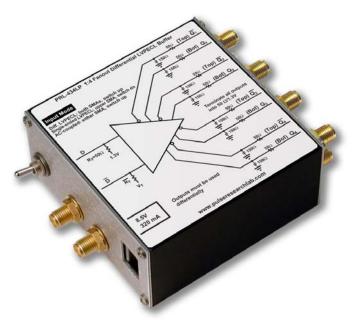
PRL-434LP 1:4 DIFFERENTIAL FANOUT LVPECL BUFFER

APPLICATIONS

- Fan out single-ended input signals into four pairs of differential signals for driving long lines
- Ideal for receiving signals from long lines
- Fan out GHz sinewave signals into four pairs of differential LVPECL signals
- A Mini Modular Instrument[™] for Working with LVPECL Circuits

FEATURES

- 3.5 GHz Typical f_{MAX}, usable up to 4 GHz
- 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/Os compatible with ECLinPS or 10KH devices
- SMA I/O connectors
- Ready-to-use 1.3 x 2.9 x 2 9-in. module includes a ±8.5V/+17V AC/DC Adapter



PRL-434LP LVPECL Fanout Buffer

DESCRIPTION

The PRL-434LP is a 1:4 Differential Fan Out LVPECL Buffer module. It is an essential lab tool for applications where it is necessary to drive four differential loads from a single source of single-ended or differential LVPECL signals. It can also be used for converting GHz sinewave signals into differential LVPECL signals, e.g. for clock distribution.

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. Therefore, either one or both inputs can accept AC coupled signals as well. In the single input mode, the signal should be connected to the \overline{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 . The complementary outputs are designed for driving 50 Ω loads terminated into V_{TT} , AC-coupled, or floating 50 Ω loads.

A complementary pair of the PRL-434LP outputs must be used together for driving differential LVPECL inputs only. This is because the reduced output logic swing of 400 mVp-p (limited by short circuit protection features), is not logic level compatible with all single-ended LVPECL inputs.

The PRL-434LP is supplied with SMA I/O connectors and is housed in a 1.3 x 2.9 x 2.9-in. extruded aluminum enclosure and supplied with a $\pm 8.5 \text{V}/\pm 17 \text{V}$ AC/DC Adapter.

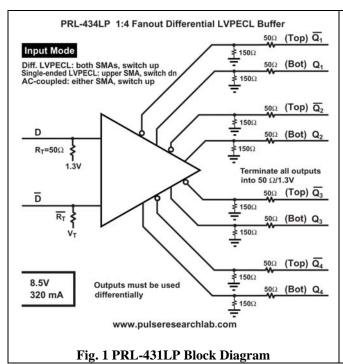
If mounting is desired, a pair of 35001420 mounting brackets can accommodate two PRL modules of the same length. A number of PRL modules can also share a single ±8.5V/+17V AC/DC adapter using the PRL-730 voltage distribution module. Please see the Accessories Section at www.pulseresearchlab.com for more detail.



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

SYMBOL	PARAMETER	PRL-431LP			UNIT	Comments
		Min	Тур	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	D Input Termination Voltage (variable)	1.18/ 1.8	1.3/ 2.0	1.43/ 2.2	V	
$ m V_{IL}$	Input Lo Voltage	1.35	1.48	1.67	V	
$ m V_{IH}$	Input Hi Voltage	2.08	2.28	2.42	V	
V_{OL}	Output Lo Voltage	1.35	1.48	1.61	V	No Load
V_{OH}	Output Hi Voltage	2.15	2.28	2.51	V	No Load
Vop-p	Output p-p swing: • $f \le 1 \text{GHz}$ • $1 \text{GHz} \le f \le 2 \text{GHz}$ • $2 \text{GHz} \le f \le 3.5 \text{GHz}$ • $f = 4 \text{GHz}$	375 300 100	400 350 140 120		mV mV mV	
I_{DC}	DC Input Current		320	350	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 ↑		1100	1500	ps	
TPHL	Propagation Delay to output ↓		1100	1500	ps	
t _{r/tf}	Rise/Fall Times (20%-80%)		220	300	ps	Note (1)
$t_{\rm skew}$	Skew between Q & \overline{Q} outputs		20	75	ps	@ 1GHz
f_{MAX}	Max clock frequency	3.5	4		GHz	Note (2)
$v_{\rm CMR}$	Common Mode Range	2		3.3	V	Note (3)
	Size				in.	
	Weight		5		Oz	



Notes:

- (1). The output rise and fall times are measured with both the Q and \overline{Q} outputs terminated into 50 Ω/V_{TT} . An unused complementary output must be either terminated into 50 Ω/V_{TT} or AC-coupled into a 50 Ω load. Otherwise, output waveform distortion and rise time degradation will occur. Use the PRL-550LPQ4X Four Channel LVPECL Terminator for the 50 Ω/V_{TT} termination and for connection of LVPECL signals to 50 Ω input oscilloscopes.
- (2). f_{MAX} is measured using differential inputs only. Each pair of differential outputs is first divided by four, using the PRL-255LP, and then measured using the PRL-550LPQ4X, four channel LVPECL Terminator, connected to a sampling 'scope.
- (3). When the unit is driven by an AC-coupled sinewave signal in the differential input mode, the signal swing is symmetrical with respect to +1.3 V. The peak-to peak swing of the input signal should not exceed these Common Mode limits.

