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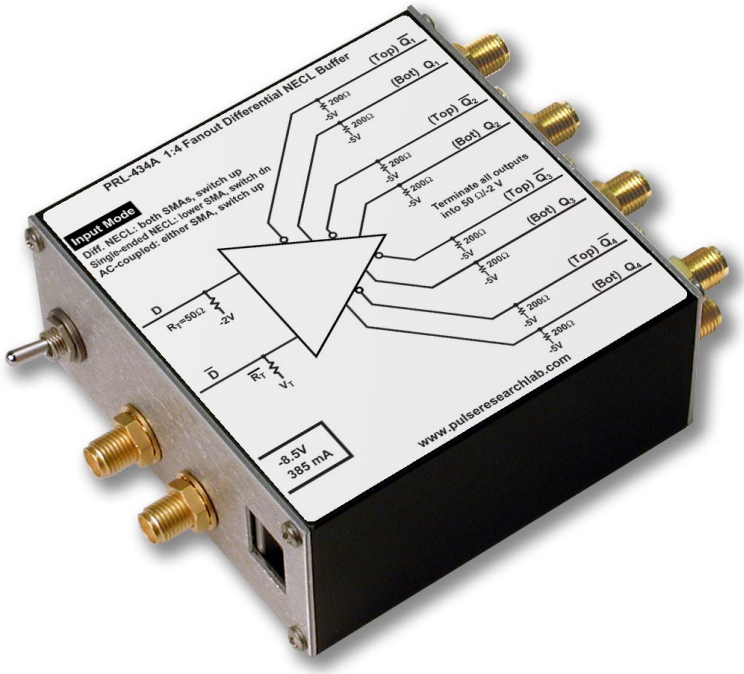
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PRL-434A 1:4 DIFFERENTIAL FAN OUT NECL BUFFER

APPLICATIONS

- Fanout Single-ended/Differential NECL Inputs into four pairs of Complementary NECL Outputs for driving long lines
- Ideal for receiving signals from long lines
- Fanout GHz Sine Wave signals into four pairs of Complementary NECL signals
- An Essential Lab Tool for Working with NECL Circuits



FEATURES

- 3.5 GHz typical f_{MAX}
- Single-ended or Differential Inputs
- Internal 50Ω/-2V Input Terminations also accept AC coupled PECL or Sine wave signals
- Complementary Outputs drive 50 Ω loads terminated to –2 V or AC-coupled 50 Ω loads
- DC-Coupled I/Os Compatible with ECLinPS or 100KH Devices
- SMA I/O Connectors
- Ready-to-Use 1.3 x 2.9 x 2.9-in. Module includes a ±8.5V AC/DC Adapter

DESCRIPTION

The PRL-434A is a 1:4 Differential Fan Out NECL Buffer module. It is intended for fanning out single ended or differential NECL signals into four pairs of complementary outputs. It can also be used for converting AC coupled GHz sine wave or PECL signals into complementary NECL 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 50Ω/-2V, 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. Input $\overline{D}$ is switched internally to V_{BB}, nominally -1.3V, and termination resistor $\overline{R}_T$ for the $\overline{D}$ input channel is changed to 62Ω. Complementary outputs of the PRL-434A, with internal pull down resistors, can drive either 50Ω loads terminated into -2V, AC-coupled or floating 50Ω loads.

The PRL-434A is housed in a 1.3 x 2.9 x 2.9-in. extruded aluminum enclosure and is supplied with a ±8.5V/±1.4A AC/DC Adapter.

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SPECIFICATIONS* (0° C ≤ T_A ≤ 35°C)

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R_{in}	Input Resistance	49.5	50	50.5	Ω	
V_{TT}	D Input Termination Voltage	-2.2	-2	-1.8	V	D input
V_T	$\overline{D}$ Input Termination Voltage	-1.17/-2.2	-1.3/-2	-1.43/-1.8	V	$\overline{D}$ input
V_{IL}	Input Lo Voltage	-1.95	-1.6	-1.48	V	
V_{IH}	Input Hi Voltage	-1.13	-0.9	-0.81	V	
SW Vin	Sinewave Input p-p	30	50	500	mV	Note (3)
V_{OL}	Output Lo Voltage	-1.95	-1.6	-1.48	V	
V_{OH}	Output Hi Voltage	-1.13	-0.9	-0.81	V	
I_{DC}	DC Input Current		-360	-385	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 ↑		1100	1500	ps	
T_{PHL}	Propagation Delay to output ↓		1100	1500	ps	
t_r/t_f	Rise/Fall Times(20%-80%)		250	350	ps	Note (1)
T_{SKEW}	Skew between any 2 outputs		20	75	ps	
F_{MAX}	Max clock frequency	3.0	3.5		GHz	Note (2)
V_{CMR}	Common Mode Range	-2.15		-0.4	V	Note (3)
	Size	1.3 x 2.9 x 2.9			in.	
	Weight	5			Oz	
	Shipping weight including AC adapter	3			lb	

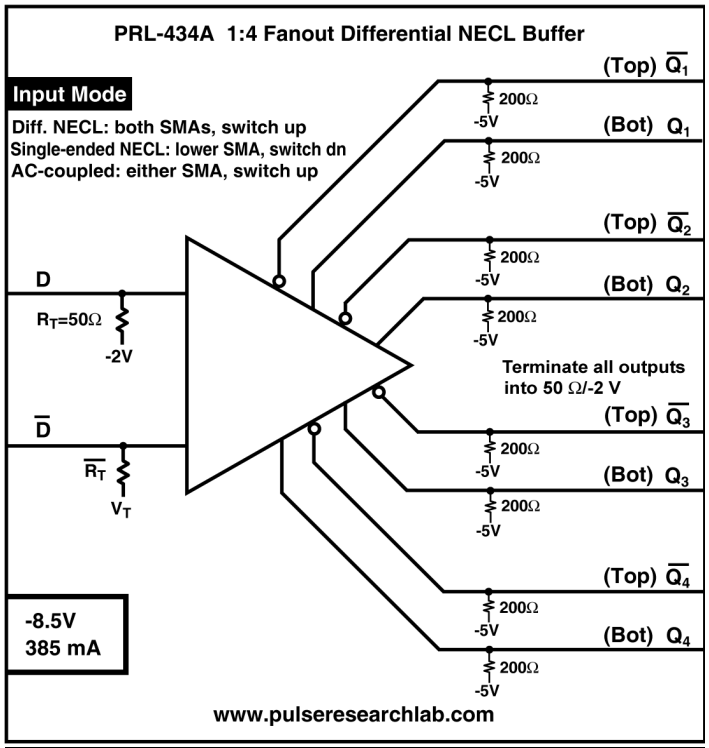


Fig. 1 PRL-434A Block Diagram

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

Notes:

(1). The output rise and fall times of each channel are measured with its complementary output terminated into 50 Ω/-2 V. An unused complementary 50 Ω output must be either terminated into 50 Ω/-2 V or AC coupled into a 50 Ω load; otherwise, output waveform distortion and rise time degradation will occur. Use the PRL-550NQ4X, four channel ECL Terminator for the 50 Ω/-2 V termination and for connection of NECL signals to 50 Ω input oscilloscopes. Use the PRL-ACT-50, dual channel, AC coupled 50 Ω terminator, for terminating unused outputs.

(2). f_{MAX} is measured using differential inputs only. Each pair of differential outputs are first divided by four, using the PRL-255N, and then measured using the PRL-550NQ4X, four channel ECL Terminator, connected to a sampling 'scope. 3.0 GHz guaranteed f_{MAX} is currently limited by production test equipment.

(3). When the unit is driven by an AC coupled Sine wave signal in the differential input mode, the signal swing is symmetrical with respect to –2 V. The peak-to peak swing of the input signal should not exceed these Common Mode limits.

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