

# PRL-426N DUAL CHANNEL NECL TO LVDS TRANSLATOR

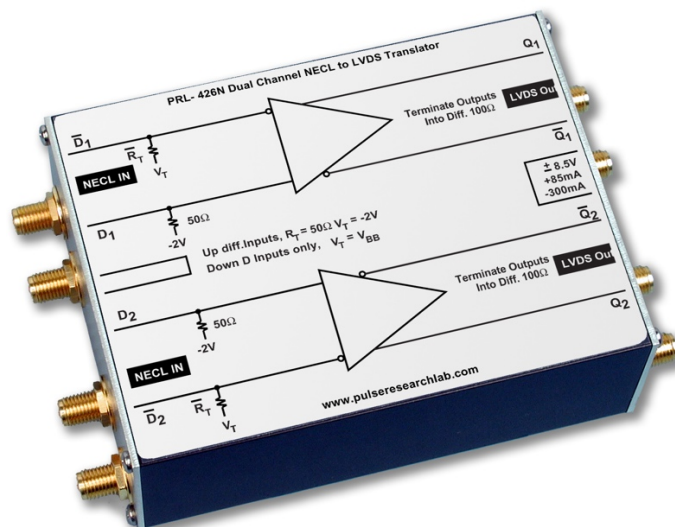
## PRL-426P DUAL CHANNEL PECL TO LVDS TRANSLATOR

### APPLICATIONS

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

### FEATURES

- $f_{\max} > 500$  MHz
- 1.1ns Typical Output Rise & Fall Times
- Single Ended or Differential 50  $\Omega$ /V<sub>TT</sub> Inputs
- Complementary 50  $\Omega$  LVDS Outputs
- SMA I/O Connectors standard
- Triax Output Connectors for PRL-426NTR, PRL-426PTR
- Self-contained 1.3 x 2.9 x 3.9-in. units include  $\pm 9.0$ V/1.8A AC/DC Adapters



**PRL-426N, NECL to LVDS Translator**

### DESCRIPTION

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

- PRL-426N converts NECL to LVDS
- PRL-426P converts PECL 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. A related model, PRL-426T, translates TTL to LVDS, and is described separately.

The differential outputs are 50  $\Omega$  back-terminated and are designed for driving floating 100  $\Omega$  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, and PRL-426PTR 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.

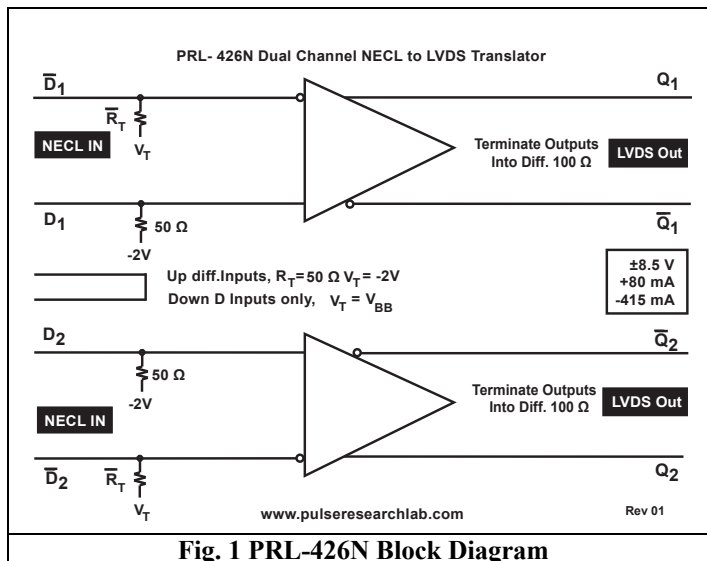
The PRL-426N is designed to interface with -5.2 V or -3.3 V NECL circuits and the PRL-426P with +5 V PECL circuits. In the differential input mode, both inputs D and  $\bar{D}$  of the PRL-426N are terminated into 50  $\Omega$ /-2 V, and those of the PRL-426P into 50  $\Omega$ /3 V. In this mode, either 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<sub>BB</sub>, nominally -1.3 V for the PRL-426N and 3.7 V for the PRL-426P, and termination resistors R<sub>T</sub>-s for the  $\bar{D}$  input channels are changed to 62  $\Omega$ .

Each unit is supplied with a  $\pm 9.0$  V/1.8 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

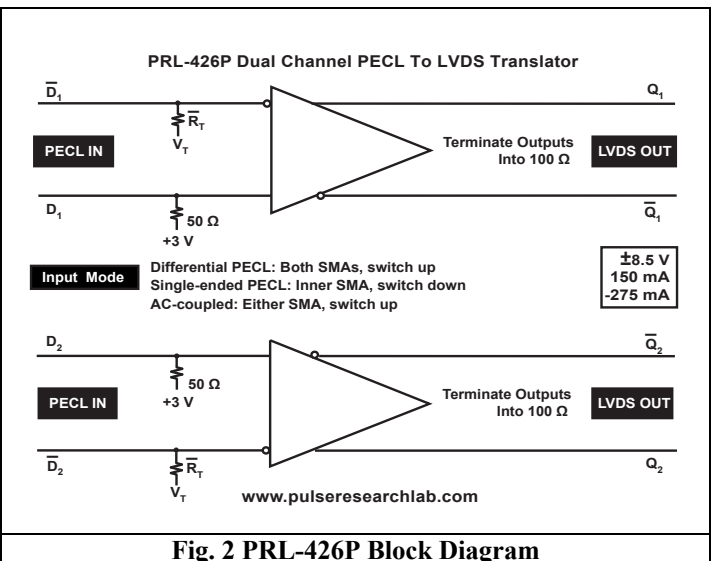
## \*SPECIFICATIONS (0° C ≤ T<sub>A</sub> ≤ 35°C)

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

SYMBOL	PARAMETER	PRL-426N			PRL-426P			UNIT
		Min	Typ	Max	Min	Typ	Max	
<b>R<sub>in</sub></b>	Input Resistance	49.5	50.0	50.5	49.5	50.0	50.5	Ω
<b>R<sub>out</sub></b>	Output Resistance	49.5	50.0	50.5	49.5	50.0	50.5	Ω
<b>V<sub>TT</sub></b>	“D” Input Termination Voltage (fixed)	-2.2	-2.0	-1.8	2.7	3.0	3.3	V
<b>V<sub>T1</sub></b>	“D” Input Termination Voltage (variable)	-2.20	-2.0	-1.80	2.70	3.0	3.30	V
<b>V<sub>T2</sub></b>	“D” Input Termination Voltage (variable)	-1.17	-1.3	-1.43	3.33	3.7	4.07	V
<b>V<sub>OL</sub></b>	Output Low Level		0.9			0.9		V
<b>V<sub>OH</sub></b>	Output High Level		1.5			1.5		V
<b>V<sub>CMV</sub></b>	Common mode voltage <sup>1</sup>		1.2			1.2		
<b>I<sub>DC+</sub></b>	DC Input Current, +8.5 V		85	100		150	175	mA
<b>I<sub>DC-</sub></b>	DC Input Current, -8.5 V		-300	-330		-250	-300	mA
<b>V<sub>DC</sub></b>	DC Input Voltage	±7.5	±8.5	±12	±7.5	±8.5	±12	V
<b>V<sub>AC</sub></b>	AC/DC Adapter Input Voltage	103	115	127	103	115	127	V
<b>t<sub>PLH</sub></b>	Propagation Delay to output ↑		2			2		ns
<b>t<sub>PHL</sub></b>	Propagation Delay to output ↓		2			2		ns
<b>t<sub>r/ff</sub></b>	Rise/Fall Times (10%-90%) <sup>2</sup>		1	1.25		1	1.25	ns
<b>t<sub>SKEW</sub></b>	Skew between any 2 outputs <sup>3</sup>		200	500		200	500	ps
<b>f<sub>max</sub></b>	Max Clock Frequency <sup>4</sup>	500	625		500	625		MHz
	Size	1.3 x 2.9 x 3.9			1.3 x 2.9 x 3.9			in.
	Weight	7			7			Oz



**Fig. 1 PRL-426N Block Diagram**



**Fig. 2 PRL-426P 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.