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

# Quad exclusive OR gate

## BU4030B / BU4030BF
## BU4070B / BU4070BF

The BU4030B / F and BU4070B / F are exclusive OR gates.
Four circuits are contained on a single chip. An inverter-based buffer is added to the gate output for an enhanced I / O voltage characteristic, and the load capacitance has been increased to minimize fluctuation in the propagation time.
In addition, these products feature low power consumption and a high noise margin.
These can also be used in digital comparators and parity circuit applications.

●Features

1) Low power dissipation.
2) Wide range of operating power supply voltages.
3) High input impedance.
4) High fan-out.
5) Direct drive of 2 L-TTL inputs and 1 LS-TTL input.

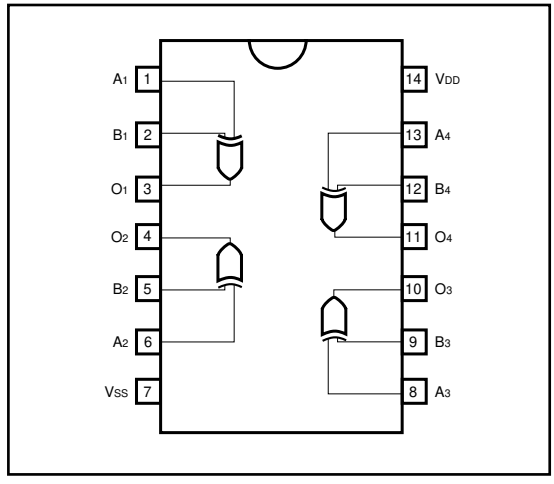
●Absolute maximum ratings ($V_{SS}$ = 0V, Ta = 25°C)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Power supply voltage | $V_{DD}$ | – 0.3 ~ + 18 | V |
| Power dissipation | Pd | 1000 (DIP), 450 (SOP) | mW |
| Operating temperature | Topr | – 40 ~ + 85 | °C |
| Storage temperature | Tstg | – 55 ~ + 150 | °C |
| Input voltage | $V_{IN}$ | – 0.3 ~ $V_{DD}$ + 0.3 | V |

●Truth table

| INPUT | | OUTPUT |
|---|---|---|
| A | B | |
| L | L | L |
| L | H | H |
| H | L | H |
| H | H | L |

●Block diagram



●Electrical characteristics

DC characteristics (unless otherwise noted, $V_{SS}$ = 0V, Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | $V_{DD}$ (V) | Conditions | Measurement circuit |
|---|---|---|---|---|---|---|---|---|
| Input high level voltage | $V_{IH}$ | 3.5 | — | — | V | 5 | — | Fig.1 |
| | | 7.0 | — | — | | 10 | | |
| | | 11.0 | — | — | | 15 | | |
| Input low level voltage | $V_{IL}$ | — | — | 1.5 | V | 5 | — | Fig.1 |
| | | — | — | 3.0 | | 10 | | |
| | | — | — | 4.0 | | 15 | | |
| Input high level current | $I_{IH}$ | — | — | 0.3 | μA | 15 | $V_{IH}$ = 15V | Fig.1 |
| Input low level current | $I_{IL}$ | — | — | – 0.3 | μA | 15 | $V_{IL}$ = 0V | Fig.1 |
| Output high level voltage | $V_{OH}$ | 4.95 | — | — | V | 5 | $I_O$ = 0mA | Fig.1 |
| | | 9.95 | — | — | | 10 | | |
| | | 14.95 | — | — | | 15 | | |
| Output low level voltage | $V_{OL}$ | — | — | 0.05 | V | 5 | $I_O$ = 0mA | Fig.1 |
| | | — | — | 0.05 | | 10 | | |
| | | — | — | 0.05 | | 15 | | |
| Output high level current | $I_{OH}$ | – 0.16 | — | — | mA | 5 | $V_{OH}$ = 4.6V | Fig.1 |
| | | – 0.4 | — | — | | 10 | $V_{OH}$ = 9.5V | |
| | | – 1.2 | — | — | | 15 | $V_{OH}$ = 13.5V | |
| Output low level current | $I_{OL}$ | 0.44 | — | — | mA | 5 | $V_{OL}$ = 0.4V | Fig.1 |
| | | 1.1 | — | — | | 10 | $V_{OL}$ = 0.5V | |
| | | 3.0 | — | — | | 15 | $V_{OL}$ = 1.5V | |
| Static current dissipation | $I_{DD}$ | — | — | 1 | μA | 5 | $V_I$ = $V_{DD}$ or GND | — |
| | | — | — | 2 | | 10 | | |
| | | — | — | 4 | | 15 | | |

Switching characteristics (unless otherwise noted, $V_{SS}$ = 0V, Ta = 25°C, $C_L$ = 50 pF)

| Parameter | Symbol | Min. | Typ. | Max. | Unit. | $V_{DD}$ (V) | Conditions | Measurement circuit |
|---|---|---|---|---|---|---|---|---|
| Output rise time | $t_{TLH}$ | — | 180 | — | ns | 5 | — | Fig.2 |
| | | — | 90 | — | | 10 | | |
| | | — | 65 | — | | 15 | | |
| Output fall time | $t_{THL}$ | — | 100 | — | ns | 5 | — | Fig.2 |
| | | — | 50 | — | | 10 | | |
| | | — | 40 | — | | 15 | | |
| "L" to "H" propagation delay time | $t_{PLH}$ | — | 175 | — | ns | 5 | — | Fig.2 |
| | | — | 75 | — | | 10 | | |
| | | — | 50 | — | | 15 | | |
| "H" to "L" propagation delay time | $t_{PHL}$ | — | 175 | — | ns | 5 | — | Fig.2 |
| | | — | 75 | — | | 10 | | |
| | | — | 50 | — | | 15 | | |
| Input capacitance | $C_I$ | — | 5 | — | pF | – | — | — |

●Measurement circuits

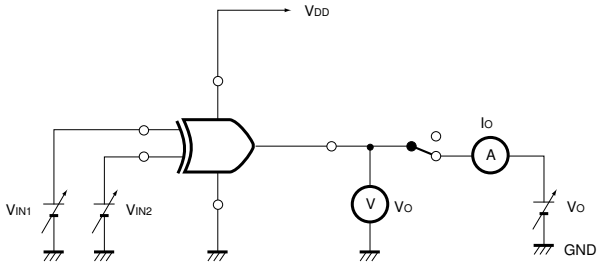



Fig. 1 DC characteristics measurement circuit

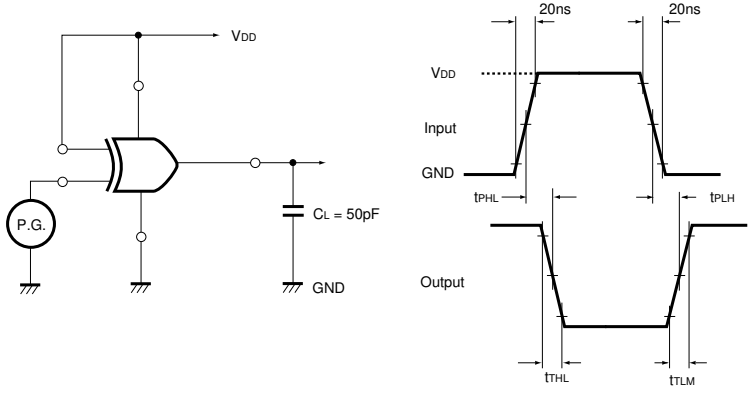



Fig. 2 Switching characteristics measurement circuit

● Electrical characteristic curve

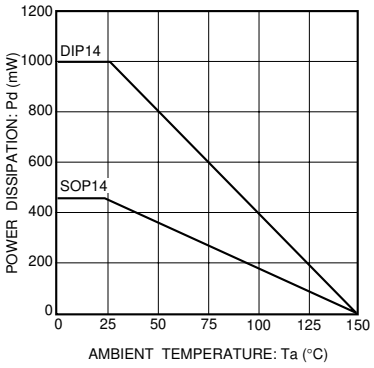
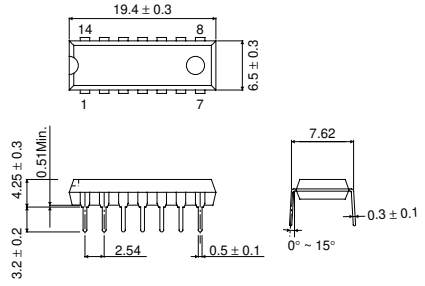



Fig.3 Power dissipation vs. Ta

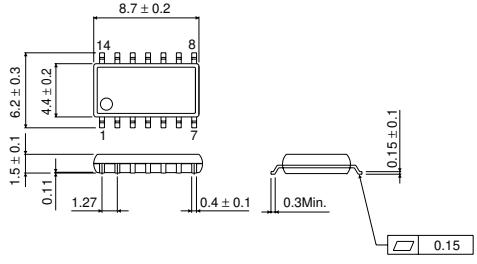
● External dimensions (Units: mm)

BA4030B / BU4070B




DIP14

BU4030BF / BU4070BF




SOP14

## Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
  Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).
Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.
In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.