.4	μA	2
		V _{DD} = 6.0 V	S-80840 to 56	—	0.9	2.7	μA	2
		V _{DD} = 7.5 V	S-80857 to 60	—	0.9	2.7	μA	2
Operating voltage	V _{DD}	—	0.95	—	10.0	V	1	
Output current	I _{OUT}	Output transistor, Nch, V _{DS} = 0.5 V	V _{DD} = 1.2 V S-80815 to 60	0.59	1.36	—	mA	3
			V _{DD} = 2.4 V S-80827 to 60	2.88	4.98	—	mA	3
		Output transistor, Pch, V _{DS} = 0.5 V	V _{DD} = 4.8 V S-80815 to 39	1.43	2.39	—	mA	4
			V _{DD} = 6.0 V S-80840 to 56	1.68	2.78	—	mA	4
			V _{DD} = 8.4 V S-80857 to 60	2.08	3.42	—	mA	4
Response time	t _{PLH}	—	—	—	60	μs	1	
Detection voltage temperature coefficient* ²	$\frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}}$	Ta = -40 to +85 °C	—	±100	±350	ppm/ °C	1	

*1. -V_{DET}: Actual detection voltage value, -V_{DET(S)}: Specified detection voltage value (The center value of the detection voltage range in **Table 3 to 4.**)

*2. The temperature change of the detection voltage [mV/°C] is calculated by using the following equation.

$$\frac{\Delta - V_{DET}}{\Delta Ta} [\text{mV}/^\circ\text{C}]^{*1} = -V_{DET(S)}(\text{Typ.})[\text{V}]^{*2} \times \frac{\Delta - V_{DET}}{\Delta Ta \bullet -V_{DET}} [\text{ppm}/^\circ\text{C}]^{*3} \div 1000$$

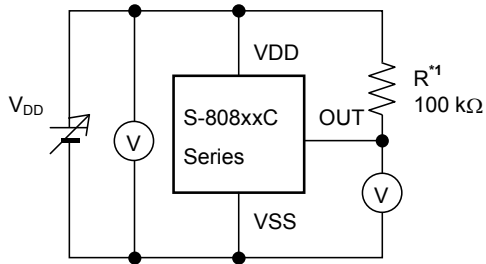
*1. Temperature change of the detection voltage

*2. Specified detection voltage

*3. Detection voltage temperature coefficient

■ **Test Circuits**

1.



*1. R is unnecessary for CMOS output products.

Figure 11

2.

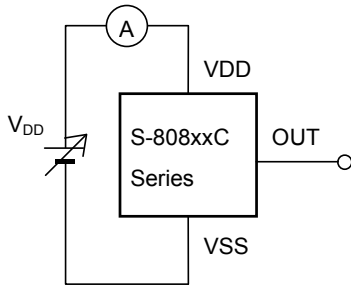


Figure 12

3.

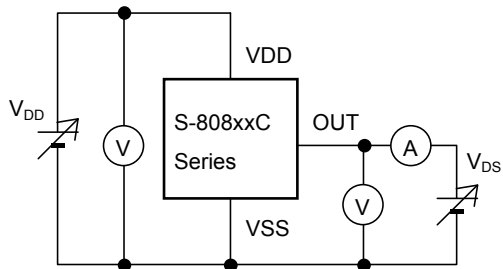


Figure 13

4.

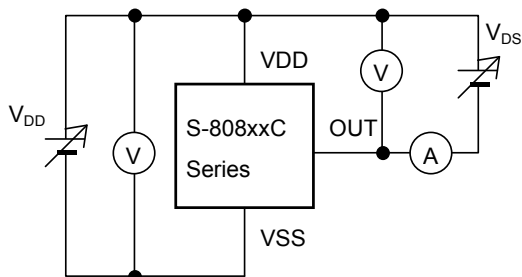


Figure 14

■ **Timing Chart**

1. Nch Open-drain Output Products

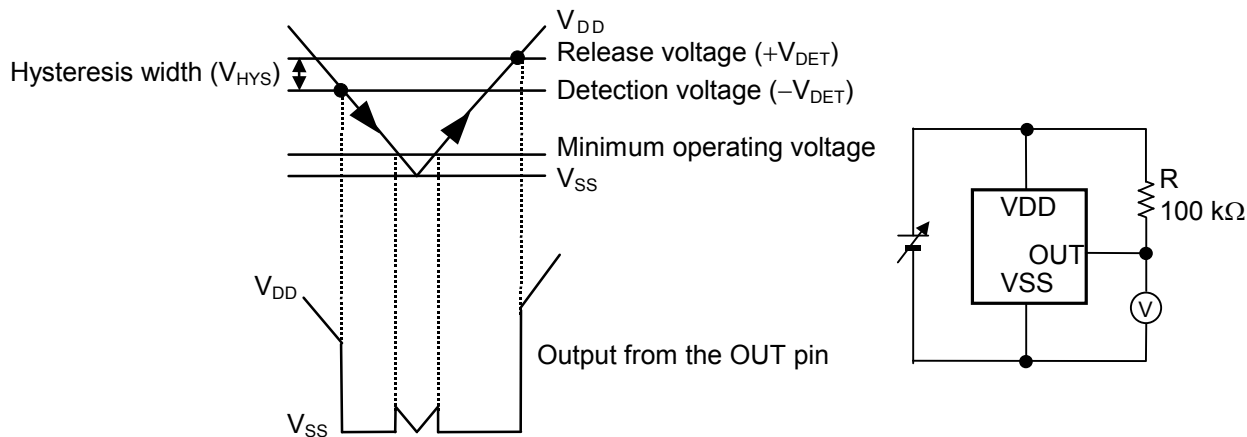


Figure 15

2. CMOS Output Products

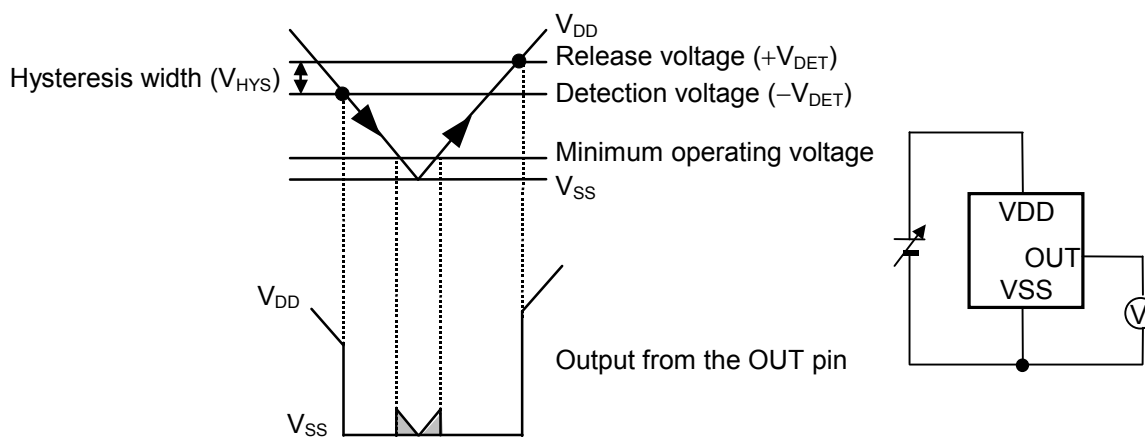


Figure 16

Remark For values of V_{DD} less than minimum operating voltage, values of OUT terminal output is free in the shaded region.

■ **Operation**

1. Basic Operation: CMOS Output (Active Low)

1-1. When the power supply voltage (V_{DD}) is higher than the release voltage ($+V_{DET}$), the Nch transistor is OFF and the Pch transistor is ON to provide V_{DD} (high) at the output. Since the Nch transistor N1 in

Figure 17 is OFF, the comparator input voltage is $\frac{(R_B + R_C) \cdot V_{DD}}{R_A + R_B + R_C}$.

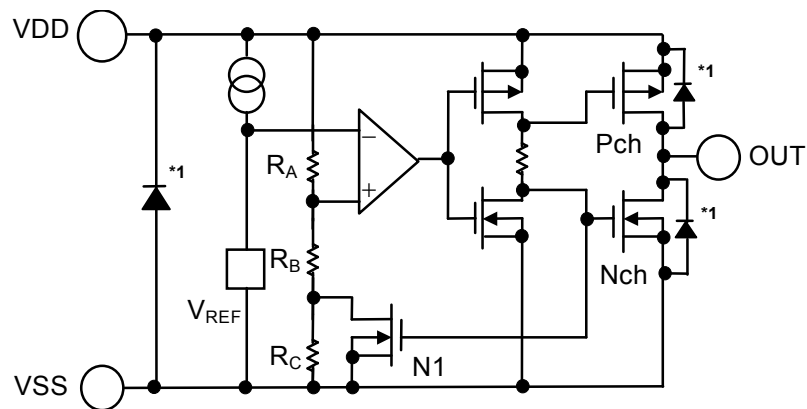
1-2. When the V_{DD} goes below $+V_{DET}$, the output provides the V_{DD} level, as long as the V_{DD} remains above the detection voltage $-V_{DET}$. When the V_{DD} falls below $-V_{DET}$ (point A in **Figure 18**), the Nch transistor becomes ON, the Pch transistor becomes OFF, and the V_{SS} level appears at the output. At this time the Nch transistor N1 in **Figure 17** becomes ON, the comparator input voltage is changed to

$$\frac{R_B \cdot V_{DD}}{R_A + R_B}$$

1-3. When the V_{DD} falls below the minimum operating voltage, the output becomes undefined, or goes to the V_{DD} when the output is pulled up to the V_{DD} .

1-4. The V_{SS} level appears when the V_{DD} rises above the minimum operating voltage. The V_{SS} level still appears even when the V_{DD} surpasses $-V_{DET}$, as long as it does not exceed the release voltage $+V_{DET}$.

1-5. When the V_{DD} rises above $+V_{DET}$ (point B in **Figure 18**), the Nch transistor becomes OFF and the Pch transistor becomes ON to provide V_{DD} level at the output.



*1. Parasitic diode

Figure 17 Operation 1

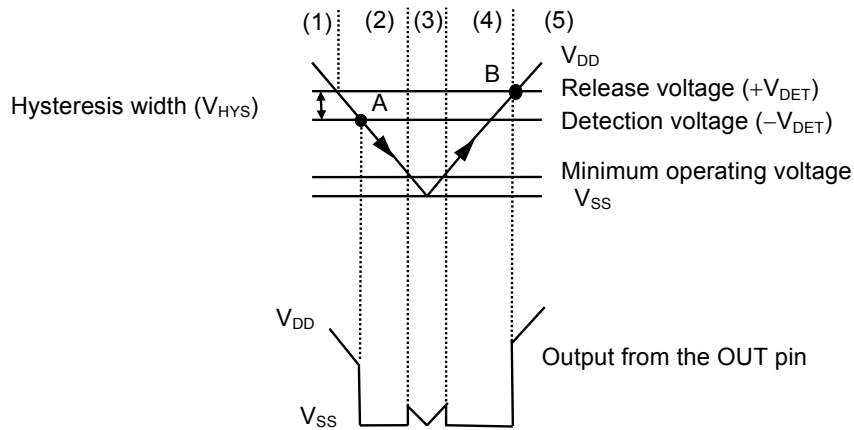
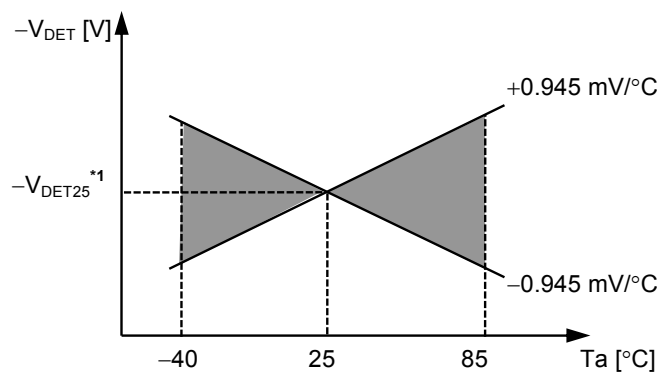


Figure 18 Operation 2

2. Other Characteristics

2-1. Temperature Characteristics of Detection Voltage

The shaded area in **Figure 19** shows the temperature characteristics of the detection voltage.



*1. $\square -V_{DET25}$ is an actual detection voltage value at 25°C.

Figure 19 Temperature Characteristics of Detection Voltage (Example for S-80827C)

2-2. Temperature Characteristics of Release Voltage

The temperature change $\frac{\Delta + V_{DET}}{\Delta T_a}$ of the release voltage is calculated by using the temperature

change $\frac{\Delta - V_{DET}}{\Delta T_a}$ of the detection voltage as follows:

$$\frac{\Delta + V_{DET}}{\Delta T_a} = \frac{+V_{DET}}{-V_{DET}} \times \frac{\Delta - V_{DET}}{\Delta T_a}$$

The temperature change of the release voltage and the detection voltage have the same sign consequently.

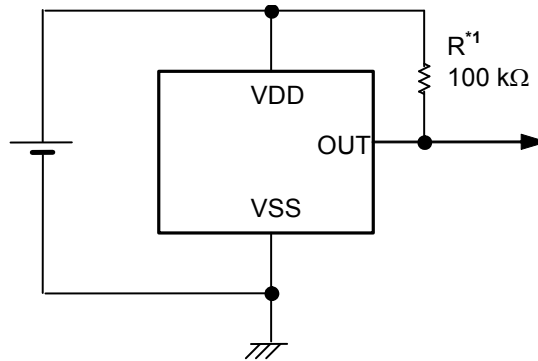
2-3. Temperature Characteristics of Hysteresis Voltage

The temperature change of the hysteresis voltage is expressed as $\frac{\Delta + V_{DET}}{\Delta Ta} - \frac{\Delta - V_{DET}}{\Delta Ta}$ and is calculated

as follows:

$$\frac{\Delta + V_{DET}}{\Delta Ta} - \frac{\Delta - V_{DET}}{\Delta Ta} = \frac{V_{HYS}}{-V_{DET}} \times \frac{\Delta - V_{DET}}{\Delta Ta}$$

■ **Standard Circuit**



*1. R is unnecessary for CMOS output products.

Figure 20

Caution The above connection diagram and constants do not guarantee correct operation. Perform sufficient evaluation using the actual application to set the constants.

■ **Technical Terms**

1. Detection Voltage ($-V_{DET}$), Release Voltage ($+V_{DET}$)

The detection voltage ($-V_{DET}$) is a voltage at which the output turns to low. The detection voltage varies slightly among products of the same specification. The variation of detection voltage between the specified minimum ($-V_{DET}$) Min. and the maximum ($-V_{DET}$) Max. is called the detection voltage range (Refer to **Figure 21**).

Example: For the S-80815CN, the detection voltage lies in the range of $1.470 \leq (-V_{DET}) \leq 1.530$.
 This means that some S-80815CNs have 1.470 V for $-V_{DET}$ and some have 1.530 V.

The release voltage ($+V_{DET}$) is a voltage at which the output turns to high. The release voltage varies slightly among products of the same specification. The variation of release voltages between the specified minimum ($+V_{DET}$) Min. and the maximum ($+V_{DET}$) Max. is called the release voltage range (Refer to **Figure 22**). The range is calculated from the actual detection voltage ($-V_{DET}$) of a product and is expressed by $-V_{DET} \times 1.03 \leq +V_{DET} \leq -V_{DET} \times 1.08$.

Example: For the S-80815CN, the release voltage lies in the range of $1.514 \leq (+V_{DET}) \leq 1.652$.
 This means that some S-80815CNs have 1.514 V for $+V_{DET}$ and some have 1.652 V.