

PRL-431N-S8 4 x 1:2 DIFFERENTIAL FANOUT NECL BUFFER

APPLICATIONS

- ◆ Fanout Single channel 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 signals
- ◆ An Essential Lab Tool for Working with NECL Circuits

FEATURES

- ◆ 2.8 GHz f_{MAX}
- ◆ Differential Inputs
- ◆ Internal 50 Ω /-2V Input Terminations also accept AC coupled Signals from PECL
- ◆ Complementary Outputs drive 50 Ω loads terminated to -2V, AC coupled or floating 50 Ω loads
- ◆ DC Coupled I/O's Compatible with ECLinPS or 10KH Devices
- ◆ SMA I/O Connectors
- ◆ 5.25 x 19 x 22-in. Rack-Mountable chassis includes an internal power supply



PRL-431N-S8 Front View



PRL-431N-S8 Rear View

DESCRIPTION

The PRL-431N-S8 is a 4 x 1:2 Differential Fanout NECL Buffer system. It has four sets of differential inputs terminated internally to 50 Ω /-2V and eight sets of complementary outputs suitable for driving 50 Ω loads terminated to -2V, AC coupled or floating 50 Ω loads.

It contains four PRL-431N, 1:2 Fanout NECL buffer modules, mounted inside a 5.25 x 19 x 22-in. rack-mountable chassis, and an internal power supply that operates from standard 120V AC input. All SMA I/O connectors are mounted on the rear panel.

Each PRL-431N module inside the chassis is set to operate in the differential input mode. If single-ended input mode is required, the switch in the PRL-431N must be set to the single-ended input mode. In this mode, signal should be connected to the D input only. The \bar{D} input is switched internally to V_{BB} , nominally -1.3V, and termination resistor \bar{R}_T for the \bar{D} input is changed to 62 Ω . A block diagram of the PRL-431N module is shown in Fig. 1.

The PRL-431N-S8 is an essential lab tool for applications where it is necessary to distribute NECL signals to multiple loads. It can also be used for converting GHz sine wave signals into differential NECL signals.



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SPECIFICATIONS* ($0^{\circ}\text{C} \leq T_A \leq 35^{\circ}\text{C}$)

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R_{in}	Input Resistance	49.5	50	50.5	Ω	
V_{TT}	D Input Termination Voltage (fixed)	-2.2	-2	-1.8	V	
V_T	\bar{D} Input Termination Voltage (variable)	-1.17/-2.2	-1.3/-2	-1.43/-1.8	V	
V_{IL}	Input Lo Voltage	-1.95	-1.6	-1.48	V	
V_{IH}	Input Hi Voltage	-1.13	-0.9	-.81	V	
V_{OL}	Output Lo Voltage	-1.95	-1.6	-1.48	V	
V_{OH}	Output Hi Voltage	-1.13	-0.9	-.81	V	
I_{DC}	DC Input Current		-660	-700	mA	
V_{DC}	DC Input Voltage	-7.5	-8.5	-12	V	
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	V	
t_{PLH}	Propagation Delay to output \uparrow		2000	3000	ps	
t_{PHL}	Propagation Delay to output \downarrow		2000	3000	ps	
t_r/t_f	Rise/Fall Times(20%-80%)		500	600	ps	Note (1)
t_{SKEW1}	Skew \leftrightarrow any 2 outputs from the same differential inputs		100	300	ps	
t_{SKEW2}	Skew \leftrightarrow any 2 outputs from different differential inputs		200	500	ps	
f_{MAX}	Max clock frequency	2.5	2.8		GHz	Note (2)
V_{CMR}	Common Mode Range	-2.7V		-0.4V	V	
	Size		1.3x2.9x2.2		in.	
	Weight		14.5		Oz	

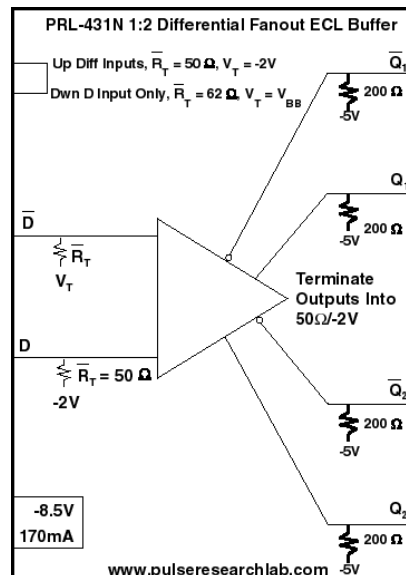


Fig. 1 PRL-431N Block Diagram

*All measurements are made with outputs terminated into $50\ \Omega/-2V$, using the PRL-550NQ4X, four channel ECL Terminators, connected to a $50\ \Omega$ input sampling oscilloscope.

Notes:

(1). The output rise and fall times are measured with all outputs terminated into $50\ \Omega/-2V$. Any unused output must be either terminated into $50\ \Omega/-2V$ or AC coupled into a $50\ \Omega$ load. Otherwise, output waveform distortion and rise time degradation will occur. Use the PRL-550ND4X and PRL-550NQ4X, two and four channel ECL Terminators, respectively, for the $50\ \Omega/-2V$ termination and for connection of NECL signals to $50\ \Omega$ input oscilloscopes. Use 95100002-01 dual channel 0.1uf coupling capacitor module for terminating unused outputs into $50\ \Omega$ loads.

(2). f_{MAX} is measured using differential inputs only. The complementary outputs of the PRL-431N are divided by eight using the PRL-255N in cascade, and then the outputs of the PRL-255N are measured using the PRL-550NQ4X, four channel ECL Terminators, connected to a sampling 'scope.