

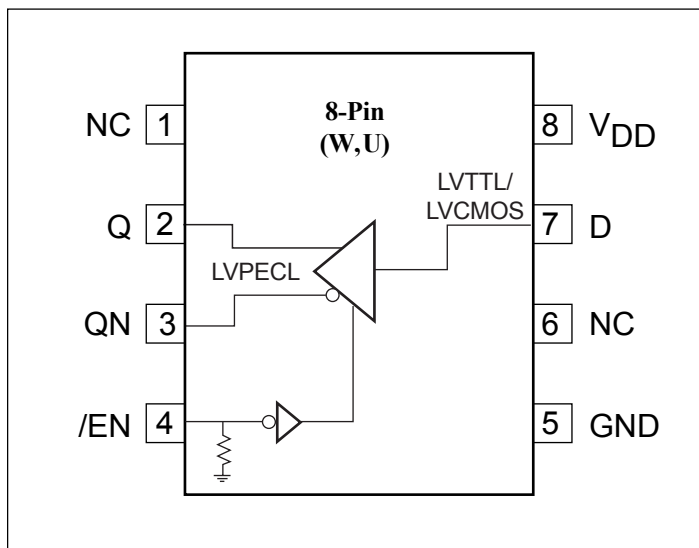
## LVTTL to Differential LVPECL Translator with Enable

**Features**

- Differential LVPECL outputs
- Flow-through pinout
- -40°C to 85°C operating temperature range
- ESD rating: >2000V (Human body Model)
- Packaging (Pb-free & Green available):
  - 8-pin SOIC (W)
  - 8-pin MSOP (U)

**Description**

The PI90LVP10 is a general purpose LVTTL (CMOS) to differential LVPECL translator, with active-LOW enable. The device operates from a single 3.3V supply. When /EN is LOW, the device accepts LVTTL input and provides differential LVPECL outputs referenced to the positive supply rail. When /EN is HIGH, the Q output is set in LOW state and QN output is set in HIGH state.

**Block Diagram**

**Pin Description**

Name	Description	Type	Pin#
/EN	Active LOW enable input	I	4*
Q	PECL data output	O	2
QN	PECL complementary data output	O	3
V <sub>DD</sub>	Connect to 3.3V	P	8
D	LVTTL/LVCMOS	I	7
GND	Connect to ground	P	5

**Notes:**

- I = Input
- O = Output
- P = Power Supply Connection
- \* = Internal 150K pull-down resistor

### Absolute maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>DD</sub>	Supply Voltage	Referenced to GND			6	V
V <sub>IL</sub>	Input Voltage	Referenced to GND	-0.5		6	V
I <sub>OUT</sub>	Output current in LOW state				50	mA
T <sub>STG</sub>	Storage temperature		-65		150	°C

**Note:**

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. These ratings are stress specifications only and correct functional operation of the device at these or any other conditions above those listed in the operational sections of the specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect product reliability

### Recommended Operating Conditions

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>DD</sub>	Power Supply Voltage		3.0		3.6	V
V	Ambient Temperature		-40		85	°C
V <sub>IH</sub>	Input HIGH Voltage		2.0			V
V <sub>IL</sub>	Input LOW Voltage				0.8	
t <sub>Rin</sub>	Input slew rate	10% to 90% (L→H)	1			V/ns
t <sub>Fin</sub>	Input slew rate	90% to 10% (H→L)	1			

**DC Characteristics**(TA = -40°C to +85°C, V<sub>DD</sub> = 3.0V to 3.6V unless otherwise)

Symbol	Parameters	Conditions	T <sub>A</sub> = +25°C			Units	
			Min.	Typ.	Max.		
I <sub>IH</sub>	Input HIGH Current	V <sub>CC</sub> = Max. V <sub>IN</sub> = V <sub>CC</sub>	D input	2.0		100	μA
			/EN Input			50	
I <sub>IL</sub>	Input LOW Current	V <sub>CC</sub> = Max. V <sub>IN</sub> = 0V	D input	-100			
			/EN Input	-1			
V <sub>IK</sub>	Input Clamp Diode Voltage	I <sub>IN</sub> = -18mA				1.2	V
V <sub>OH</sub>	Output HIGH Voltage <sup>(1,2)</sup>	V <sub>DD</sub> = 3.3V	-40°C	2275	2375	2475	mV
			-25°C	2200	2300	2400	
			85°C	2125	2225	2325	
V <sub>OL</sub>	Output LOW Voltage <sup>(1,2)</sup>	V <sub>DD</sub> = 3.3V	-40°C	1350	1450	1550	
			25°C	1400	1500	1600	
			85°C	1450	1550	1650	
I <sub>DD</sub>	Power Supply Current			57		mA	

**Notes:**

1. The PI90LVP10 is designed to meet these specifications after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board.
2. Q and QN outputs are loaded with 50 ohms to V<sub>DD</sub>-2volts.

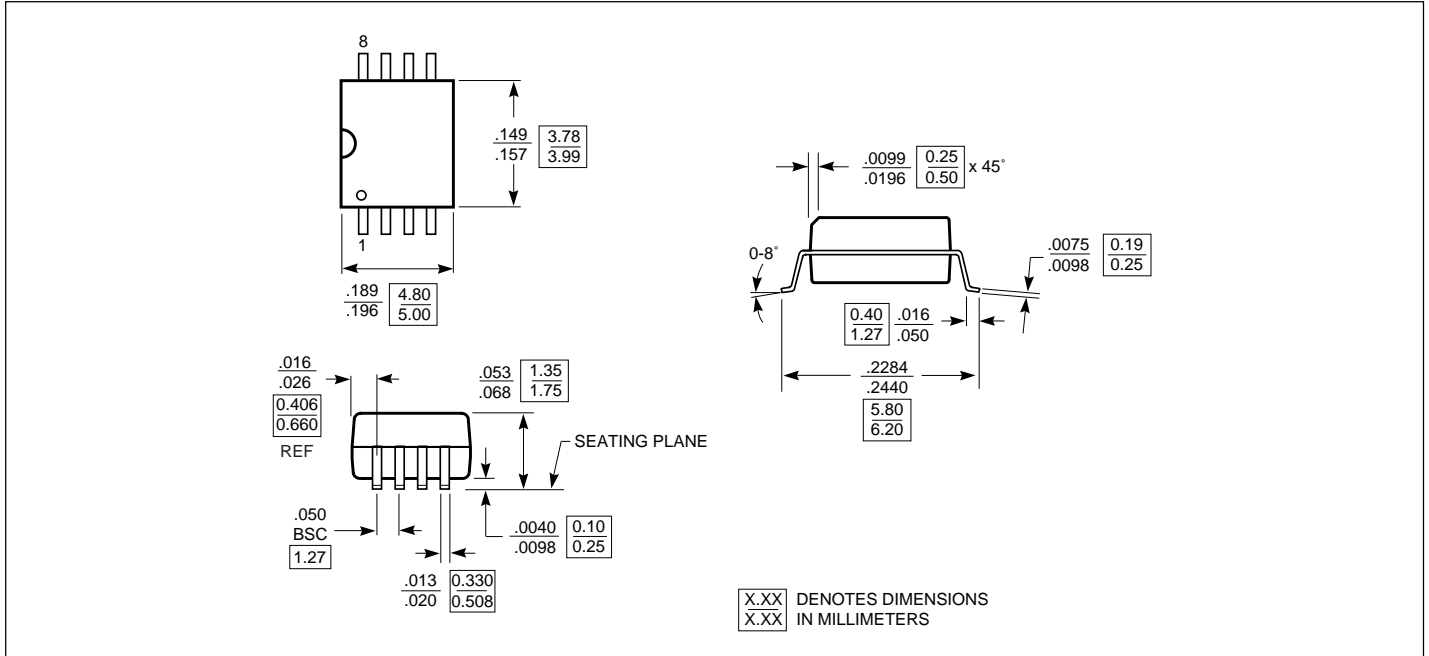
**AC Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
t <sub>PLH</sub>	Propagation Delay <sup>(1)</sup>			0.7	1.2	ns
t <sub>PHL</sub>	Propagation Delay <sup>(1)</sup>			0.7	1.2	
t <sub>PLH</sub>	Propagation Delay	/EN to Q, QN		1.0	1.5	
t <sub>PHL</sub>	Propagation Delay	/EN to Q, QN		1.0	1.5	
t <sub>r</sub> /t <sub>f</sub>	Output Rise/Fall time	20% -80%	0.10		0.7	
f <sub>MAX</sub>	Maximum Input Frequency	LVTTL or LVCMOS input	170			MHz
f <sub>MAX</sub>	Maximum Input Frequency <sup>(2)</sup>	750mV peak-to-peak sine wave (AC coupled)	400			

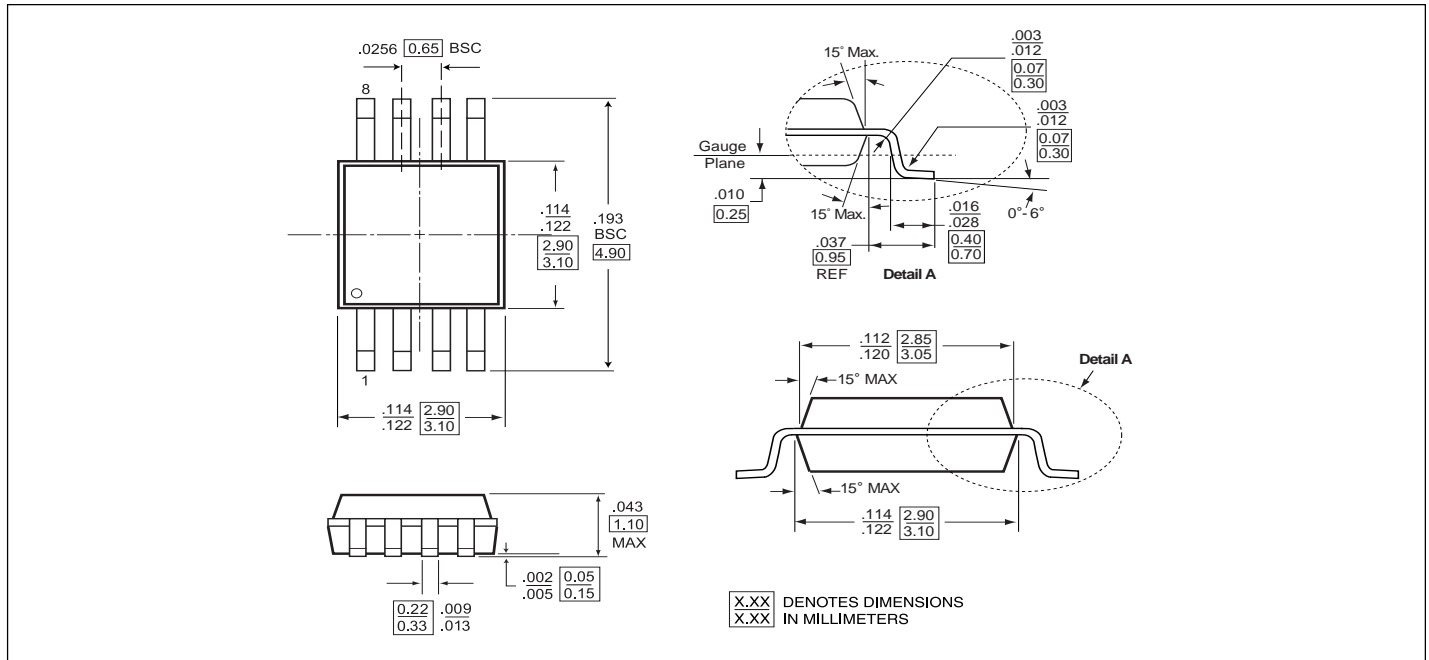
**Notes:**

1. Q and QN outputs are loaded with 50 ohms to V<sub>DD</sub>-2volts.
2. Measured using a 750mV peak-to-peak, 50% duty cycle clock source

**Packaging Mechanical: 8-Pin SOIC (W)**



**Packaging Mechanical: 8-Pin MSOP (U)**



**Ordering Information**

<b>Ordering Code</b>	<b>Package Code</b>	<b>Package Type</b>
PI90LVP10W	W	8-pin SOIC
PI90LVP10WE	W	Pb-free & Green, 8-pin SOIC
PI90LVP10U	U	8-pin MSOP
PI90LVP10UE	U	Pb-free & Green, 8-pin MSOP

**Notes:**

1. Thermal characteristics can be found on the company web site at [www.pericom.com/packaging/](http://www.pericom.com/packaging/)