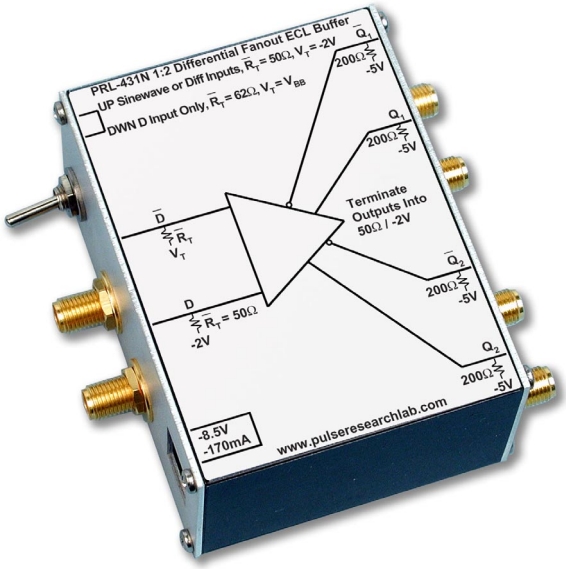
PRL-431N/431P 1:2 DIFFERENTIAL FANOUT NECL/PECL BUFFERS

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 NECL/PECL signals
- An Essential Lab Tool for Working with NECL/PECL Circuits

FEATURES

- 3GHz Typical f_{MAX}
- Single-ended or Differential Inputs
- Internal 50Ω/V_{TT} Input Terminations also accept AC coupled Signals
- Complementary Outputs drive 50Ω loads terminated to V_{TT}, AC coupled or floating 50Ω 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 –431N NECL Fanout Buffer

DESCRIPTION

The PRL-431N and PRL-431P are, respectively, 1:2 Differential Fan Out NECL and PECL Buffer modules. They are essential lab tools for applications where it is necessary to drive two different differential loads from a source of single-ended or differential NECL/PECL signals. They can also be used for converting GHz sine wave signals into differential NECL/PECL signals.

A switch selects either single-ended or differential inputs, as shown in Figs. 1 and 2. In the differential input mode, both inputs D and $\overline{D}$ are terminated internally into 50Ω/ V_{TT}, where V_{TT} is -2V for NECL and +3V for PECL, 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 -1.3V for NECL and +3.7V for PECL, and termination resistor $\overline{R}_T$ for the $\overline{D}$ input is changed to 62Ω. Complementary outputs of both models are designed for driving 50Ω loads terminated into V_{TT}, AC coupled or floating 50Ω loads. Any single output from the PRL-431N can drive a single-ended NECL input. A pair of the PRL-431P complementary outputs, however, must be used together for driving differential PECL 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 PECL input.

Both models can be supplied with either BNC or SMA I/O connectors. They are each 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-431N			PRL-431P			UNIT	Comments
		Min	Typ	Max	Min	Typ	Max		
R_{in}	Input Resistance	49.5	50	50.5	49.5	50	50.5	Ω	
V_{TT}	D Input Termination Voltage (fixed)	-2.2	-2	-1.8	2.7	3	3.3	V	
V_T	$\overline{D}$ Input Termination Voltage (variable)	-1.17/ -2.2	-1.3/ -2	-1.43/ -1.8	3.33/ 2.7	3/ 3.7	4.07/ 3.3	V	
V_{IL}	Input Lo Voltage	-1.95	-1.6	-1.48	3.05	3.4	3.52	V	
V_{IH}	Input Hi Voltage	-1.13	-0.9	-0.81	3.87	4.1	4.19	V	
V_{OL}	Output Lo Voltage	-1.95	-1.7	-1.48	3.0	3.15	3.3	V	
V_{OH}	Output Hi Voltage	-1.13	-0.9	-0.81	3.4	3.55	3.8	V	
I_{DC}	DC Input Current		-165	-180		160	180	mA	
V_{DC}	DC Input Voltage	-7.5	-8.5	-12	7.5	8.5	12	V	
V_{AC}	AC/DC Adapter Input Voltage	103	115	127	103	115	127	V	
TPLH	Propagation Delay to output ↑		750	950		750	950	ps	
TPHL	Propagation Delay to output ↓		750	950		750	950	ps	
$t_{r/tf}$	Rise/Fall Times (20%-80%)		400	550		400	550	ps	Note (1)
t_{SKEW}	Skew between Q&$\overline{Q}$ outputs		20	75		20	75	ps	
f_{MAX}	Max clock frequency	2.5	3		2.5	3		GHz	Note (2)
V_{CMR}	Common Mode Range	-2.7		-0.4	2.5		4.6	V	
	Size							in.	
	Weight		5			5		Oz	

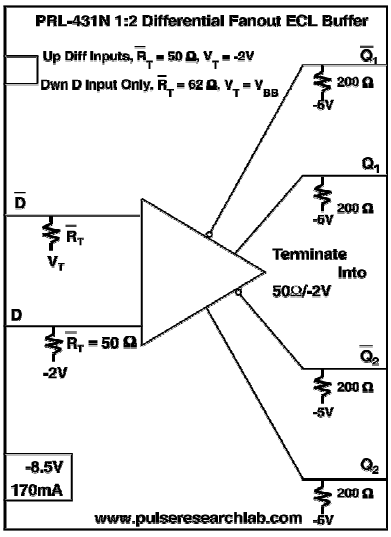

Fig. 1 PRL-431N Block Diagram

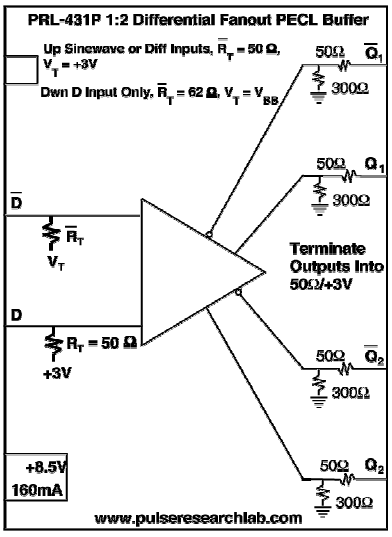

Fig.2 PRL-431P Block Diagram

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-550ND4X/PD4X or PRL-550NQ4X/PQ4X, two or four channel NECL/PECL Terminator, respectively, for the 50Ω/V_{TT} termination and for connection of NECL/PECL signals to 50Ω input oscilloscopes.

(2). f_{MAX} is measured by inputing either a sinewave or a pair of complementary signal using the differential input mode(switch up). The complementary outputs of either unit are divided by eight using the PRL-255N/255P in cascade, and then the outputs of the PRL-255N/255P are measured using the PRL-550NQ4X/PQ4X, four channel NECL/PECL Terminators, connected to a sampling 'scope.

*All measurements are made with outputs terminated into 50Ω/V_{TT}, using the PRL-550NQ4X/PQ4X, four-channel NECL/PECL Terminator, connected to a 50Ω input sampling oscilloscope.

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