

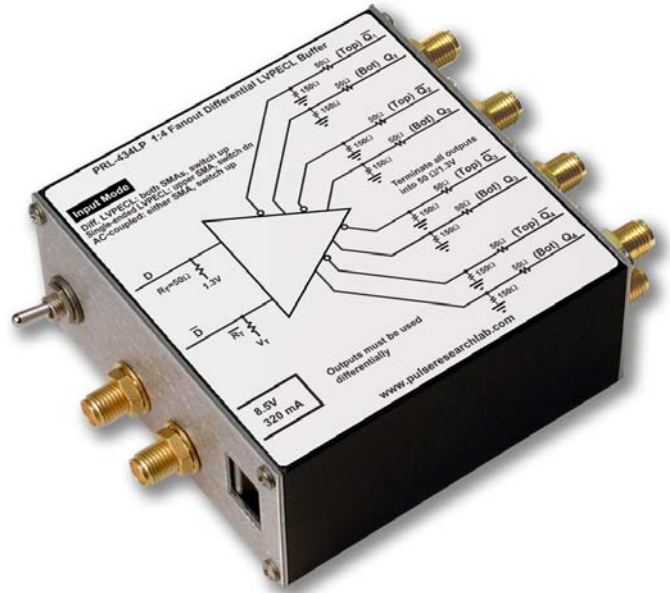
# PRL-434LP 1:4 DIFFERENTIAL FANOUT LVPECL BUFFER

## 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  $50\ \Omega/V_{TT}$  input terminations also accept AC-coupled signals
- Complementary outputs drive  $50\ \Omega$  loads terminated to  $V_{TT}$ , AC-coupled, or floating  $50\ \Omega$  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  $\pm 8.5V/+17V$  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  $\bar{D}$  are terminated internally into  $50\ \Omega/V_{TT}$ , 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  $\bar{D}$  input only. The  $\bar{D}$  input is switched internally to  $V_{BB}$ , nominally +2.0V for LVPECL, and termination resistor  $\bar{R}_T$  for the  $\bar{D}$  input is changed to  $62\ \Omega$ . The complementary outputs are designed for driving  $50\ \Omega$  loads terminated into  $V_{TT}$ , AC-coupled, or floating  $50\ \Omega$  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  $\pm 8.5V/+17V$  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  $\pm 8.5V/+17V$  AC/DC adapter using the PRL-730 voltage distribution module. Please see the Accessories Section at [www.pulseresearchlab.com](http://www.pulseresearchlab.com) for more detail.

# SPECIFICATIONS\* (0° C ≤ TA ≤ 35°C)

SYMBOL	PARAMETER	PRL-431LP			UNIT	Comments
		Min	Typ	Max		
$R_{in}$	Input Resistance	49.5	50	50.5	$\Omega$	
$V_{TT}$	D Input Termination Voltage (fixed)	1.18	1.3	1.43	V	
$V_T$	$\bar{D}$ 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	No Load
$V_{OH}$	Output Hi Voltage	2.15	2.28	2.51	V	No Load
$V_{op-p}$	Output p-p swing: <ul style="list-style-type: none"> <li>• <math>f \leq 1\text{GHz}</math></li> <li>• <math>1\text{GHz} \leq f \leq 2\text{GHz}</math></li> <li>• <math>2\text{GHz} \leq f \leq 3.5\text{GHz}</math></li> <li>• <math>f=4\text{GHz}</math></li> </ul>	375 300 100	400 350 140 120		mV 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	
$T_{PLH}$	Propagation Delay to output $\uparrow$		1100	1500	ps	
$T_{PHL}$	Propagation Delay to output $\downarrow$		1100	1500	ps	
$t_r/t_f$	Rise/Fall Times (20%-80%)		220	300	ps	Note (1)
$t_{skew}$	Skew between Q & $\bar{Q}$ outputs		20	75	ps	@ 1GHz
$f_{MAX}$	Max clock frequency	3.5	4		GHz	Note (2)
$V_{CMR}$	Common Mode Range	2		3.3	V	Note (3)
	Size				in.	
	Weight		5		Oz	

