

PRL-426N DUAL CHANNEL NECL TO LVDS TRANSLATOR

PRL-426P DUAL CHANNEL PECL TO LVDS TRANSLATOR

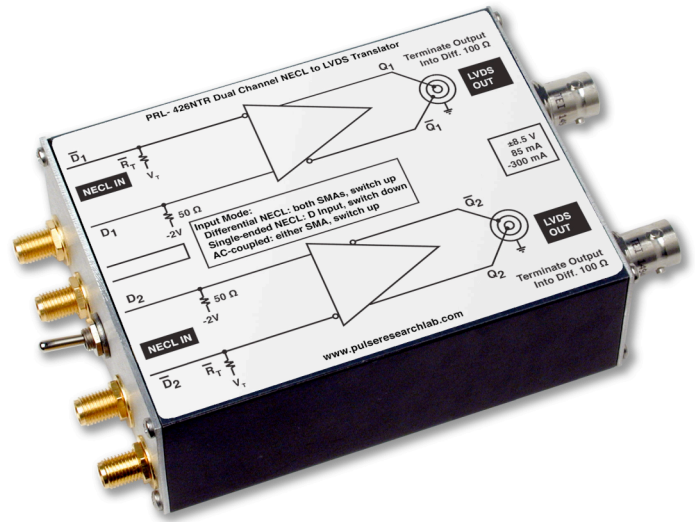
PRL-426T DUAL CHANNEL TTL TO LVDS TRANSLATOR

APPLICATIONS

- Converting Single Ended or Differential NECL/PECL Signals to LVDS Signals
- Converting TTL Signals to LVDS
- High Speed Digital Communications systems Testing
- High Speed SONET Clock Level Translation

FEATURES

- $f_{\max} > 500$ MHz for NECL/PECL inputs, 300 MHz for TTL input
- 1.1ns Typical Output Rise & Fall Times
- Single Ended or Differential $50 \Omega/V_{TT}$ Inputs (NECL/PECL)
- Switchable 1.5 V/1.0 V input threshold (TTL)
- Complementary 50Ω LVDS Outputs
- SMA I/O Connectors for NECL/PECL; BNC Inputs for TTL
- Triax Output connectors for PRL-426NTR, PRL-426PTR and PRL-426TTR
- Self-contained 1.3 x 2.9 x 3.9-in. units include ± 8.5 V/1.4A AC/DC Adapters



PRL-426NTR, NECL to LVDS (Triax) Translator

DESCRIPTION

The PRL-426 is a series of NECL-, PECL- or TTL-to-LVDS Logic Level Translators:

- PRL-426N converts NECL to LVDS
- PRL-426P converts PECL to LVDS
- PRL-426T converts TTL to LVDS.

The PRL-426N/426P can receive either single-ended or differential input signals, selected by a switch. The input connectors on the PRL-426N/426P are SMA. On the PRL-426T, the input is single-ended only, and the switch controls the input threshold (1.5 V or 1.0 V into 50Ω). The input connectors on the PRL-426T are BNC.

The differential outputs are 50Ω back-terminated and are designed for driving floating 100Ω loads, normally the configuration used in LVDS input circuits. The output swing is typically 600 mV with a common mode voltage of 1.2 V. The PRL-426NTR, PRL-426PTR, and PRL-426TTR have Triax output connectors instead of the SMA connectors. These high speed translators facilitate testing of high speed digital communications circuits where conversion of NECL/PECL clock and data signals to LVDS level signals is often required.

The PRL-426N is designed to interface with -5.2 V or -3.3 V NECL circuits and the PRL-426P with $+5$ V PECL circuits. In the differential input mode, both inputs D and \bar{D} of the PRL-426N are terminated into $50 \Omega/-2$ V, and those of the PRL-426P into $50 \Omega/3$ V. In this mode, either one or both inputs can accept AC coupled signals as well. In the single input mode, signals should be connected to the D inputs only. The \bar{D} inputs are switched internally to V_{BB} , nominally -1.3 V for the PRL-426N and 3.7 V for the PRL-426P, and termination resistors \bar{R}_T 's for the \bar{D} input channels are changed to 62Ω . The PRL-426T is designed to interface with TTL circuits. In cases where the signal source cannot drive TTL voltages into 50Ω , the input threshold switch can be used to change the triggering voltage to 1.0 V.

Each unit is supplied with a ± 8.5 V/1.4 A AC/DC Adapter and housed in a 1.3 x 2.9 x 3.9-in. extruded aluminum enclosure. Available accessories include voltage distribution modules and brackets for mounting multiple units



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*SPECIFICATIONS (0°C ≤ T_A ≤ 35°C)

Unless otherwise specified, dynamic measurements are made with all outputs terminated into floating 100 Ω loads.

SYMBOL	PARAMETER	PRL-426N			PRL-426P			PRL-426T			UNIT
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
R _{in}	Input Resistance	49.5	50	50.5	49.5	50	50.5	49.5	50	50.5	Ω
R _{out}	Output Resistance	49.5	50	50.5	49.5	50	50.5	49.5	50	50.5	Ω
V _{TT}	“D” Input Termination Voltage (fixed)	-2.2	-2.0	-1.8	2.7	3.0	3.3		N/A		V
V _T	“D̄” Input Termination Voltage (variable)	-1.17/ -2.20	-1.3/ -2.0	-1.43/ -1.80	3.33/ 2.70	3.7/ 3.0	4.07/ 3.30		N/A		V
V _{OL}	Output Low Level		0.9			0.9			0.9		V
V _{OH}	Output High Level		1.5			1.5			1.5		V
V _{CMV}	Common mode voltage ¹		1.2			1.2			1.2		
I _{DC}	DC Input Current		85 -300	100 -330		150 -250	175 -300		100 -245	115 -265	mA
V _{DC}	DC Input Voltage	±7.5	±8.5	±12	±7.5	±8.5	±12	±7.5	±8.5	±12	V
V _{AC}	AC/DC Adapter Input Voltage	103	115	127	103	115	127	103	115	127	V
t _{PLH}	Propagation Delay to output ↑		2			2			2		ns
t _{PHL}	Propagation Delay to output ↓		2			2			2		ns
t _{r/ff}	Rise/Fall Times (10%-90%) ²		1	1.25		1	1.25		1	1.25	ns
t _{SKEW}	Skew between any 2 outputs ³		200	500		200	500		200	500	ps
f _{max}	Max Clock Frequency ⁴	500	625		500	625		250	350		MHz
	Size	1.3 x 2.9 x 3.9			1.3 x 2.9 x 3.9			1.3 x 2.9 x 3.9			in.
	Weight	7			7			7			Oz

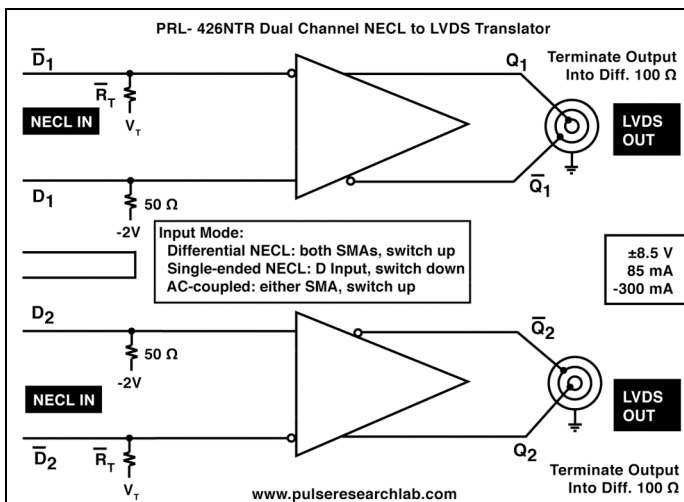


Fig. 1 PRL-426NTR Block Diagram

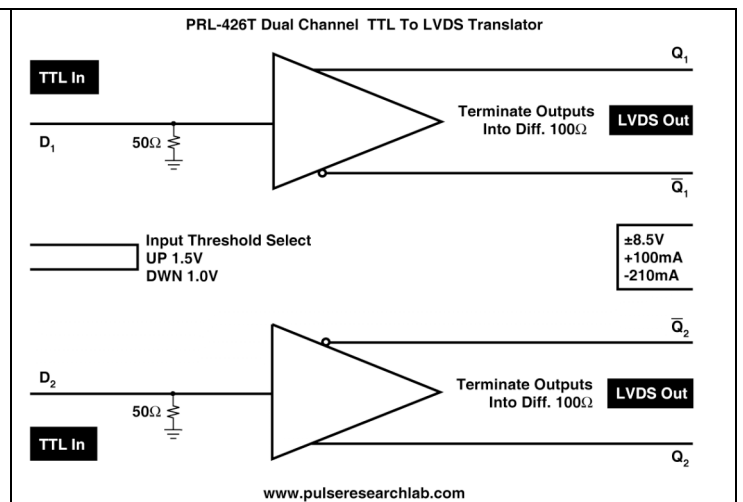


Fig. 2 PRL-426T Block Diagram

Notes:

(1) $V_{CMV} = (V_{OH} - V_{OL})/2$; (2) Rise and Fall times are measured with SMA output connector units only and with ground-referenced 50 Ω loads.; (3) Skew is measured at the output of a PRL-425N when driven by a PRL-426; (4) f_{max} is measured using a PRL-425N with the corresponding input connectors as the receiver. The outputs of the PRL-425N are measured. f_{max} for the PRL-426T is currently limited by the lack of high frequency TTL drivers.