

**High Speed Translator Buffer to PECL**

**FEATURES**

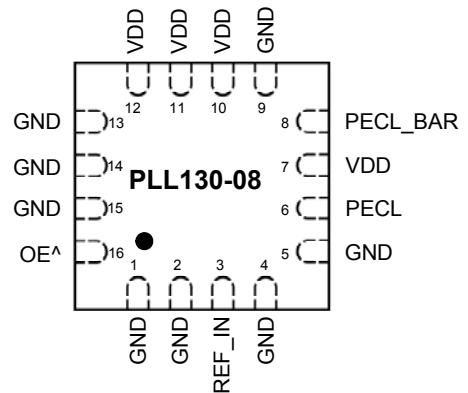
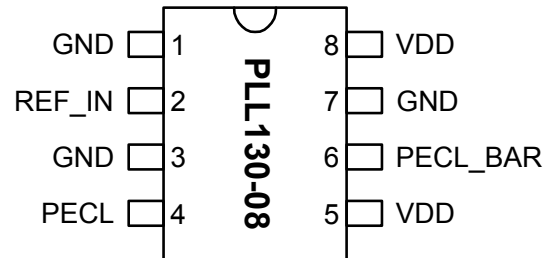
- Differential PECL output
- Single AC coupled input (min. 100mV swing).
- Input range from DC to 1.0 GHz.
- 2.5V to 3.3V operation.
- Available in 8-Pin SOIC or 3x3mm QFN.

**DESCRIPTION**

The PLL130-08 is a low cost, high performance, high speed, buffer that reproduces any input frequency from DC to 1.0GHz. It provides a pair of differential PECL output. Any input signal with at least 100mV swing can be used as reference signal. This chip is ideal for conversion from sine wave, TTL, CMOS, or LVDS to PECL.

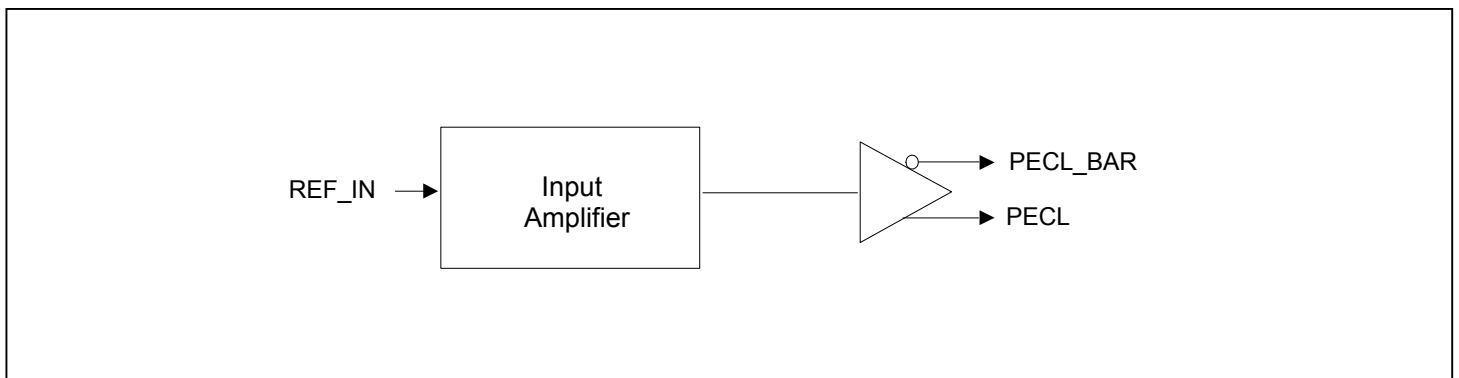
**PIN CONFIGURATION**

(TOP VIEW)



Note: ^ denotes internal pull up

**BLOCK DIAGRAM**



## High Speed Translator Buffer to PECL

### PIN DESCRIPTIONS

| Name     | 8pin SOIC Pin number | 3x3mm QFN Pin number | Type | Description  |
|----------|----------------------|----------------------|------|--|
| GND      | 1,3,7                | 1,2,4,5,9,13,14,15   | P    | Ground.  |
| VDD      | 5,8                  | 7,10,11,12           | P    | Power supply.  |
| REF_IN   | 2                    | 3                    | I    | Reference input signal. The frequency of this signal will be reproduced at the output (after translation to PECL level). |
| PECL     | 4                    | 6                    | O    | PECL True output.  |
| PECL_BAR | 7                    | 8                    | O    | PECL Complementary 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    |      | 1000 | MHz   |
| Input signal swing | REF_IN input              | 100  |      |      | mV    |
| Output Frequency   |                           | 0    |      | 1000 | MHz   |
| Output Rise Time   | 0.8V to 2.0V with no load |      |      | 1.5  | ns    |
| Output Fall Time   | 2.0V to 0.8V with no load |      |      | 1.5  | ns    |

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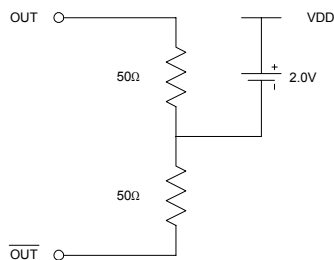
**3. PECL Electrical Characteristics**

| PARAMETERS          | SYMBOL   | CONDITIONS   | MIN.             | MAX.             | UNITS |
|---------------------|----------|--|------------------|------------------|-------|
| Output High Voltage | $V_{OH}$ | $R_L = 50 \Omega$ to $(V_{DD} - 2V)$<br>(see figure) | $V_{DD} - 1.025$ |                  | V     |
| Output Low Voltage  | $V_{OL}$ |  |                  | $V_{DD} - 1.620$ | V     |

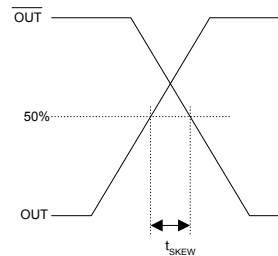
**4. PECL Switching Characteristics**

| PARAMETERS      | SYMBOL | CONDITIONS     | MIN. | TYP. | MAX. | UNITS |
|-----------------|--------|----------------|------|------|------|-------|
| Clock Rise Time | $t_r$  | @20/80% - PECL |      | 0.6  | 1.5  | ns    |
| Clock Fall Time | $t_f$  | @80/20% - PECL |      | 0.5  | 1.5  | ns    |

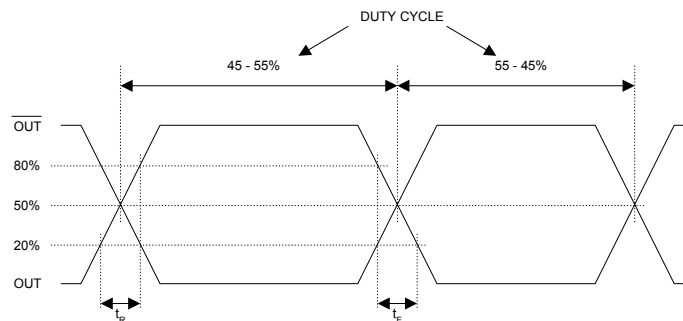
PECL Levels Test Circuit



PECL Output Skew

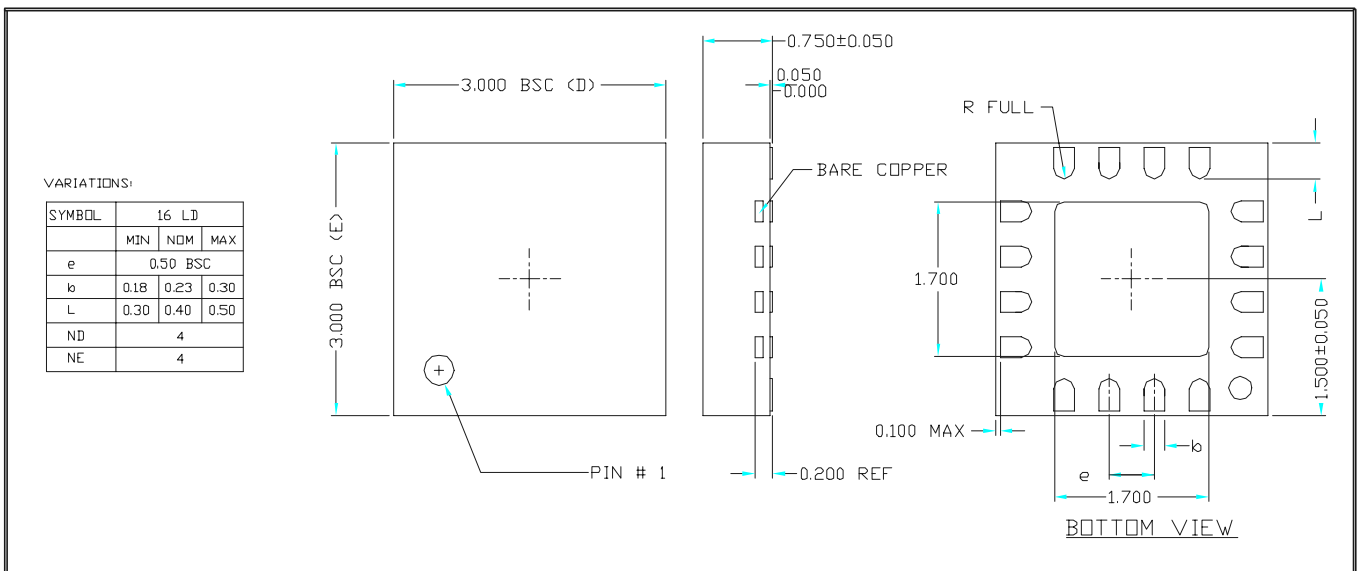
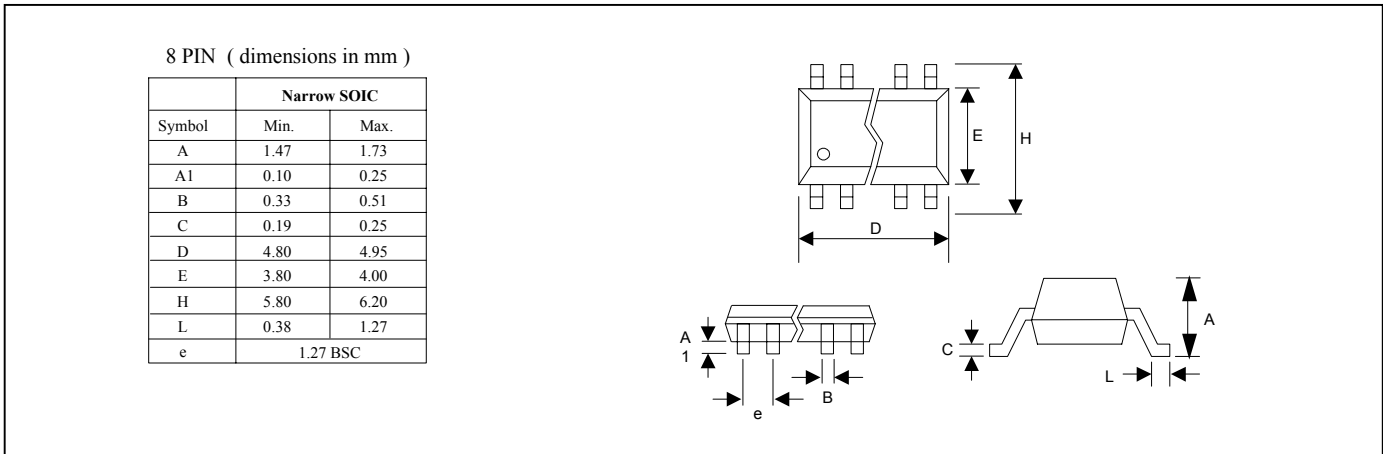


PECL Transition Time Waveform



**High Speed Translator Buffer to PECL**

**PACKAGE INFORMATION**



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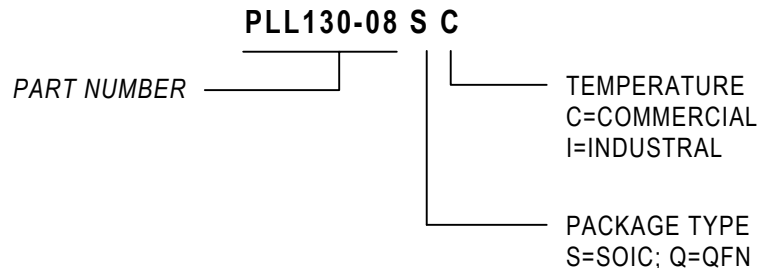
**ORDERING INFORMATION**

**For part ordering, please contact our Sales Department:**

47745 Fremont Blvd., Fremont, CA 94538, USA  
Tel: (510) 492-0990 Fax: (510) 492-0991

**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> |
|---------------------|----------------|-----------------------|
| PLL130-08QC-R       | P130-08QC      | QFN - Tape and Reel   |
| PLL130-08QC         | P130-08QC      | QFN - Tube            |
| PLL130-08SC-R       | P130-08SC      | SOIC - Tape and Reel  |
| PLL130-08SC         | P130-08SC      | SOIC - Tube           |

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