

## High Speed Translator Buffer to LVC MOS

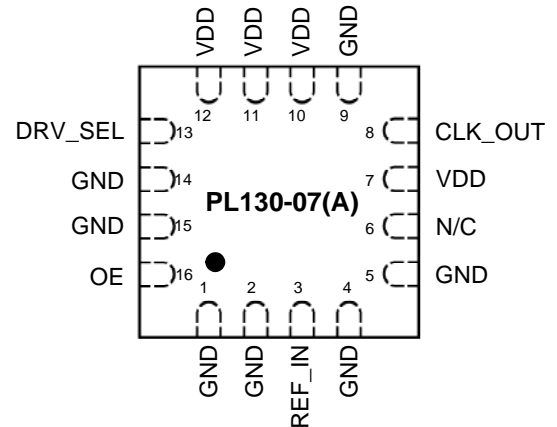
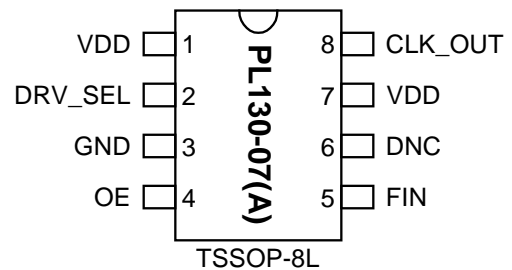
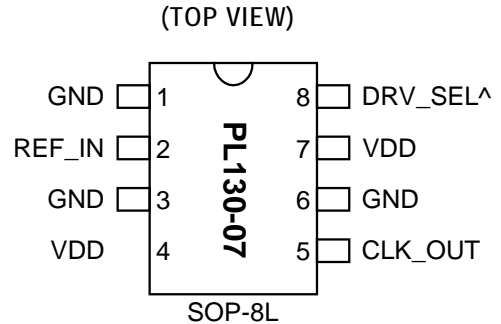
### FEATURES

- LVC MOS output
- Selectable Drive capability
  - Drive 15pF or 30pF output load
- Single AC coupled input (min. 100mV swing).
- Accepts LVC MOS or Sine Wave inputs.
- Input range from 0 to 200 MHz.
- OE High (PL130-07) or OE Low (PL130-07A) Enable
- 2.5V to 3.3V operation.
- Available in 8-Pin SOP, 8-Pin TSSOP and 3x3mm 16-Pin QFN.

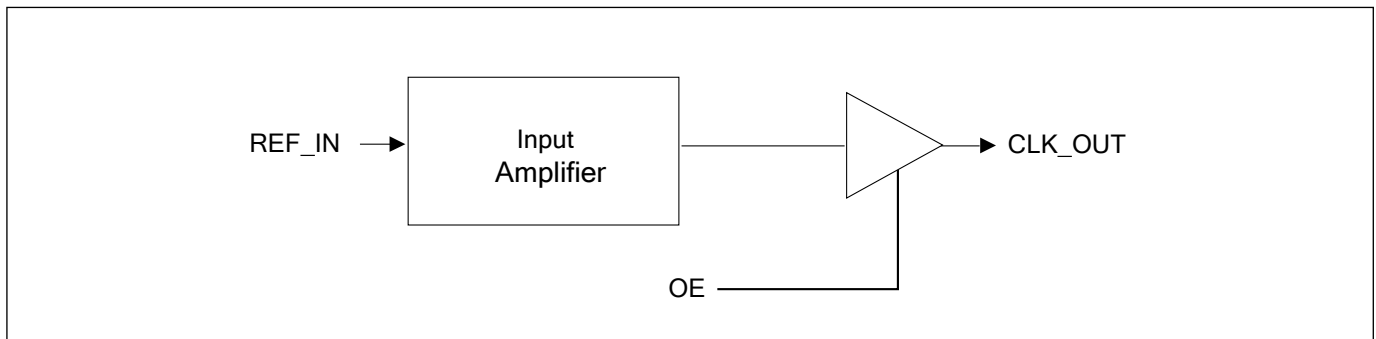
### DESCRIPTION

The PL130-07 is a low cost, high performance, high speed, buffer that reproduces any input frequency from 0 to 200MHz. It provides an LVC MOS 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 LVC MOS.

### PIN CONFIGURATION



### BLOCK DIAGRAM



**High Speed Translator Buffer to LVCMOS**
**PIN DESCRIPTION**

| Name    | SOP-8L | TSSOP-8L | QFN-16L             | Type | Description  |
|---------|--------|----------|---------------------|------|--|
| GND     | 1,3,6  | 3        | 1,2,4,5,<br>9,14,15 | P    | Ground.  |
| VDD     | 4,7    | 1,7      | 7,10,11,12          | P    | Power supply.  |
| DRV_SEL | 8      | 2        | 13                  | I    | Drive Select input: '1' for standard drive, '0' for hi-drive output. Internal pull-up (default is '1').                  |
| REF_IN  | 2      | 5        | 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        | 8                   | O    | CMOS clock output.   |
| OE      | N/A    | 4        | 16                  | I    | Output Enable. See OE LOGIC TABLE below  |

**OE LOGIC TABLE**

| Part Number | OE State    | Output Buffer State |
|-------------|-------------|---------------------|
| PL130-07    | 0           | Tri-State           |
|             | 1 (Default) | Active              |
| PL130-07A   | 0 (Default) | Active              |
|             | 1           | Tri-State           |

**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.

**High Speed Translator Buffer to LVC MOS**
**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   |

**3. CMOS Output Electrical Specifications**

| PARAMETERS                        | SYMBOL    | CONDITIONS                    | MIN.           | TYP. | MAX. | UNITS |
|-----------------------------------|-----------|-------------------------------|----------------|------|------|-------|
| Output High Voltage               | $V_{OH}$  | $I_{OH} = -12\text{mA}$       | 2.4            |      |      | V     |
| Output Low Voltage                | $V_{OL}$  | $I_{LO} = 12\text{mA}$        |                |      | 0.4  | V     |
| Output High Voltage at CMOS level | $V_{OHC}$ | $I_{OH} = -4\text{mA}$        | $V_{DD} - 0.4$ |      |      | 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(SOP) or 13(QFN).

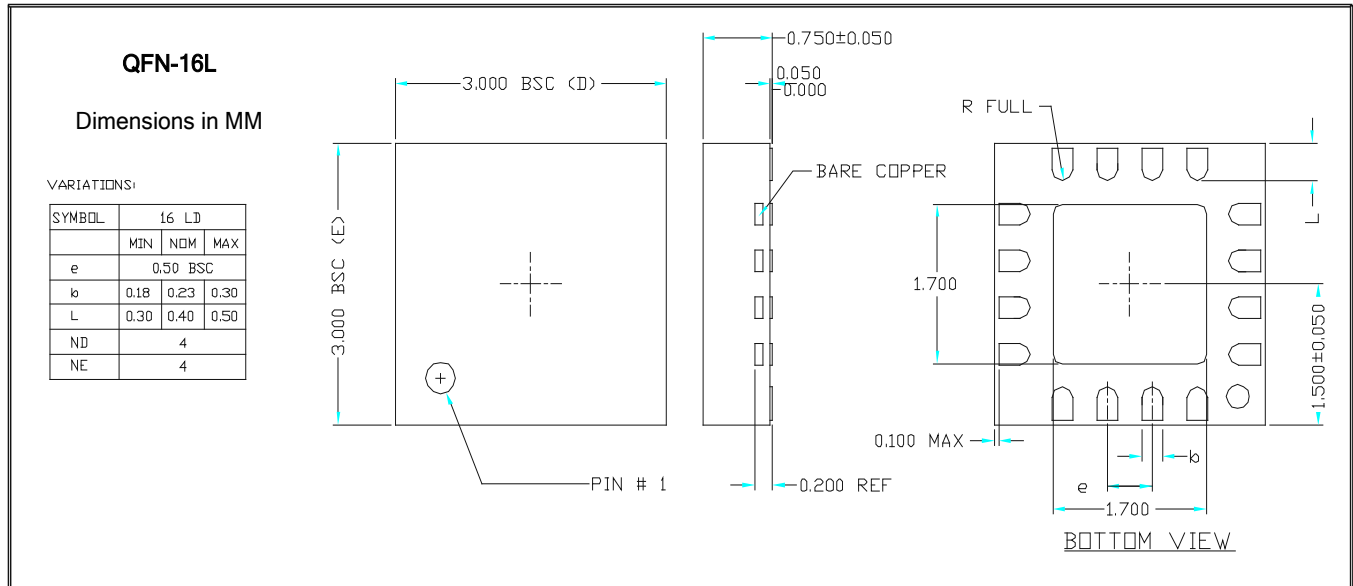
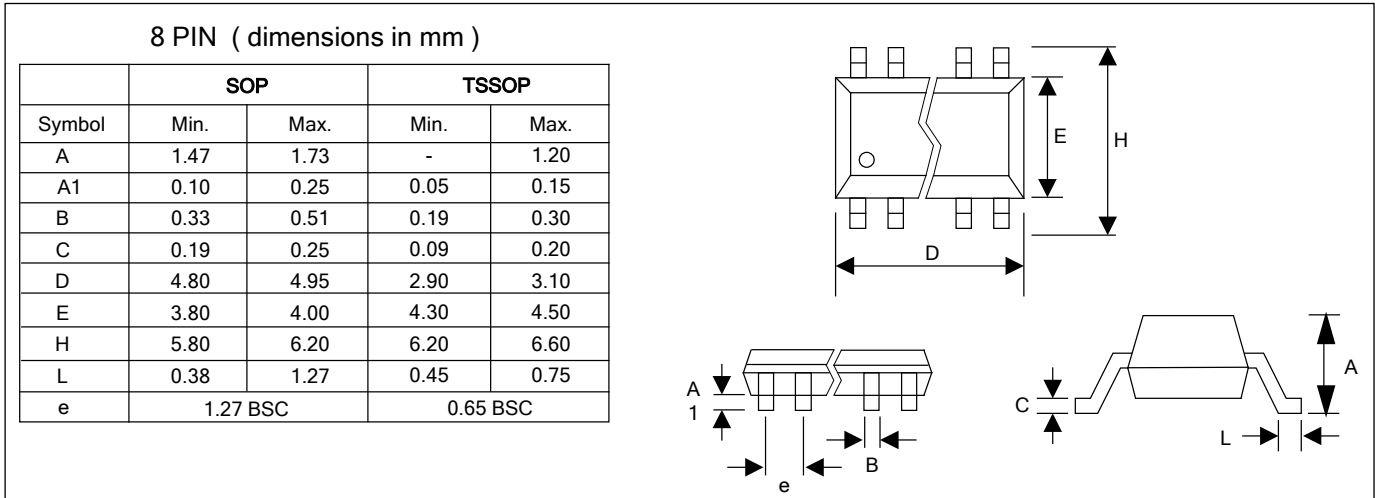
**4. CMOS Switching Characteristics**

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

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

## High Speed Translator Buffer to LVC MOS

### PACKAGE DRAWINGS (GREEN PACKAGE COMPLIANT)



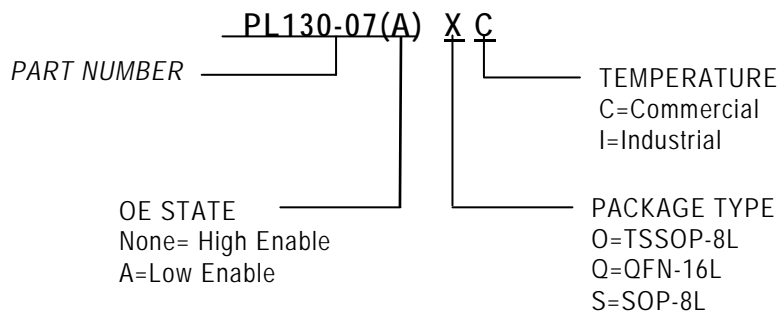
## High Speed Translator Buffer to LVCMOS

### ORDERING INFORMATION (GREEN PACKAGE COMPLIANT)

*For part ordering, please contact our Sales Department:*  
 2180 Fortune Drive, San Jose, CA 95131, USA  
 Tel: (408) 944-0800 Fax: (408) 474-1000

#### PART NUMBER

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



| Part/Order Number | Marking            | Package Option               |
|-------------------|--------------------|------------------------------|
| PL130-07OC        | P130-07<br>OC      | 16-Pin TSSOP Tube            |
| PL130-07OC-R      | LLLLL              | 16-Pin TSSOP (Tape and Reel) |
| PL130-07AOC       | P130-07A<br>OC     | 16-Pin TSSOP Tube            |
| PL130-07AOC-R     | LLLLL              | 16-Pin TSSOP (Tape and Reel) |
| PL130-07QC-R      | P130<br>07<br>LLL  | 16-Pin QFN (Tape and Reel)   |
| PL130-07AQC-R     | P130<br>07A<br>LLL | 16-Pin QFN (Tape and Reel)   |
| PL130-07SC        | P130-07<br>SC      | 8-Pin SOP Tube               |
| PL130-07SC-R      | LLLLL              | 8-Pin SOP (Tape and Reel)    |

\*Note: "LLL" and "LLLLL" designates lot number

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