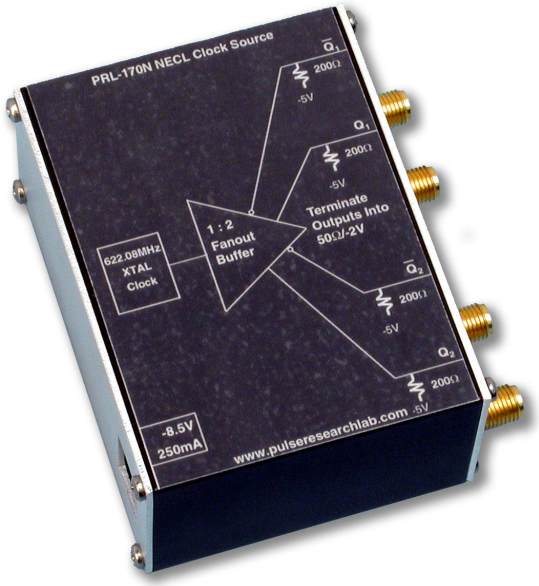
PRL-170N/P 1:2 FANOUT NECL/PECL XTAL CLOCK SOURCES

APPLICATIONS

- Precision Clock Source for High Speed Digital Systems
- 1:2 Fanout Differential NECL/PECL Clock Driver
- SONET Clock Generator
- An Essential Lab Tool for Working with NECL/PECL Circuits

FEATURES

- 20 ps typical Edge Jitter
- 50 ps typical skew between f, $\bar{f}$ outputs
- 50, 500 and 622 MHz crystal frequencies in stock
- Custom crystal frequencies available
- Two Pairs of Complementary Outputs drive 50 Ω loads terminated to V_{TT} or AC coupled 50 Ω loads
- DC coupled Outputs
- SMA I/O Connectors
- Ready-to-Use 1.3 x 2.9 x 2.2-in. Module includes a ±8.5V AC/DC Adaptor



PRL-170N
NECL Clock Source

DESCRIPTION

The PRL-170N and PRL-170P are, respectively, NECL and PECL crystal clock source modules, each with two pairs of complementary outputs. They are designed for driving 50 Ω loads terminated to V_{TT}, AC coupled or floating 50 Ω loads, where V_{TT} is -2V for NECL and +3V for PECL. Standard crystal frequencies provided include 50 MHz, 500 MHz and 622.08 MHz. Other crystal frequencies are also available. The PRL-170N and PRL-170P are essential laboratory tools in applications where precision and low jitter high frequency clock sources are required.

Model number designation is PRL-170N/P-XXX, where "XXX" represents the user specified clock frequency in MHz. For example, the PRL-170N-622 is 622.08 MHz NECL crystal clock module, and the PRL-170P-644 is a 644 MHz PECL crystal clock module.

Either output from the PRL-170N can drive a single-ended NECL input. The PRL-170P complementary outputs, however, must be used together for driving differential PECL inputs only, because, the reduced output logic swing of 400mVp-p, due to short circuit protection reasons, is not logic level compatible with single-ended PECL input.

Block diagrams of the PRL-170N and PRL-170P are shown in Figs. 1A and 1B.

The PRL-170N and PRL-170P are each housed in a 1.3 x 2.9 x 2.2-in. extruded aluminum enclosure and is supplied with a ±8.5V/1A AC/DC Adaptor.

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 ±8.5V AC/DC adaptor using the PRL-730 or PRL-746 voltage distribution module. Please see the Accessories Section for more detail.

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*SPECIFICATIONS (0^o C ≤ T_A ≤ 35^oC)

Unless otherwise specified, dynamic measurements are made with all outputs terminated into 50 Ω/-2V

SYMBOL	PARAMETER	PRL-170N			PRL-170P			UNIT	Comments
		Min	Typical	Max	Min	Typical	Max		
V_{OL}	Output Lo Voltage	-1.95	-1.7	-1.48	3.0	3.15	3.3	V	
V_{OH}	Output Hi Voltage	-1.13	-0.9	-.81	3.4	3.55	3.8	V	
I_{DC}	DC Input Current		-200	-300		230	300	mA	
V_{DC}	DC Input Voltage	-7.5	-8.5	-12	7.5	8.5	12	V	
V_{AC}	AC/DC Adaptor Input Voltage	103	115	127	103	115	127	V	
$t_{r/tf}$	Rise/Fall Times (20%-80%)		500	650		500	650	ps	Note (1)
t_{SKEW1}	Skew between any two outputs		20	75		20	75	ps	
f_{MAX}	Max clock frequency		825			825		MHz	Note (2)
Δf	Frequency Stability		100			100		ppm	
	Frequency Jitter		20			20		ps	
	Duty Cycle		50/50	40/60		50/50	40/60		
	Size	1.3x2.9x 2.2			1.3x2.9x2.2			in.	
	Shipping weight including AC adapter	3			3			lb	

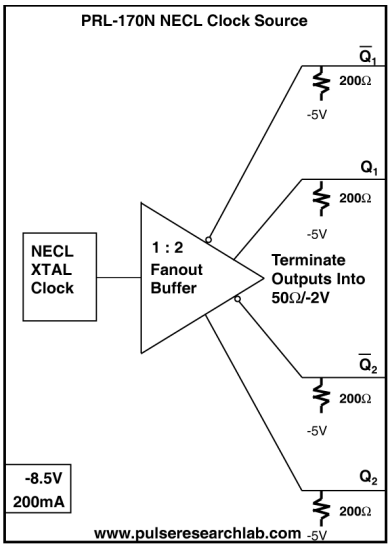

Fig.1A PRL-170N Block Diagram

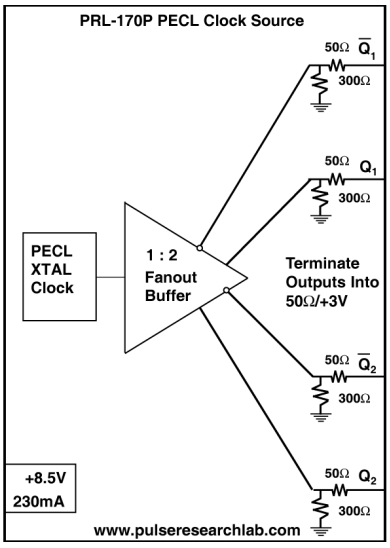

Fig. 1B PRL-170P Block Diagram

*All dynamic measurements are made with outputs terminated into 50Ω/V_{TT}, using the PRL-550NQ/PQ4X, four channel NECL/PECL Terminators, connected to a 50Ω input sampling oscilloscope.

Notes:

(1). The output rise and fall times are measured with all outputs terminated into 50Ω /V_{TT}. For best performance, all outputs should be terminated into 50Ω/V_{TT} or AC coupled into a 50Ω loads. However, if only one pair of complementary outputs is used, the other pair may be left unterminated. If a single output is used, one other complementary output must be terminated; otherwise, output waveform distortion and rise time degradation will occur.

Use the PRL-550NQ/PQ4X, four channel NECL/PECL Terminators, respectively, for the 50 Ω/V_{TT} termination and for connection of NECL/PECL signals to 50Ω input oscilloscopes. If preservation of DC levels is not required, then the 56003265-1, 0.1 µf DC block or the 56003270-2 12 dB AC-coupled attenuator may be used to connect the NECL/PECL outputs to 50 Ω input instruments.

For more information regarding interconnecting NECL/PECL I/O's, please see ECL/PECL in the FAQ section

(2). The maximum attainable frequency of the PRL-170N/P is dependent on the availability of high frequency crystal clock oscillators, currently limited to 825 MHz.

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