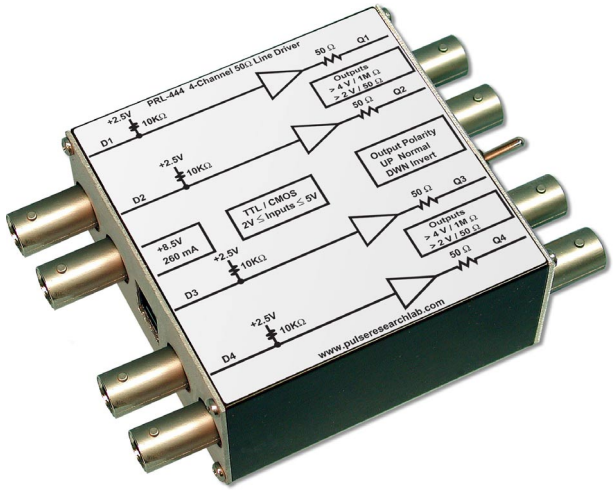
PRL-444 Four Channel High Input Impedance 50 Ω TTL Line Driver

APPLICATIONS

- Converting Conventional TTL/CMOS Outputs to 50 Ω TTL Outputs
- Long Line Drivers
- High Speed Digital Communications System Testing
- Basic Lab Tool
- HI/LO Logic Level Generation



PRL-444 Four Channel TTL Line Driver

FEATURES

- f_{max} > 70 MHz Normal/50MHz Invert
- Drives 100 ft of cable @ 50 MHz Normal
- 2ns Typical Output Rise & Fall Times
- Four independent TTL Compatible 10 kΩ Inputs
- Four independent 50 Ω TTL Outputs
- BNC or SMA I/O Connectors
- DC Coupled I/O's
- Self-contained 1.3 x 2.9 x 2.9-in. unit includes an AC/DC Adapter

DESCRIPTION

The PRL-444 is a four channel TTL/CMOS input, 50 Ω output TTL/CMOS Line Driver. It is intended for interfacing with computer I/O cards that have TTL outputs not suitable for driving 50 Ω lines. Each input has a 10 kΩ pulled up to 2.5V so that it can also be driven by open collector devices. The 50 Ω back-terminated outputs of the PRL-444 can drive long lines with or without 50 Ω load terminations. With 50 Ω load terminations, however, all outputs can drive 100 ft of 50 Ω cables at clock rates greater than 60 MHz.

If the inputs are left open, all outputs will go Hi, because the inputs are pulled up to +2.5V. All outputs can be set to the LO state, however, by either setting the polarity inverting switch to the down position or terminating all inputs to 2kΩ or lower. The polarity inverting switch enables easy generation of four static Hi/Lo logic signals when the inputs are not driven.

The PRL-444 is housed in a 1.3 x 2.9 x 2.9-in. extruded aluminum enclosure and is supplied with a ±8.5 V/±1.4 A AC/DC Adapter. A maximum of four units can share a single AC/DC adapter using the PRL-730 or PRL-736 voltage distribution modules. If mounting is desired, a pair of the #35001420 mounting brackets can accommodate any two PRL modules of the same length. Please refer to the Accessories Section of the literature for more detail.

A block diagram showing the equivalent input and output circuits of the PRL-444 is shown in Fig. 1.

ORDERING INFORMATION

The PRL-444 is available with either BNC or SMA I/O connectors. Order PRL-444-BNC for BNC input and output connectors. Order PRL-444-SMA for SMA input and output connectors. All standard units include an AC/DC adapter (PRL-760B or equivalent). For "mixed" connector configurations or for OEM units without enclosures and/or adapters, please consult the factory.

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SPECIFICATIONS* (0° C ≤ T_A ≤ 35°C)

Unless otherwise specified, dynamic measurements are made with all inputs and outputs terminated into 50 Ω

SYMBOL	PARAMETER	Min	Typ	Max	UNIT	Comments
R_{in}	Input Resistance	9.9	10	10.1	kΩ	Pulled up to +2.5V
Rout	Output Resistance		50		Ω	
V_{IL}	TTL input Low Level	-0.5	0	0.5	V	
V_{IH}	TTL input High Level	2.0	2.4	5.0	V	
V_{OL}	TTL Output Low Level	0	0.25	0.5	V	R_L=50 Ω
V_{OH1}	TTL Output High Level	2.2	2.5		V	R_L=50 Ω @ DC
V_{OH2}	TTL Output High Level	4.4	5		V	R_L=1 MΩ @ DC
I_{DC1}	DC Input Currents		260	300	mA	f ≤ 75 MHz
I_{DC2}	DC Input Currents		220	250	mA	f =50 MHz sq. wave(1)
V_{DC}	DC Input Voltages	7.5	8.5	12	V	
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	V	
T_{PLH}	Propagation Delay to output ↑		15	20	ns	
T_{PHL}	Propagation Delay to output ↓		15	20	ns	
t_r/t_f	Rise/Fall Times (10%-90%)		2.2/1.8	3	ns	f =50 MHz sq. wave
T_{SKEW}	Skew between any 2 outputs		900	1800	ps	f =50 MHz sq. wave
F_{max1}	Max. Clock Frequency Outputs set to Normal	70	80		MHz	RG58C/U Cable length =3 ft
F_{max2}	Max. Clock Frequency Outputs set to Invert	50	60		MHz	RG58C/U Cable length =3 ft
F_{max3}	Max. Clock Frequency(2) Outputs set to Normal	50	60		MHz	RG58C/U Cable length =100 ft
PWmin	Minimum Pulse Width		8		ns	↑ Input
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	Size	1.3 x 2.9 x 2.9			in.	
	Weight	5			Oz	

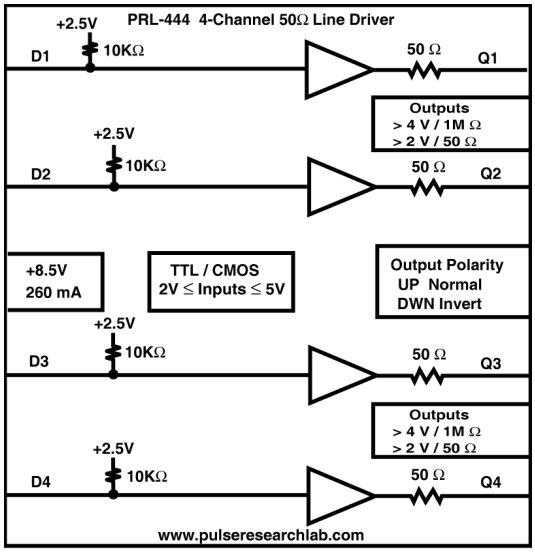

Fig. 1: PRL-444 Functional Block diagram

Notes:

(1). For sharing a single PRL-760B, ±8.5 V, ±1.4 A AC/DC adapter, the total current should not exceed 1.4 A.

(2). f_{MAX3} is measured by connecting a second PRL-444, with its input terminated into 50Ω, at the end of the 100 ft cable.

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