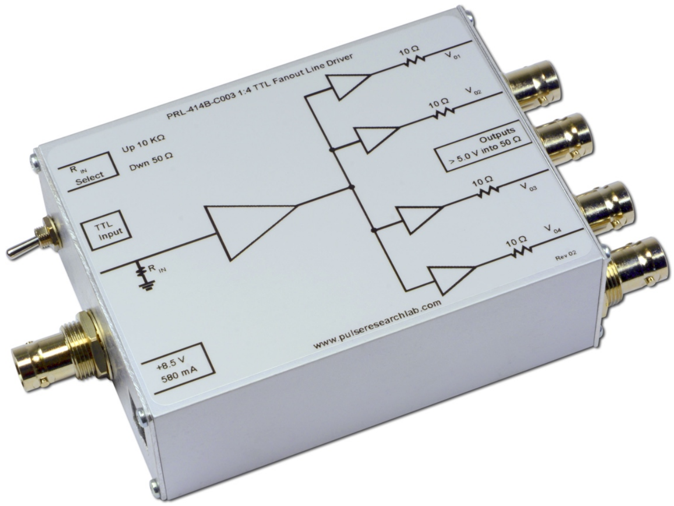
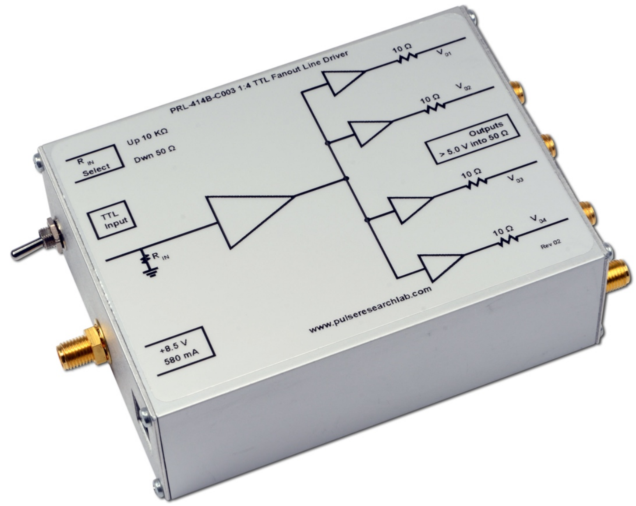
PRL-414B-C003 1:4 FANOUT, 5V into 50 Ω TTL LINE DRIVER





PRL-414B-C003-BNC

PRL-414B-C003-SMA

APPLICATIONS

- 1 PPS Distribution for GPS
- 5 V TTL/CMOS Signal Distribution
- 1:4 Fanout Line Driver
- High Speed Digital Communications System Testing
- Mini Modular Instrument

FEATURES

- f_{max} > 75 MHz, 80 MHz Typical
- 5 V outputs for driving 50 Ω loads
- Drives 100 ft of cable @ 50 MHz
- 2 ns Typical Output Rise & Fall Times
- TTL Compatible 50 Ω or 10 kΩ Input
- Four in-phase 50 Ω TTL Outputs
- BNC or SMA I/O Connectors
- DC Coupled I/Os
- Self-contained 1.3 x 2.9 x 3.9-in. unit includes AC/DC Adapter
- Can also operate from a single 8.0 V to 12.0 V supply

DESCRIPTION

The PRL-414B-C003 is a modified version of the standard PRL-414B 1:4 fanout 50 Ω TTL Line Driver. In this modified version, all outputs can deliver 5 V into 50 Ω loads. It is intended for distribution of high-speed clock and data signals to multiple loads via long lines. With 50 Ω load terminations, all outputs of the PRL-414B-C003 can drive 100 ft of 50 Ω cables at clock rates greater than 50 MHz. The PRL-414B-C003 is also used for distributing 1 PPS clock signals from popular GPS receivers to multiple instruments requiring 5 V into 50 Ω loads.

The input resistance of the PRL-414B-C003 can be selected to be either 50 Ω or 10 kΩ by a switch. The 10 kΩ input is desirable when interfacing with low power circuits. All I/Os are DC coupled and have either BNC or SMA connectors.

The PRL-414B-C003 is housed in a 1.3 x 2.9 x 3.9-in. extruded aluminum enclosure and is supplied with a ±8.5 V/±1.8 A AC/DC Adapter. It can also be operated from a single 8.0 V-12.0 V supply. A maximum of four units can share a single PRL-760C AC/DC adapter. If mounting is desired, a pair of the # 35001420 mounting brackets can accommodate any two PRL modules of the same length. Please visit www.pulseresearchlab.com/accessories for more detail.

A block diagram showing the equivalent input and output circuits of the PRL-414B-C003 is shown in Fig. 1.

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SPECIFICATIONS* (0^{o} C ≤ T_A ≤ 35^{o}C)

Unless otherwise specified, dynamic measurements are made with the input set to 50 Ω and all outputs terminated into 50 Ω.

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
$R_{IN\ Low}$	Input Resistance Low Range	49.5	50.0	50.5	Ω	
$R_{IN\ Hi}$	Input Resistance High Range	9.9	10.0	10.1	kΩ	
R_{OUT}	Output Resistance		10		Ω	
V_{IL}	TTL Input Low Level	-0.5	0.0	0.5	V	
V_{IH}	TTL Input High Level	2.0	2.4	5.0	V	
V_{OL}	TTL Output Low Level	0.0	0.25	0.5	V	R_L = 50 Ω
V_{OH1}	TTL Output High Level	5			V	R_L = 50 Ω f ≤ 50 MHz
V_{OH2}	TTL Output High Level	4.8	5.0		V	R_L = 50 Ω f ≤ 75 MHz
V_{OH3}	TTL Output High Level		6.0		V	R_L = 1 MΩ
I_{DC1}	DC Input Currents		480	500	mA	f ≤ 50 MHz
I_{DC2}	DC Input Currents		580	600	mA	f ≤ 75 MHz
V_{DC}	DC Input Voltages	8.0	8.5	12	V	
V_{AC}	AC/DC Adapter Input Voltage	105	115	127	V	
T_{PLH}	Propagation Delay to output ↑		14	20	ns	
T_{PHL}	Propagation Delay to output ↓		16	20	ns	
t_r	Rise Time (10%-90%)		2.2	3.0	ns	f =50 MHz sq. wave
t_f	Fall Time (10%-90%)		1.8	3.0	ns	f =50 MHz sq. wave
T_{SKEW}	Skew between any 2 outputs		500	1500	ps	f =50 MHz sq. wave
F_{max1}	Max. Clock Frequency(2)	75	80		MHz	RG58C/U, Cable length =3 ft
F_{max2}	Max. Clock Frequency(3)		50		MHz	RG58C/U, Cable length =100 ft
PWmin	Minimum Pulse Width		6		ns	↑ Input
PWmin	Minimum Pulse Width		6		ns	↓ Input
	Size		1.3 x 2.9 x 3.9		in.	
	Weight		5		Oz	

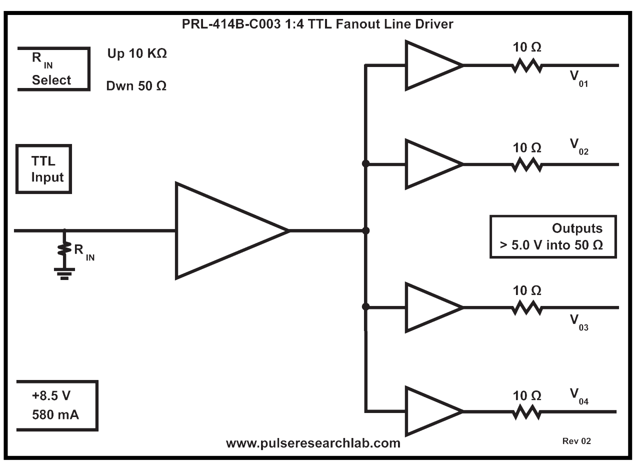

Fig. 1: PRL-414B-C003 Functional Block diagram

Notes:

(1). For sharing a single PRL-760C4, ±8.5 V, ±1.8 A AC/DC adapter, the total current should not exceed 1.8 A.@ the +8.5V output

(2). f_{MAX} should not exceed 85 MHz; otherwise, damage of the unit due to overheating may result.

(3). f_{MAX2} is measured by connecting a second PRL-414B at the end of the 100 ft cable.

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