## Pinout Table

| Pin # | Pin Name | Type | | Description |
|---|---|---|---|---|
| 1 | $V_{EE}$ | Power | | Negative power supply |
| 2 | CLK_EN | Input | Pullup | Clock output enable/ disable |
| 3 | CLK_SEL | Input | Pulldown | Clock input source selection pin |
| 4 | CLK | Input | Pulldown | Clock input |
| 5 | NC | - | | No Connect |
| 6 | XTAL1 | Input | | Xtal input |
| 7 | XTAL2 | Output | | Xtal output |
| 8, 9 | NC | - | | No connect |
| 10, 13, 18 | $V_{CC}$ | Power | | Power supply |
| 11, 12 | nQ3<br>Q3 | Output | | LVPECL output clock |
| 14, 15 | nQ2<br>Q2 | Output | | LVPECL output clock |
| 16, 17 | nQ1<br>Q1 | Output | | LVPECL output clock |
| 19, 20 | nQ0<br>Q0 | Output | | LVPECL output clock |

Note: Pullup and Pulldown are for internal input resistors

## Function Table

Table 1: Clock source input select function

| CLK_SEL | Function |
|---|---|
| 0 | CLK is the selected reference input |
| 1 | XTAL is the selected input |

Table 2: Clock output select function

| CLK_EN | Function |
|---|---|
| 0 | All outputs disabled. Qx disabled low, nQx disabled High. |
| 1 | All outputs enabled. |

## Maximum Ratings (Above which the useful life may be impaired. For user guidelines, not tested)

Storage temperature.....-55 to +150°C
Supply Voltage to Ground Potential (VCC)..... -0.5 to +4.65V
Inputs (Referenced to GND) ..... -0.5 to Vcc+0.5V
Clock Output (Referenced to GND)..... -0.5 to Vcc+0.5V
Soldering Temperature (Max of 10 seconds) .....+260°C
Latch up.....200mA

**Note:**

Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

## Power Supply Characteristics and Operating Conditions

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_{CC}$ | Supply Voltage | | 3.135 | | 3.465 | V |
| | | | 2.375 | | 2.625 | V |
| $I_{DD}$ | Power Supply Current | All outputs unloaded | | | 130 | mA |
| $T_A$ | Ambient Operating Temperature | | -40 | | 85 | °C |

## DC Electrical Specifications - LVCMOS Inputs

| Symbol | Parameter | | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_{IH}$ | Input high voltage | | $V_{CC}$=3.3V | 2.0 | | $V_{CC}$+0.3 | V |
| $V_{IL}$ | Input low voltage | | $V_{CC}$=3.3V | -0.3 | | 0.8 | V |
| $V_{IH}$ | Input high voltage | | $V_{CC}$=2.5V | 1.7 | | $V_{CC}$+0.3 | V |
| $V_{IL}$ | Input low voltage | | $V_{CC}$=2.5V | -0.3 | | 0.7 | V |
| $I_{IH}$ | Input High current | CLK, CLK_SEL | | | | 150 | uA |
| | | CLK_EN | | | | 10 | uA |
| $I_{IL}$ | Input Low current | CLK, CLK_SEL | | -10 | | | uA |
| | | CLK_EN | | -150 | | | uA |
| $C_{IN}$ | Input capacitance | | | | 4 | | pF |
| $R_{PULLUP/PULLDOWN}$ | Input pullup and pulldown resistor | | | | 50 | | kΩ |

## DC Electrical Specifications- LVPECL Outputs

| Parameter | Description | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_{OH}$ | Output High voltage | $V_{CC}$=3.3V | 2.1 | | 2.6 | V |
| | | $V_{CC}$=2.5V | 1.3 | | 1.75 | |
| $V_{OL}$ | Output Low voltage | $V_{CC}$=3.3V | 1.0 | | 1.8 | V |
| | | $V_{CC}$=2.5V | 0.4 | | 0.8 | |

## AC Electrical Specifications – Differential Outputs

| Parameter | Description | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $F_{OUT}$ | Clock output frequency | LVPECL | | | 1500 | MHz |
| $T_r$ | Output rise time | From 20% to 80% | | 150 | | ps |
| $T_f$ | Output fall time | From 80% to 20% | | 150 | | ps |
| $T_{ODC}$ | Output duty cycle | | 48 | | 52 | % |
| $V_{PP}$ | Output swing Single-ended | LVPECL outputs | 400 | | | mV |
| $T_j$ | Buffer additive jitter RMS | | | 0.03 | | ps |
| $T_{SK}$ | Output Skew | 4 outputs devices, outputs in same bank, with same load, at DUT. | | 25 | | ps |
| $T_{PD}$ | Propagation Delay | | | 1500 | | ps |
| $T_{OD}$ | Valid to HiZ | | 200 | | | ns |
| $T_{OE}$ | HiZ to valid | | 200 | | | ns |

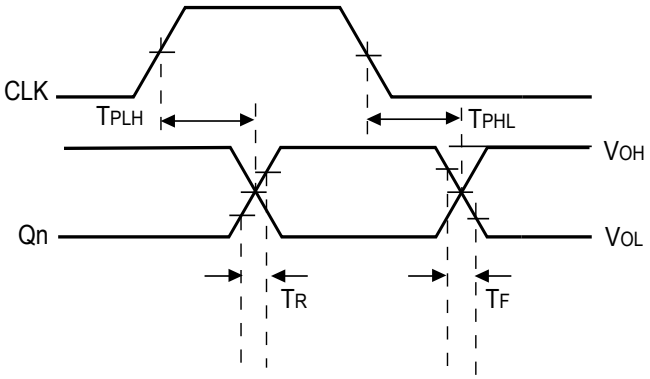
**Notes:**
All parameters are measured with CMOS input of 266MHz unless stated otherwise

## Crystal Characteristics

| Parameters | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Mode of Oscillation | | | Fundamental | | |
| Frequency | | 12 | | 50 | MHz |
| Equivalent Series Resistance (ESR) | | | | 50 | Ω |
| Shunt Capacitance | | | | 7 | pF |
| Drive Level | | | | 1 | mW |

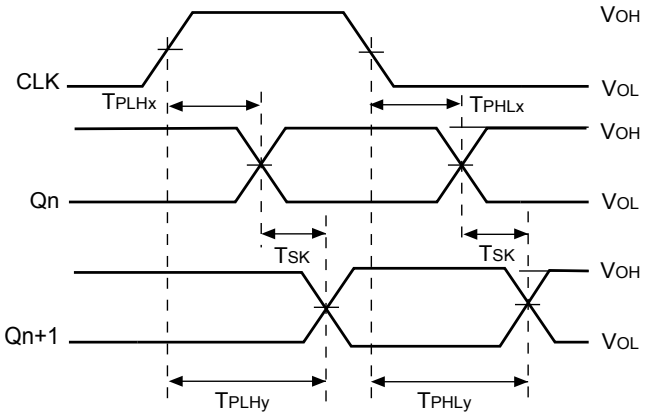
## Propagation Delay

Propagation Delay $T_{PD}$



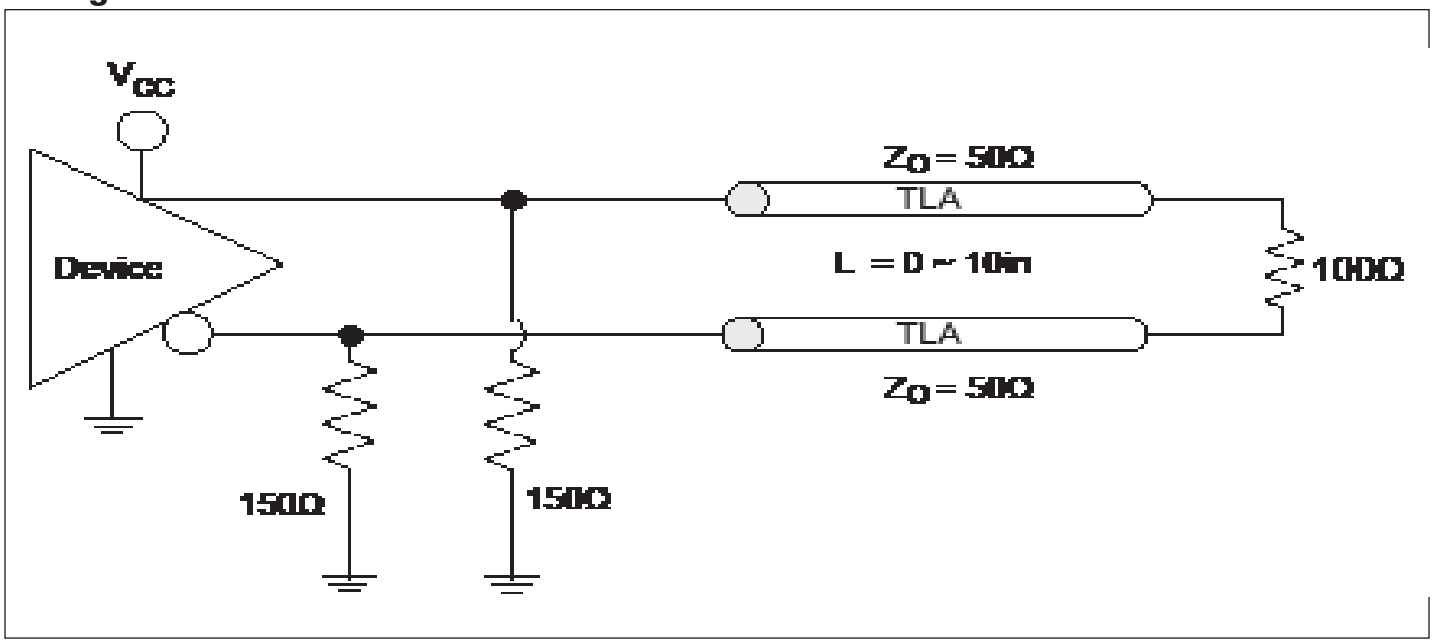

## Output Skew

Output Skew $T_{SK}$

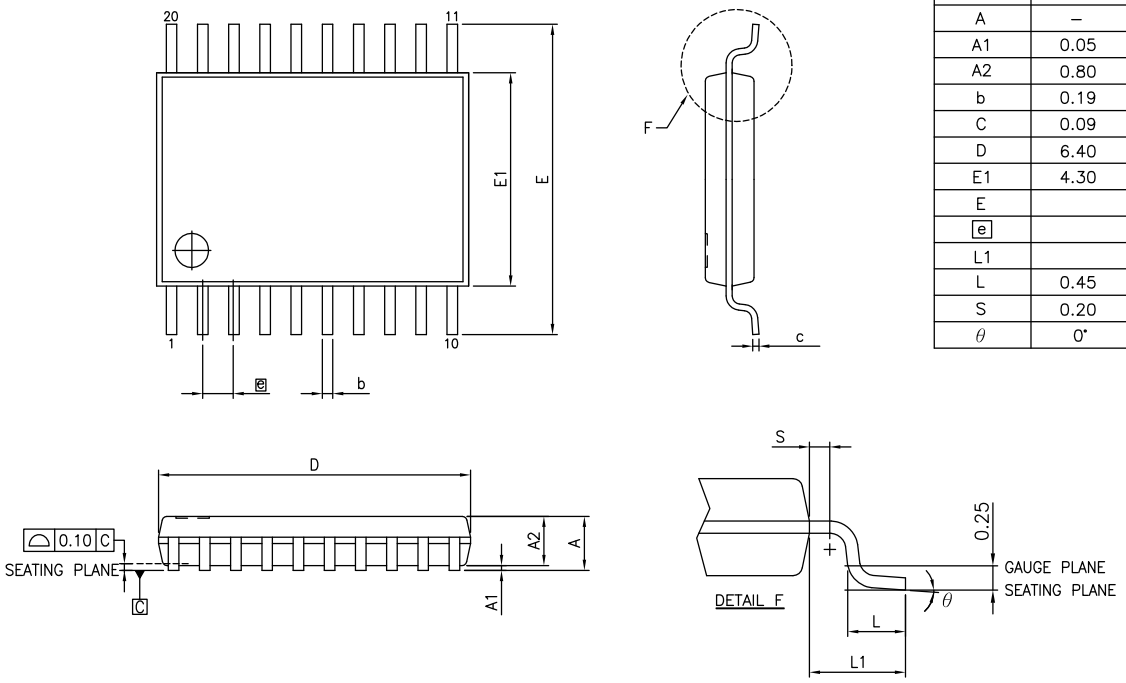



$T_{SK} = T_{PLHy} - T_{PLHx}$ or $T_{SK} = T_{PHLy} - T_{PHLx}$

## Configuration Test Load Board Termination for LVPECL



## Packaging Mechanical: 20-Contact TSSOP (L)




VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

| SYMBOLS | MIN. | NOM. | MAX. |
|---|---|---|---|
| A | – | – | 1.20 |
| A1 | 0.05 | – | 0.15 |
| A2 | 0.80 | – | 1.05 |
| b | 0.19 | – | 0.30 |
| C | 0.09 | – | 0.20 |
| D | 6.40 | 6.50 | 6.60 |
| E1 | 4.30 | 4.40 | 4.50 |
| E | | 6.40 BSC | |
| e | | 0.65 BSC | |
| L1 | | 1.00 REF | |
| L | 0.45 | 0.60 | 0.75 |
| S | 0.20 | – | – |
| θ | 0° | – | 8° |

**Notes:**
1. Refer JEDEC MO-153F/AC
2. Controlling dimensions in millimeters
3. Package outline exclusive of mold flash and metal burr

PERICOM Enabling Serial Connectivity

**DATE: 05/03/12**

**DESCRIPTION: 20-pin, 173mil Wide TSSOP**

**PACKAGE CODE: L**

**DOCUMENT CONTROL #: PD-1311** **REVISION: F**

12-0373

## Ordering Information

| Ordering Number | Package Code | Package Description |
|---|---|---|
| PI6C4911504-03LIE | L | Pb-free & Green 20-Contact TSSOP |

- **Thermal characteristics can be found on the company web site at www.pericom.com/packaging/**
- **E = Pb-free and Green**
- **X suffix = Tape/Reel**