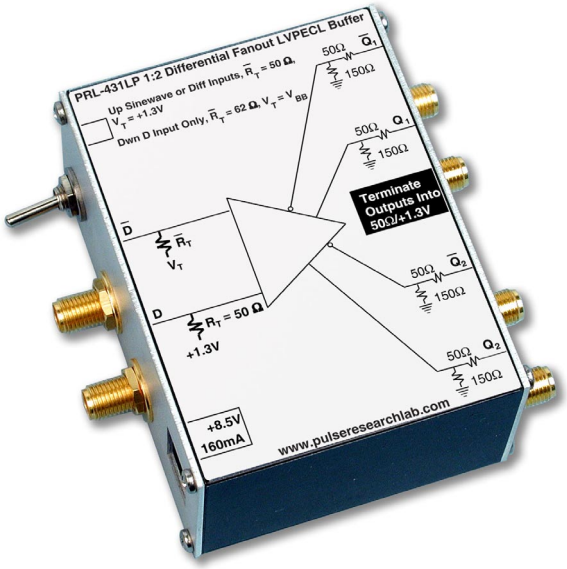
PRL-431LP 1:2 DIFFERENTIAL FANOUT LVPECL BUFFER

APPLICATIONS

- Fanout Single-ended Input signals into two pairs of Differential signals for driving long lines
- Ideal for receiving signals from long lines
- Fanout GHz Sine Wave signals into two pairs of Differential LVPECL signals
- An Essential Lab Tool for Working with LVPECL Circuits

FEATURES

- 3 GHz Typical f_{MAX}
- Single-ended or Differential Inputs
- Internal 50 Ω/V_{TT} Input Terminations also accept AC coupled Signals
- Complementary Outputs drive 50 Ω loads terminated to V_{TT}, AC coupled or floating 50 Ω loads
- DC Coupled I/O's Compatible with ECLinPS or 10KH Devices
- SMA or BNC I/O Connectors
- Ready-to-Use 1.3 x 2 9 x 2 2-in. Module includes a ±8.5VAC/DC Adapter



PRL –431LP LVPECL Fanout Buffer

DESCRIPTION

The PRL-431LP is a 1:2 Differential Fan Out LVPECL Buffer module. It is an essential lab tool for applications where it is necessary to drive two different differential loads from a source of single-ended or differential LVPECL signals. It can also be used for converting GHz sine wave signals into differential LVPECL signals.

A switch selects either single-ended or differential inputs, as shown in Fig. 1. In the differential input mode, both inputs D and $\overline{D}$ are terminated internally into 50 Ω/ V_{TT}, where V_{TT} is +1.3V for LVPECL, and, therefore, either one or both inputs can accept AC coupled signals as well. In the single input mode, signal should be connected to the D input only. The $\overline{D}$ input is switched internally to V_{BB}, nominally +2.0V for LVPECL, and termination resistor $\overline{R}_T$ for the $\overline{D}$ input is changed to 62 Ω. Complementary outputs are designed for driving 50 Ω loads terminated into V_{TT}, AC coupled or floating 50 Ω loads. A pair of the PRL-431LP complementary outputs must be used together for driving differential LVPECL inputs only. This is because the reduced output logic swing of 400mVp-p, due to short circuit protection reasons, is not logic level compatible with single-ended LVPECL input.

The PRL-431LP can be supplied with either BNC or SMA I/O connectors. It is housed in a 1.3 x 2.9 x 2.2-in. extruded aluminum enclosure and supplied with a ±8.5V AC/DC Adapter.

If mounting is desired, a pair of 35001420 mounting brackets can accommodate two PRL modules of the same length. A number of PRL modules can also share a single ±8.5V AC/DC adapter using the PRL-730 or PRL-736 voltage distribution module. Please see the Accessories Section for more detail.

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SPECIFICATIONS* (0º C ≤ TA ≤ 35ºC)

SYMBOL	PARAMETER	PRL-431LP			UNIT	Comments
		Min	Typ	Max		
R_{in}	Input Resistance	49.5	50	50.5	Ω	
V_{TT}	D Input Termination Voltage (fixed)	1.18	1.3	1.43	V	
V_T	$\overline{D}$ Input Termination Voltage (variable)	1.18/ 1.8	1.3/ 2.0	1.43/ 2.2	V	
V_{IL}	Input Lo Voltage	1.35	1.48	1.67	V	
V_{IH}	Input Hi Voltage	2.08	2.28	2.42	V	
V_{OL}	Output Lo Voltage	1.35	1.48	1.61	V	
V_{OH}	Output Hi Voltage	2.15	2.28	2.51	V	
I_{DC}	DC Input Current		150	170	mA	
V_{DC}	DC Input Voltage	7.5	8.5	12	V	
V_{AC}	AC/DC Adapter Input Voltage	103	115	127	V	
TPLH	Propagation Delay to output ↑		750	950	ps	
TPHL	Propagation Delay to output ↓		750	950	ps	
t_r/t_f	Rise/Fall Times (20%-80%)		220	300	ps	Note (1)
t_{SKEW}	Skew between Q&$\overline{Q}$ outputs		20	75	ps	
f_{MAX}	Max clock frequency	2.5	3		GHz	Note (2)
V_{CMR}	Common Mode Range	2		3.3	V	
	Size				in.	
	Weight		5		Oz	

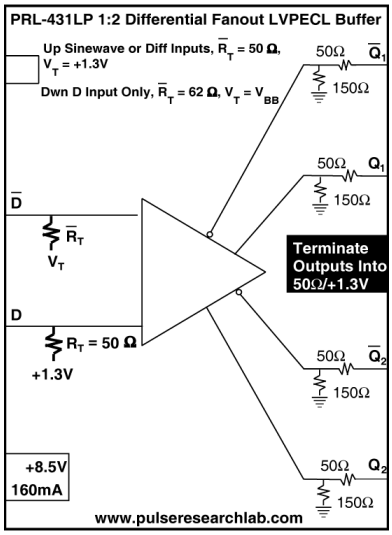

Fig. 1 PRL-431LP Block Diagram

Notes:

(1). The output rise and fall times are measured with both the Q and $\overline{Q}$ outputs terminated into 50Ω/V_{TT}. An unused complementary output must be either terminated into 50Ω/V_{TT} or AC coupled into a 50Ω load. Otherwise, output waveform distortion and rise time degradation will occur. Use the PRL-550LPQ4X four channel LVPECL Terminator for the 50Ω/V_{TT} termination and for connection of LVPECL signals to 50 Ω input oscilloscopes.

(2). f_{MAX} is measured by inputing either a sinewave or a pair of complementary signals using the differential input mode (switch up). The complementary outputs of either unit are divided by four using the PRL-255N in cascade (AC-coupled), and then the outputs of the PRL-255N are measured using the PRL-550NQ4X, four channel NECL Terminator, connected to a sampling 'scope.

*All measurements are made with outputs terminated into 50Ω/V_{TT}, using the PRL-550LPQ4X, four-channel LVPECL Terminator, connected to a 50Ω input sampling oscilloscope.

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