

High Speed Translator Buffer to CMOS (Selectable Drive)

FEATURES

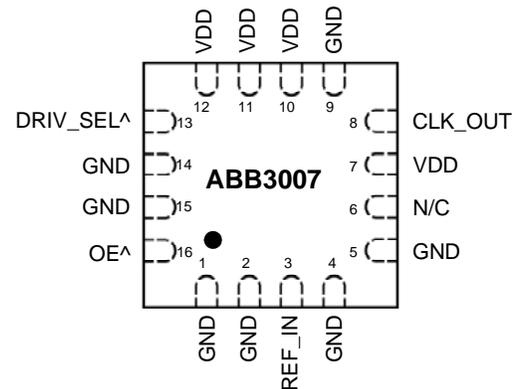
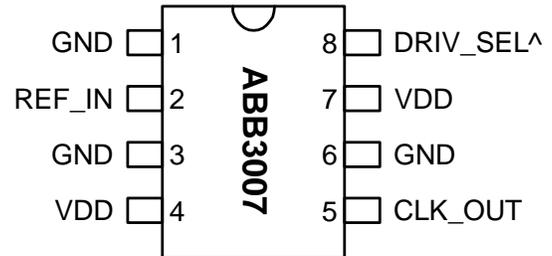
- CMOS output
- Selectable Drive capability (15pF or 30pF output load).
- Single AC coupled input (min. 100mV swing).
- Input range from DC to 200 MHz.
- 2.5V to 3.3V operation.
- Available in 8-Pin SOIC and 3x3mm QFN.

DESCRIPTION

The ABB3007 is a low cost, high performance, high speed, buffer that reproduces any input frequency from DC to 200MHz. It provides CMOS output with 15pF output load drive capability. Any input signal with at least 100mV swing can be used as reference signal. This chip is ideal for conversion from sine wave to CMOS.

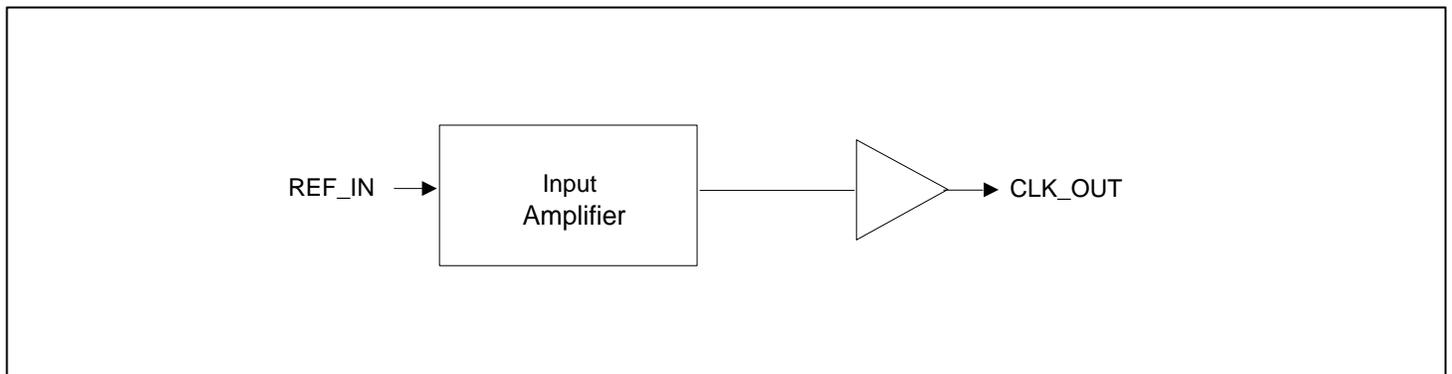
PIN CONFIGURATION

(TOP VIEW)



Note: ^ denotes internal pull up

BLOCK DIAGRAM



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PIN DESCRIPTION

| Name | 8pin SOIC Pin number | 3x3mm QFN Pin number | Type | Description |
|----------|-------------------------|-------------------------|------|--|
| GND | 1,3,6 | 1,2,4,5, 9,14,15 | P | Ground. |
| VDD | 4,7 | 7,10,11,12 | P | Power supply. |
| DRIV_SEL | 8 | 13 | I | Drive Select input: '1' for standard drive, '0' for hi-drive output. Internal pull-up (default is '1'). |
| REF_IN | 2 | 3 | I | Reference input signal. The frequency of this signal will be reproduced at the output (after translation to CMOS level). |
| CLK_OUT | 5 | 8 | O | CMOS clock output. |
| OE | N/A | 16 | I | Output enable ('1' for enable). Internal pull-up (default is '1'). |

ELECTRICAL SPECIFICATIONS

1. Absolute Maximum Ratings

| PARAMETERS | SYMBOL | MIN. | MAX. | UNITS |
|-----------------------------------|----------|------|--------------|-------|
| Supply Voltage | V_{DD} | | 4.6 | V |
| Input Voltage, dc | V_i | -0.5 | $V_{DD}+0.5$ | V |
| Output Voltage, dc | V_o | -0.5 | $V_{DD}+0.5$ | V |
| Storage Temperature | T_s | -65 | 150 | °C |
| Ambient Operating Temperature* | T_A | -40 | 85 | °C |
| Junction Temperature | T_J | | 125 | °C |
| Lead Temperature (soldering, 10s) | | | 260 | °C |
| ESD Protection, Human Body Model | | | 2 | kV |

Exposure of the device under conditions beyond the limits specified by Maximum Ratings for extended periods may cause permanent damage to the device and affect product reliability. These conditions represent a stress rating only, and functional operations of the device at these or any other conditions above the operational limits noted in this specification is not implied.

* Note: Operating Temperature is guaranteed by design for all parts (COMMERCIAL and INDUSTRIAL), but tested for COMMERCIAL grade only.

2. AC Specifications

| PARAMETERS | CONDITIONS | MIN. | TYP. | MAX. | UNITS |
|--------------------|--------------|------|------|------|-------|
| Input Frequency | | 0 | | 200 | MHz |
| Input signal swing | REF_IN input | 100 | | | mV |
| Output Frequency | | 0 | | 200 | MHz |

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3. CMOS Output Electrical Specifications

| PARAMETERS | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNITS |
|-----------------------------------|-----------|-------------------------------|----------------|------|------|-------|
| Output High Voltage | V_{OH} | $I_{OH} = -12mA$ | 2.4 | | | V |
| Output Low Voltage | V_{OL} | $I_{LO} = 12mA$ | | | 0.4 | V |
| Output High Voltage at CMOS level | V_{OHC} | $I_{OH} = -4mA$ | $V_{DD} - 0.4$ | | | V |
| Output drive current | | At TTL level (High drive*) | 36 | 51 | | mA |
| | | At TTL level (Standard drive) | 12 | 17 | | mA |

* Note: High Drive CMOS is selectable through DRIV_SEL selector input on pin 8(SOIC) or 13(QFN).

4. CMOS Switching Characteristics

| PARAMETERS | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNITS |
|---|--------|-----------------------------|------|------|------|-------|
| Output Clock Rise/Fall Time | | 0.8V ~ 2.0V with 10 pF load | | 1.15 | | ns |
| | | 0.3V ~ 3.0V with 15 pF load | | 3.7 | | |
| Output Clock Rise/Fall Time (High Drive*) | | 0.8V ~ 2.0V with 10 pF load | | 0.5 | | |
| | | 0.3V ~ 3.0V with 15 pF load | | 1.5 | | |

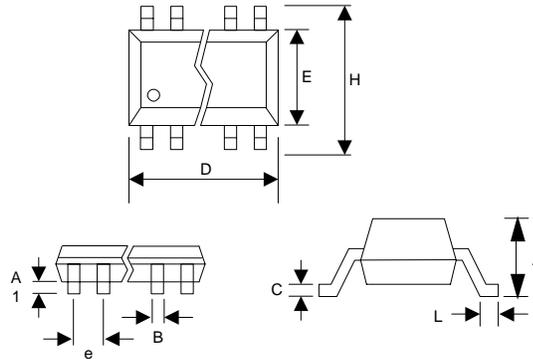
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PACKAGE INFORMATION

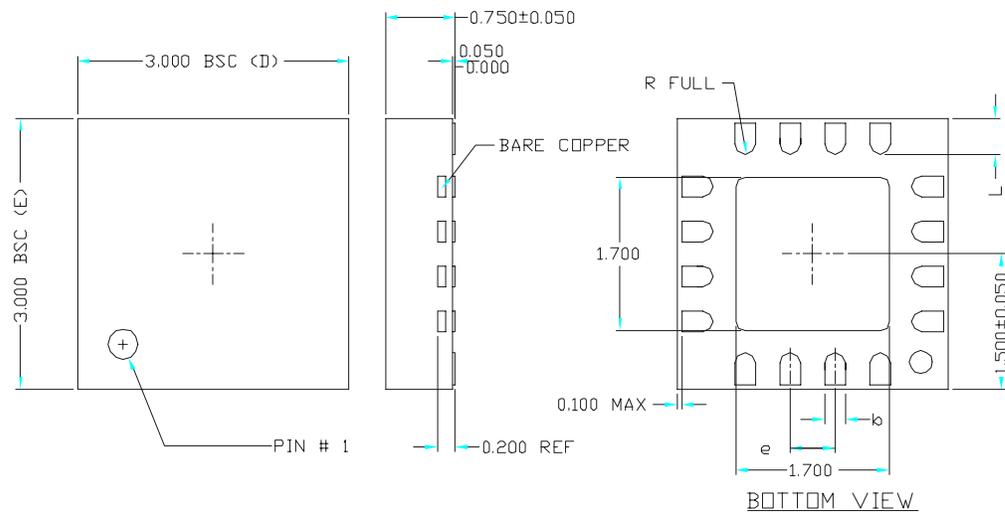
8 PIN (dimensions in mm)

| Symbol | Narrow SOIC | |
|--------|-------------|------|
| | Min. | Max. |
| A | 1.47 | 1.73 |
| A1 | 0.10 | 0.25 |
| B | 0.33 | 0.51 |
| C | 0.19 | 0.25 |
| D | 4.80 | 4.95 |
| E | 3.80 | 4.00 |
| H | 5.80 | 6.20 |
| L | 0.38 | 1.27 |
| e | 1.27 BSC | |



VARIATIONS:

| SYMBOL | 16 LD | | |
|--------|----------|------|------|
| | MIN | NOM | MAX |
| e | 0.50 BSC | | |
| k | 0.18 | 0.23 | 0.30 |
| L | 0.30 | 0.40 | 0.50 |
| ND | 4 | | |
| NE | 4 | | |



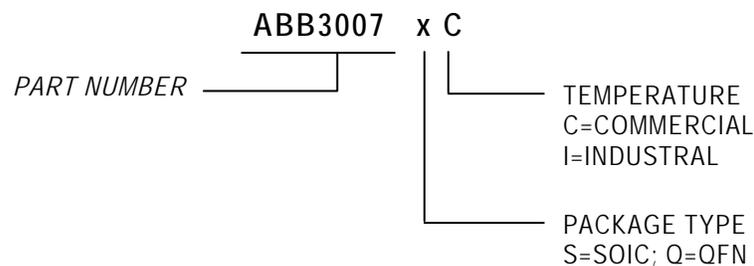
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ORDERING INFORMATION

For part ordering, please contact our Sales Department:
 30332 Esperanza., Rancho Santa Margarita, Ca 92688
 Ph: 949-546-8000 Fax: 949-546-8001

PART NUMBER

The order number for this device is a combination of the following:
 Device number, Package type and Operating temperature range



| <u>Order Number</u> | <u>Marking</u> | <u>Package Option</u> |
|---------------------|----------------|-----------------------|
| ABB3007QC-T | A3007QC | QFN - Tape and Reel |
| ABB3007QC | A3007QC | QFN - Tube |
| ABB3007SC-T | ABB3007SC | SOIC -Tape and Reel |
| ABB3007SC | ABB3007SC | SOIC - Tube |

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