

## Voltage Detector IC Series

# Low Voltage Standard CMOS Voltage Detector IC Series


**BU48□□G, BU48□□F, BU48□□FVE, BU49□□G, BU49□□F, BU49□□FVE series**

No.09006ECT01

## ● Description

ROHM standard CMOS reset IC series is a high-accuracy low current consumption reset IC series.

The lineup was established with two output types (Nch open drain and CMOS output) and detection voltage range from 0.9V to 4.8V in increments of 0.1V, so that the series may be selected according to the application at hand.

## ● Features

- 1) Detection voltage from 0.9V to 4.8V in 0.1V increments
- 2) Highly accurate detection voltage:  $\pm 1.0\%$
- 3) Ultra-low current consumption
- 4) Nch open drain output (BU48□□G/F/FVE) and CMOS output (BU49□□G/F/FVE)
- 5) Small surface package  
SSOP5: BU48□□G, BU49□□G  
SOP4: BU48□□F, BU49□□F  
VSOF5: BU48□□FVE, BU49□□FVE

## ● Applications

All electronics devices that use microcontrollers and logic circuits.

## ● Selection Guide

Part Number : BU4        
 ①  ②  ③

| No. | Specifications        | Description                                                                                                            |
|-----|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| ①   | Output Circuit Format | 8:Open Drain Output, 9:CMOS Output                                                                                     |
| ②   | Detection Voltage     | Example $V_{DET}$ : Represented as 0.1V steps in the range from 0.9V to 4.8V<br>(Displayed as 0.9 in the case of 0.9V) |
| ③   | Package               | G:SSOP5(SMP5C2)/ F:SOP4/ FVE:VSOF5(EMP5)                                                                               |

## ● Lineup

| Making | Detection voltage | Part Number | Making | Detection voltage | Part Number | Making | Detection voltage | Part Number | Making | Detection voltage | Part Number |
|--------|-------------------|-------------|--------|-------------------|-------------|--------|-------------------|-------------|--------|-------------------|-------------|
| JR     | 4.8V              | BU4848      | HV     | 2.8V              | BU4828      | LH     | 4.8V              | BU4948      | KM     | 2.8V              | BU4928      |
| JQ     | 4.7V              | BU4847      | HU     | 2.7V              | BU4827      | LG     | 4.7V              | BU4947      | KL     | 2.7V              | BU4927      |
| JP     | 4.6V              | BU4846      | HT     | 2.6V              | BU4826      | LF     | 4.6V              | BU4946      | KK     | 2.6V              | BU4926      |
| JN     | 4.5V              | BU4845      | HS     | 2.5V              | BU4825      | LE     | 4.5V              | BU4945      | KJ     | 2.5V              | BU4925      |
| JM     | 4.4V              | BU4844      | HR     | 2.4V              | BU4824      | LD     | 4.4V              | BU4944      | KH     | 2.4V              | BU4924      |
| JL     | 4.3V              | BU4843      | HQ     | 2.3V              | BU4823      | LC     | 4.3V              | BU4943      | KG     | 2.3V              | BU4923      |
| JK     | 4.2V              | BU4842      | HP     | 2.2V              | BU4822      | LB     | 4.2V              | BU4942      | KF     | 2.2V              | BU4922      |
| JJ     | 4.1V              | BU4841      | HN     | 2.1V              | BU4821      | LA     | 4.1V              | BU4941      | KE     | 2.1V              | BU4921      |
| JH     | 4.0V              | BU4840      | HM     | 2.0V              | BU4820      | KZ     | 4.0V              | BU4940      | KD     | 2.0V              | BU4920      |
| JG     | 3.9V              | BU4839      | HL     | 1.9V              | BU4819      | KY     | 3.9V              | BU4939      | KC     | 1.9V              | BU4919      |
| JF     | 3.8V              | BU4838      | HK     | 1.8V              | BU4818      | KX     | 3.8V              | BU4938      | KB     | 1.8V              | BU4918      |
| JE     | 3.7V              | BU4837      | HJ     | 1.7V              | BU4817      | KW     | 3.7V              | BU4937      | KA     | 1.7V              | BU4917      |
| JD     | 3.6V              | BU4836      | HH     | 1.6V              | BU4816      | KV     | 3.6V              | BU4936      | JZ     | 1.6V              | BU4916      |
| JO     | 3.5V              | BU4835      | HG     | 1.5V              | BU4815      | KU     | 3.5V              | BU4935      | JY     | 1.5V              | BU4915      |
| JB     | 3.4V              | BU4834      | HF     | 1.4V              | BU4814      | KT     | 3.4V              | BU4934      | JX     | 1.4V              | BU4914      |
| JA     | 3.3V              | BU4833      | HE     | 1.3V              | BU4813      | KS     | 3.3V              | BU4933      | JW     | 1.3V              | BU4913      |
| HZ     | 3.2V              | BU4832      | HD     | 1.2V              | BU4812      | KR     | 3.2V              | BU4932      | JV     | 1.2V              | BU4912      |
| HY     | 3.1V              | BU4831      | HC     | 1.1V              | BU4811      | KQ     | 3.1V              | BU4931      | JU     | 1.1V              | BU4911      |
| HX     | 3.0V              | BU4830      | HB     | 1.0V              | BU4810      | KP     | 3.0V              | BU4930      | JT     | 1.0V              | BU4910      |
| HW     | 2.9V              | BU4829      | HA     | 0.9V              | BU4809      | KN     | 2.9V              | BU4929      | JS     | 0.9V              | BU4909      |

## ● Absolute maximum ratings (Ta=25°C)

| Parameter                   |                       | Symbol  | Limits            | Unit |
|-----------------------------|-----------------------|---------|-------------------|------|
| Power Supply Voltage        |                       | VDD-GND | -0.3 ~ +7         | V    |
| Output Voltage              | Nch Open Drain Output | VOUT    | GND-0.3 ~ +7      | V    |
|                             | CMOS Output           |         | GND-0.3 ~ VDD+0.3 |      |
| Power Dissipation           | SSOP5 *1*4            | Pd      | 540               | mW   |
|                             | SOP4 *2*4             |         | 400               |      |
|                             | VSOF5 *3*4            |         | 210               |      |
| Operating Temperature       |                       | Topr    | -40 ~ +125        | °C   |
| Ambient Storage Temperature |                       | Tstg    | -55 ~ +125        | °C   |

\*1 When used at temperatures higher than Ta=25°C, the power is reduced by 5.4mW per 1°C above 25°C.

\*2 When used at temperatures higher than Ta=25°C, the power is reduced by 4.0mW per 1°C above 25°C.

\*3 When used at temperatures higher than Ta=25°C, the power is reduced by 2.1mW per 1°C above 25°C.

\*4 When a ROHM standard circuit board (70mm×70mm×1.6mm, glass epoxy board) is mounted.

## ● Electrical characteristics

| Electrical Characteristics                |                      | Condition                                                         |                        | Limit                  |                        |                        | Unit   |
|-------------------------------------------|----------------------|-------------------------------------------------------------------|------------------------|------------------------|------------------------|------------------------|--------|
| Parameter                                 | Symbol               |                                                                   |                        | Min.                   | Typ.                   | Max.                   |        |
| Detection Voltage                         | V <sub>DET</sub>     | V <sub>DD</sub> =H→L , Ta=25°C<br><br>R <sub>L</sub> =470kΩ       | BU4848                 | 4.752                  | 4.800                  | 4.848                  | V      |
|                                           |                      |                                                                   | BU4847                 | 4.653                  | 4.700                  | 4.747                  |        |
|                                           |                      |                                                                   | BU4846                 | 4.554                  | 4.600                  | 4.646                  |        |
|                                           |                      |                                                                   | BU4845                 | 4.455                  | 4.500                  | 4.545                  |        |
|                                           |                      |                                                                   | BU4844                 | 4.356                  | 4.400                  | 4.444                  |        |
|                                           |                      |                                                                   | BU4843                 | 4.257                  | 4.300                  | 4.343                  |        |
|                                           |                      |                                                                   | BU4842                 | 4.158                  | 4.200                  | 4.242                  |        |
|                                           |                      |                                                                   | BU4841                 | 4.059                  | 4.100                  | 4.141                  |        |
|                                           |                      |                                                                   | BU4840                 | 3.960                  | 4.000                  | 4.040                  |        |
|                                           |                      |                                                                   | BU4839                 | 3.861                  | 3.900                  | 3.939                  |        |
|                                           |                      |                                                                   | BU4838                 | 3.762                  | 3.800                  | 3.838                  |        |
|                                           |                      |                                                                   | BU4837                 | 3.663                  | 3.700                  | 3.737                  |        |
|                                           |                      |                                                                   | BU4836                 | 3.564                  | 3.600                  | 3.636                  |        |
|                                           |                      |                                                                   | BU4835                 | 3.465                  | 3.500                  | 3.535                  |        |
|                                           |                      |                                                                   | BU4834                 | 3.366                  | 3.400                  | 3.434                  |        |
|                                           |                      |                                                                   | BU4833                 | 3.267                  | 3.300                  | 3.333                  |        |
|                                           |                      |                                                                   | BU4832                 | 3.168                  | 3.200                  | 3.232                  |        |
|                                           |                      |                                                                   | BU4831                 | 3.069                  | 3.100                  | 3.131                  |        |
|                                           |                      |                                                                   | BU4830                 | 2.970                  | 3.000                  | 3.030                  |        |
|                                           |                      |                                                                   | BU4829                 | 2.871                  | 2.900                  | 2.929                  |        |
|                                           |                      |                                                                   | BU4828                 | 2.772                  | 2.800                  | 2.828                  |        |
|                                           |                      |                                                                   | BU4827                 | 2.673                  | 2.700                  | 2.727                  |        |
|                                           |                      |                                                                   | BU4826                 | 2.574                  | 2.600                  | 2.626                  |        |
|                                           |                      |                                                                   | BU4825                 | 2.475                  | 2.500                  | 2.525                  |        |
|                                           |                      |                                                                   | BU4824                 | 2.376                  | 2.400                  | 2.424                  |        |
|                                           |                      |                                                                   | BU4823                 | 2.277                  | 2.300                  | 2.323                  |        |
|                                           |                      |                                                                   | BU4822                 | 2.178                  | 2.200                  | 2.222                  |        |
|                                           |                      |                                                                   | BU4821                 | 2.079                  | 2.100                  | 2.121                  |        |
|                                           |                      |                                                                   | BU4820                 | 1.980                  | 2.000                  | 2.020                  |        |
|                                           |                      |                                                                   | BU4819                 | 1.881                  | 1.900                  | 1.919                  |        |
|                                           |                      |                                                                   | BU4818                 | 1.782                  | 1.800                  | 1.818                  |        |
|                                           |                      |                                                                   | BU4817                 | 1.683                  | 1.700                  | 1.717                  |        |
|                                           |                      |                                                                   | BU4816                 | 1.584                  | 1.600                  | 1.616                  |        |
|                                           |                      |                                                                   | BU4815                 | 1.485                  | 1.500                  | 1.515                  |        |
| BU4814                                    | 1.386                | 1.400                                                             | 1.414                  |                        |                        |                        |        |
| BU4813                                    | 1.287                | 1.300                                                             | 1.313                  |                        |                        |                        |        |
| BU4812                                    | 1.188                | 1.200                                                             | 1.212                  |                        |                        |                        |        |
| BU4811                                    | 1.089                | 1.100                                                             | 1.111                  |                        |                        |                        |        |
| BU4810                                    | 0.990                | 1.000                                                             | 1.010                  |                        |                        |                        |        |
| BU4809                                    | 0.891                | 0.900                                                             | 0.909                  |                        |                        |                        |        |
| Detection Voltage Temperature Coefficient | V <sub>DET</sub> /ΔT | Ta=-40°C~125°C <sup>*1</sup>                                      |                        | -                      | ±30                    | -                      | ppm/°C |
| Hysteresis Voltage                        | ΔV <sub>DET</sub>    | V <sub>DD</sub> =L→H→L<br>Ta=-40°C~125°C<br>R <sub>L</sub> =470kΩ | V <sub>DET</sub> ≤1.0V | V <sub>DET</sub> ×0.03 | V <sub>DET</sub> ×0.05 | V <sub>DET</sub> ×0.08 | V      |
|                                           |                      |                                                                   | V <sub>DET</sub> ≥1.1V | V <sub>DET</sub> ×0.03 | V <sub>DET</sub> ×0.05 | V <sub>DET</sub> ×0.07 |        |

\*1 Designed Guarantee.(Outgoing inspection is not done on all products.)

\*This product is not designed for protection against radioactive rays.

## ● Electrical characteristics (Unless Otherwise Specified Ta=-25 to 125°C)

| Parameter                                            | Symbol | Condition                       | Limit         |      |      | Unit |
|------------------------------------------------------|--------|---------------------------------|---------------|------|------|------|
|                                                      |        |                                 | Min.          | Typ. | Max. |      |
| Circuit Current when ON                              | IDD1   | VDD=VDET-0.2V                   | VDET=0.9-1.3V | -    | 0.15 | μA   |
|                                                      |        |                                 | VDET=1.4-2.1V | -    | 0.20 |      |
|                                                      |        |                                 | VDET=2.2-2.7V | -    | 0.25 |      |
|                                                      |        |                                 | VDET=2.8-3.3V | -    | 0.30 |      |
|                                                      |        |                                 | VDET=3.4-4.2V | -    | 0.35 |      |
|                                                      |        |                                 | VDET=4.3-4.8V | -    | 0.40 |      |
| Circuit Current when OFF                             | IDD2   | VDD=VDET+2.0V                   | VDET=0.9-1.3V | -    | 0.30 | μA   |
|                                                      |        |                                 | VDET=1.4-2.1V | -    | 0.35 |      |
|                                                      |        |                                 | VDET=2.2-2.7V | -    | 0.40 |      |
|                                                      |        |                                 | VDET=2.8-3.3V | -    | 0.45 |      |
|                                                      |        |                                 | VDET=3.4-4.2V | -    | 0.50 |      |
|                                                      |        |                                 | VDET=4.3-4.8V | -    | 0.55 |      |
| Operating Voltage Range                              | VOPL   | VOL≤0.4V, Ta=25~125°C, RL=470kΩ | 0.70          | -    | -    | V    |
|                                                      |        | VOL≤0.4V, Ta=-40~25°C, RL=470kΩ | 0.90          | -    | -    |      |
| 'Low' Output Current (Nch)                           | IOL    | VDS=0.05V VDD=0.85V             | 20            | 100  | -    | μA   |
|                                                      |        | VDS=0.5V VDD=1.5V VDET=1.7-4.8V | 1.0           | 3.3  | -    | mA   |
|                                                      |        | VDS=0.5V VDD=2.4V VDET=2.7-4.8V | 4.0           | 7.2  | -    |      |
| 'High' Output Current (Pch)<br>(only BU49□□G/F/FVE)  | IOH    | VDS=0.5V VDD=4.8V VDET=0.9-3.9V | 1.7           | 3.4  | -    | mA   |
|                                                      |        | VDS=0.5V VDD=6.0V VDET=4.0-4.8V | 2.0           | 4.0  | -    |      |
| Output Leak Current when OFF<br>(only BU48□□G/F/FVE) | Ileak  | VDD=VDS=7V<br>Ta=-40°C~85°C     | -             | 0    | 0.1  | μA   |
|                                                      |        | VDD=VDS=7V<br>Ta=85°C~125°C     | -             | 0    | 1    |      |

\* This product is not designed for protection against radioactive rays.

## ● Block Diagrams

BU48□□G/F/FVE

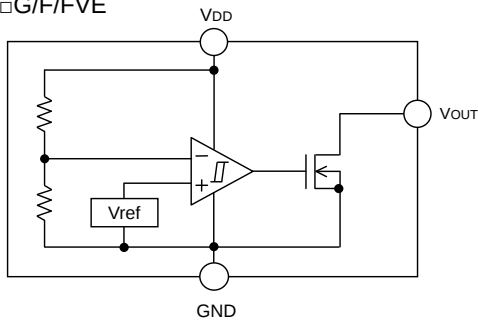


Fig.1

BU49□□G/F/FVE

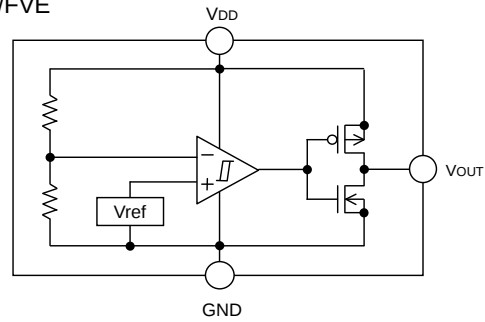


Fig.2

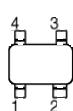
TOP VIEW



SSOP5

| PIN No. | Symbol | Function             |
|---------|--------|----------------------|
| 1       | VOUT   | Reset output         |
| 2       | VDD    | Power supply voltage |
| 3       | GND    | GND                  |
| 4       | N.C.   | Unconnected terminal |
| 5       | N.C.   | Unconnected terminal |

TOP VIEW



SOP4

| PIN No. | Symbol | Function             |
|---------|--------|----------------------|
| 1       | VOUT   | Reset output         |
| 2       | VDD    | Power supply voltage |
| 3       | N.C.   | Unconnected terminal |
| 4       | GND    | GND                  |

TOP VIEW



VSO5

| PIN No. | Symbol | Function             |
|---------|--------|----------------------|
| 1       | VOUT   | Reset output         |
| 2       | SUB    | Substrate*           |
| 3       | N.C.   | Unconnected terminal |
| 4       | VDD    | Power supply voltage |
| 5       | GND    | GND                  |

\*Connect the substrate to VDD

● Reference Data (Unless specified otherwise,  $T_a=25^\circ\text{C}$ )

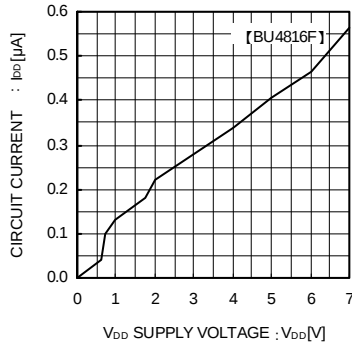


Fig.3 Circuit Current

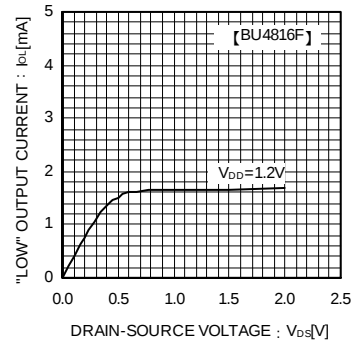


Fig.4 "LOW" Output Current

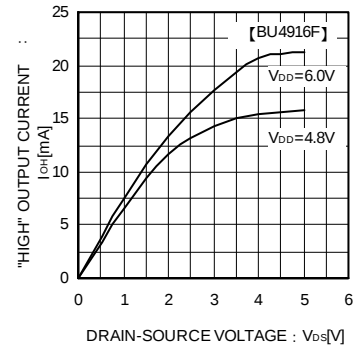


Fig.5 "High" Output Current

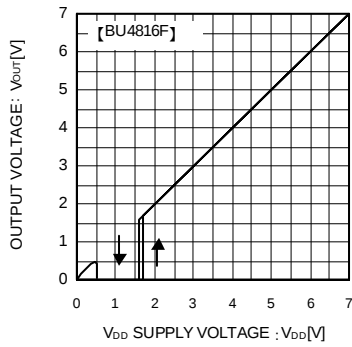


Fig.6 I/O Characteristics

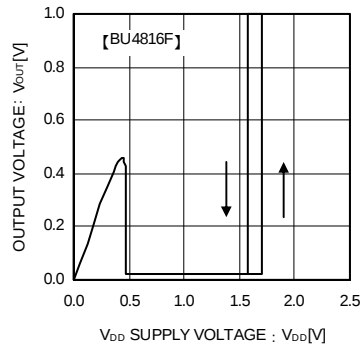


Fig.7 Operating Limit Voltage

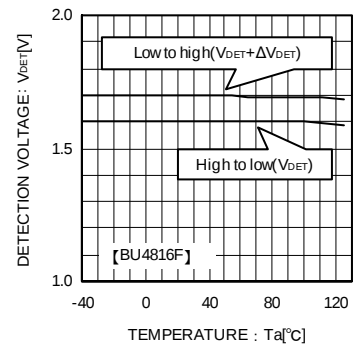


Fig.8 Detecting Voltage Release Voltage

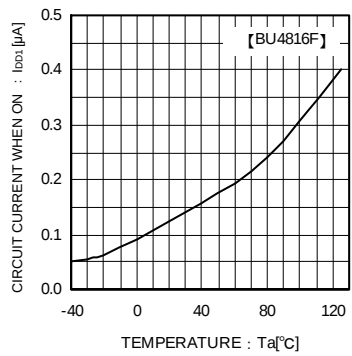


Fig.9 Circuit Current when ON

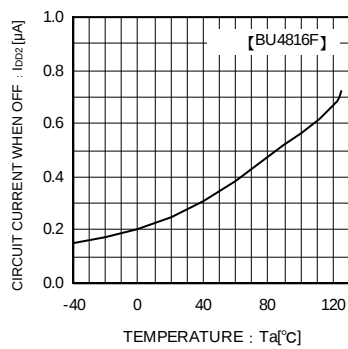


Fig.10 Circuit Current when OFF

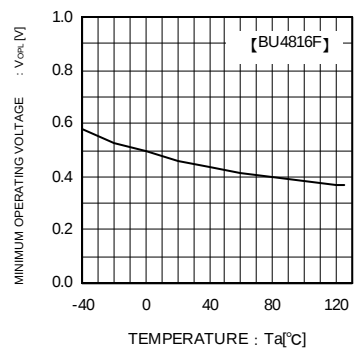


Fig.11 Operating Limit Voltage

## Reference Data

Examples of Output rising value( $T_{PLH}$ ) and Output falling value( $T_{PHL}$ )

| Part Number   | $T_{PLH}[\mu s]$ | $T_{PHL}[\mu s]$ |
|---------------|------------------|------------------|
| BU4845G/F/FVE | 23.3             | 275.9            |
| BU4945G/F/FVE | 3.5              | 354.3            |

$V_{DD}=4.3V \rightarrow 5.1V$

$V_{DD}=5.1V \rightarrow 4.3V$

\* This data is for reference only.

This figure will vary with the application, so please confirm actual operation conditions before use.

## Explanation of Operation

For both the open drain type(Fig.12) and the CMOS output type(Fig.13), the detection and release voltages are used as threshold voltages. When the voltage applied to the  $V_{DD}$  pins reaches the applicable threshold voltage, the  $V_{out}$  terminal voltage switches from either "High" to "Low" or from "Low" to "High". Because the BU48□□G/F/FVE series uses an open drain output type, it is possible to connect a pull-up resistor to  $V_{DD}$  or another power supply [The output "High" voltage ( $V_{out}$ ) in this case becomes  $V_{DD}$  or the voltage of the other power supply].

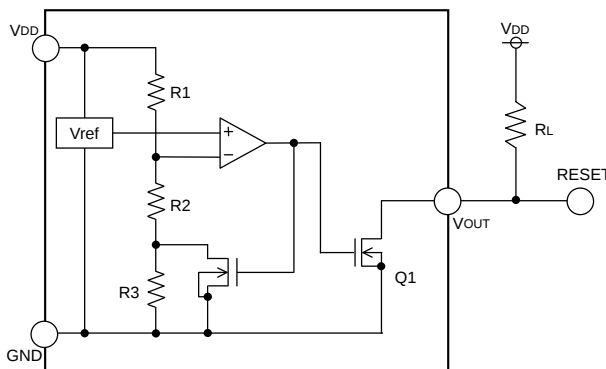


Fig.12 (BU48□□ type internal block diagram)

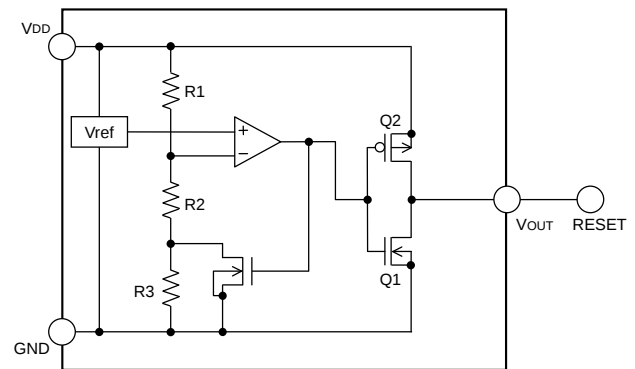


Fig.13 (BU49□□ type internal block diagram)

## Timing Waveforms

Example: The following shows the relationship between the input voltage  $V_{DD}$ , the CT Terminal Voltage  $V_{CT}$  and the output voltage  $V_{out}$  when the input power supply voltage  $V_{DD}$  is made to sweep up and sweep down (The circuits are those in Fig.12 and 13).

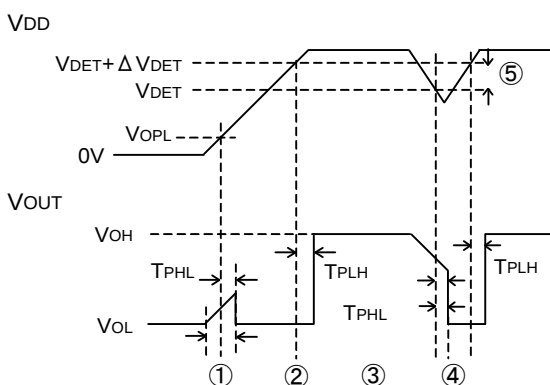


Fig.14

- ① When the power supply is turned on, the output is unsettled from after over the operating limit voltage ( $V_{OPL}$ ) until  $T_{PHL}$ . Therefore it is possible that the reset signal is not outputted when the rise time of  $V_{DD}$  is faster than  $T_{PHL}$ .
- ② When  $V_{DD}$  is greater than  $V_{OPL}$  but less than the reset release voltage ( $V_{DET} + V_{DET}$ ), output ( $V_{out}$ ) voltages will switch to L.
- ③ If  $V_{DD}$  exceeds the reset release voltage ( $V_{DET} + V_{DET}$ ), then  $V_{out}$  switches from L to H (with a delay of  $T_{PLH}$ ).
- ④ If  $V_{DD}$  drops below the detection voltage ( $V_{DET}$ ) when the power supply is powered down or when there is a power supply fluctuation,  $V_{out}$  switches to L (with a delay of  $T_{PHL}$ ).
- ⑤ The potential difference between the detection voltage and the release voltage is known as the hysteresis width ( $V_{DET}$ ). The system is designed such that the output does not flip-flop with power supply fluctuations within this hysteresis width, preventing malfunctions due to noise.

## ● Circuit Applications

### 1) Examples of a common power supply detection reset circuit

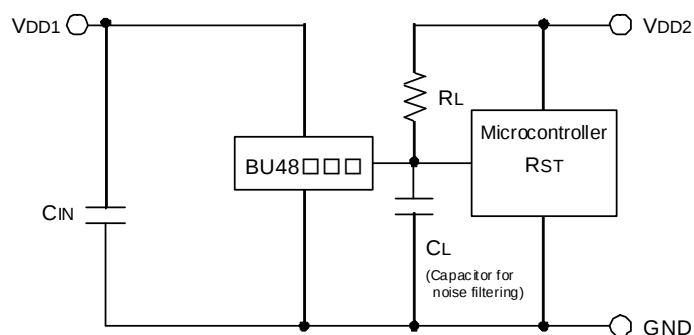


Fig.15 Open collector Output type

Application examples of BU48□□G/F/FVE series (Open Drain output type) and BU49□□G/F/FVE series (CMOS output type) are shown below.

CASE1: The power supply of the microcontroller ( $V_{DD2}$ ) differs from the power supply of the reset detection ( $V_{DD1}$ ). Use the Open Drain Output Type (BU48□□G/FVE) attached a load resistance ( $R_L$ ) between the output and  $V_{DD2}$ . (As shown Fig.15)

CASE2: The power supply of the microcontroller ( $V_{DD1}$ ) is same as the power supply of the reset detection ( $V_{DD1}$ ). Use CMOS output type (BU43□□G/FVE) or Open Drain Output Type (BU48□□G/FVE) attached a load resistance ( $R_L$ ) between the output and  $V_{DD1}$ . (As shown Fig.16)

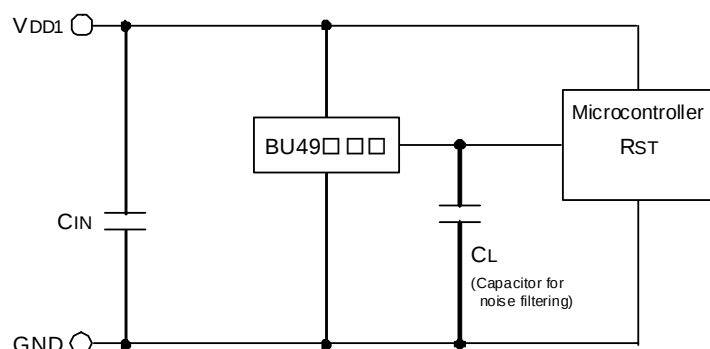


Fig.16 CMOS Output type

When a capacitance  $C_L$  for noise filtering or setting the output delay time is connected to the  $V_{out}$  pin (the reset signal input terminal of the microcontroller), please take into account the waveform of the rise and fall of the output voltage ( $V_{out}$ ).

### 2) Examples of the power supply with resistor dividers

In applications where the power supply input terminal ( $V_{DD}$ ) of an IC with resistor dividers, it is possible that a through-current will momentarily flow into the circuit when the output logic switches, resulting in malfunctions (such as output oscillatory state).

(Through-current is a current that momentarily flows from the power supply ( $V_{DD}$ ) to ground ( $GND$ ) when the output level switches from "High" to "Low" or vice versa.)

Consider the use of BU48□□ when the power supply input it with resistor dividers.

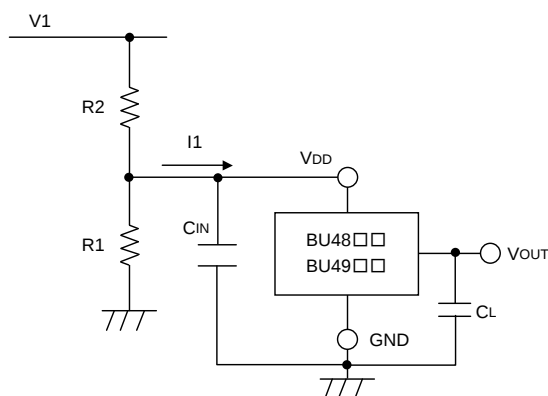


Fig.17

**● Operation Notes**

1. Absolute maximum range  
Absolute Maximum Ratings are those values beyond which the life of a device may be destroyed. We cannot be defined the failure mode, such as short mode or open mode. Therefore a physical security countermeasure, like fuse, is to be given when a specific mode to be beyond absolute maximum ratings is considered.
2. GND potential  
GND terminal should be a lowest voltage potential every state.  
Please make sure all pins that are over ground even if include transient feature.
3. Electrical Characteristics  
Be sure to check the electrical characteristics, that are one the tentative specification will be changed by temperature, supply voltage, and external circuit.
4. Bypass Capacitor for Noise Rejection  
Please put into the to reject noise between VDD pin and GND with 1uF over and between VOUT pin and GND with 1000pF. If extremely big capacitor is used, transient response might be late. Please confirm sufficiently for the point.
5. Short Circuit between Terminal and Soldering  
Don't short-circuit between Output pin and VDD pin, Output pin and GND pin, or VDD pin and GND pin. When soldering the IC on circuit board please is unusually cautious about the orientation and the position of the IC. When the orientation is mistaken the IC may be destroyed.
6. Electromagnetic Field  
Mal-function may happen when the device is used in the strong electromagnetic field.
7. The VDD line impedance might cause oscillation because of the detection current.
8. A VDD -GND capacitor (as close connection as possible) should be used in high VDD line impedance condition.
9. Lower than the minimum input voltage makes the VOUT high impedance, and it must be VDD in pull up (VDD) condition.
10. Recommended value of RL Resistar is over 10kΩ (VDET=1.5V~4.8V),  
over 100kΩ (VDET=0.9~1.4V).
11. This IC has extremely high impedance terminals. Small leak current due to the uncleanness of PCB surface might cause unexpected operations. Application values in these conditions should be selected carefully. If 10MΩ leakage is assumed between the CT terminal and the GND terminal, 1MΩ connection between the CT terminal and the VDD terminal would be recommended. Also, if the leakage is assumed between the VOUT terminal and the GND terminal, the pull up resistor should be less than 1/10 of the assumed leak resistance.
12. External parameters  
For RL, the recommended range is 10kΩ~1MΩ. There are many factors (board layout, etc) that can affect characteristics. Please verify and confirm using practical applications.
13. Power on reset operation  
Please note that the power on reset output varies with the Vcc rise up time. Please verify the actual operation.
14. Precautions for board inspection  
Connecting low-impedance capacitors to run inspections with the board may produce stress on the IC. Therefore, be certain to use proper discharge procedure before each process of the test operation.  
To prevent electrostatic accumulation and discharge in the assembly process, thoroughly ground yourself and any equipment that could sustain ESD damage, and continue observing ESD-prevention procedures in all handing, transfer and storage operations. Before attempting to connect components to the test setup, make certain that the power supply is OFF. Likewise, be sure the power supply is OFF before removing any component connected to the test setup.
15. When the power supply, is turned on because of incertain cases, momentary Rash-current flow into the IC at the logic unsettled, the couple capacitance, GND pattern of width and leading line must be considered.

● Part Number Selection

B U 4 8

BU48: Standard CMOS reset IC  
Open drain type  
BU49: Standard CMOS reset IC  
CMOS Output type

0 9

Detection voltage  
09: 0.9V (0.1V step)  
48: 4.8V

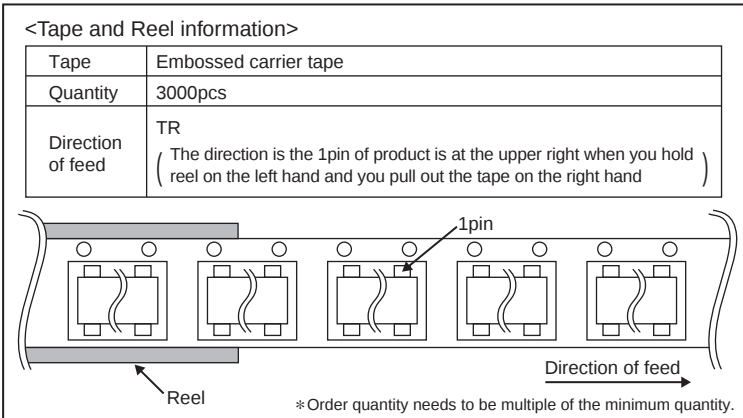
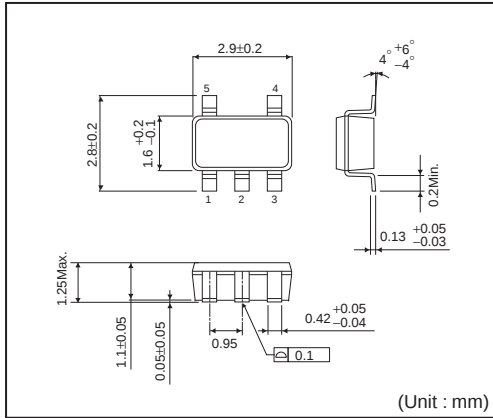
G

Package  
G: SSOP5  
F: SOP4  
FVE: VSOF5

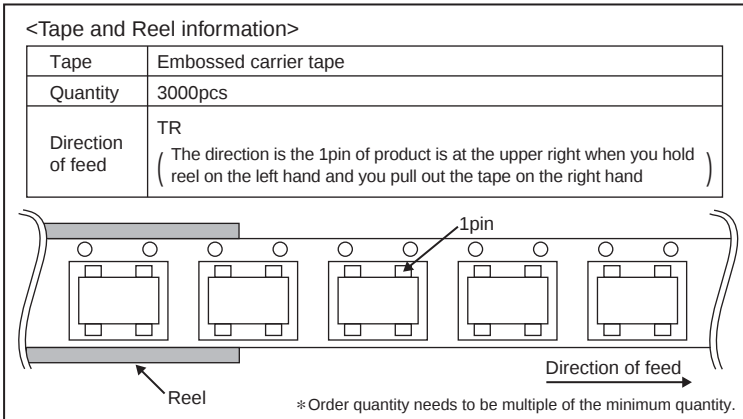
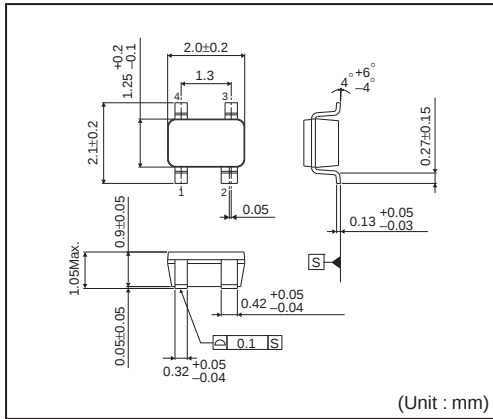
T R

Taping Specifications  
Embossed Taping

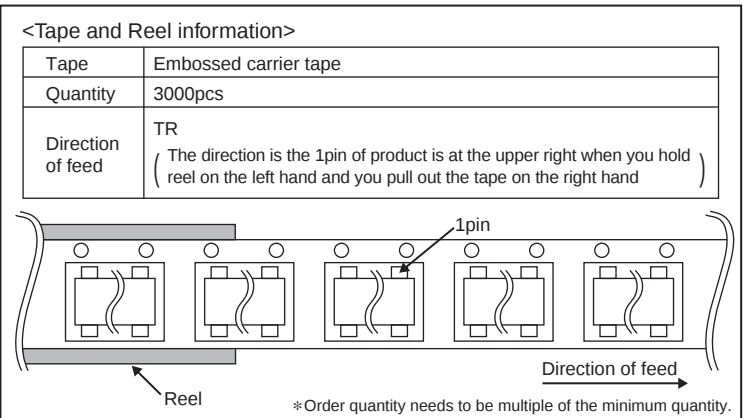
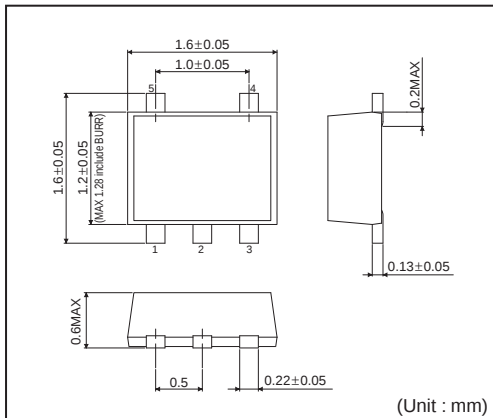
SSOP5



SOP4



VSOF5



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