

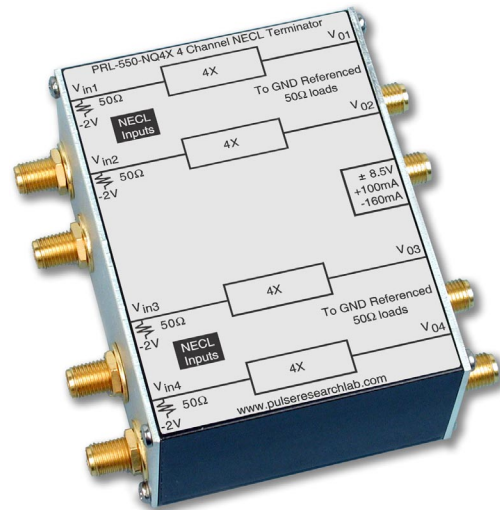
PRL-550NQ4X/PRL-550PQ4X FOUR CHANNEL NECL/PECL TERMINATORS

APPLICATIONS

- Allow direct connection of NECL/PECL signals to 50Ω input instruments
- Provide standard 50Ω/ V_{TT} terminations for NECL/PECL signals and Ground Referenced Outputs
- Testing and monitoring GHz NECL/PECL signals in digital and wireless communication applications

FEATURES

- 43 ps Typical Rise Time (8 GHz bandwidth)
- 50Ω/-2V Input Termination for NECL and 50Ω/3V for PECL
- Ground Referenced Outputs protect sensitive instruments
- SMA I/O connectors
- 4X attenuation
- Self-contained 1.3 x 2.9 x 2.2-in. unit includes a ±8.5V AC/DC Adapter



PRL-550NQ4X

INTRODUCTION

NECL/PECL logic levels are offset from ground. Without proper level shifting, these logic signals can not be connected to ground referenced 50Ω input instruments, such as sampling 'scopes, network analyzers, scanners and counters, etc. Otherwise, either the NECL/PECL equipment outputs or the measurement instrument inputs may be made inoperative or damaged.

When driving a length of 50 Ω coaxial cable, an NECL/PECL output must be terminated into a 50 Ω load that is connected to a terminating voltage $V_{TT} = V_{CC} - 2V$. For NECL circuits operating with a supply voltage of either -5.2V or -4.5V, V_{CC} is 0 V, and V_{TT} is equal to -2V. For PECL circuits, where the supply voltage V_{CC} is +5V, V_{TT} is +3V.

NECL/PECL Terminators are level translators which convert NECL/PECL signals into signals that can be connected to ground referenced 50Ω input instruments and, at the same time, provide standard 50Ω/ V_{TT} terminations required by NECL/PECL signals.

DESCRIPTION

The PRL-550NQ4X and PRL-550PQ4X are, respectively, Four Channel NECL and PECL Terminators. The PRL-550NQ4X is designed to interface with NECL circuits operating with a -5.2V or -4.5V supply. Each input has an equivalent 50 Ω resistor terminated to a voltage $V_{TT} = -2V$. The PRL-550PQ4X is designed to interface with PECL circuits operating with a +5V supply. Each input has an equivalent 50 Ω resistor terminated to a voltage $V_{TT} = +3V$. The outputs of these Terminators are designed for direct connection to ground referenced 50 Ω input instruments as shown in Figs. 1 and 2, respectively. These near ground level output signals* protect sensitive instruments and enhance measurement accuracy when these instruments are used.

Once an NECL or PECL signal is translated through a proper Terminator, it can be routed through 50Ω scanners and other high frequency measuring instruments for processing. Each PRL-550NQ4X and PRL-550PQ4X Terminator is housed in an attractive 1.3 x 2.9 x 2.2-in. extruded aluminum enclosure and is supplied with a ±8.5V AC/DC Adapter.

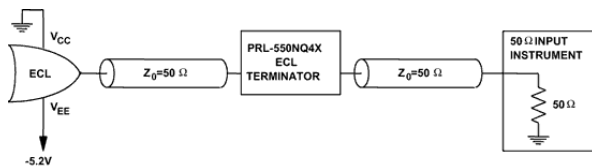


Fig. 1 NECL driving a 50 Ω input instrument using the PRL-550NQ4X

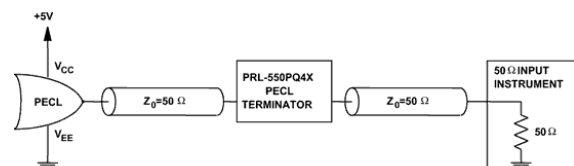
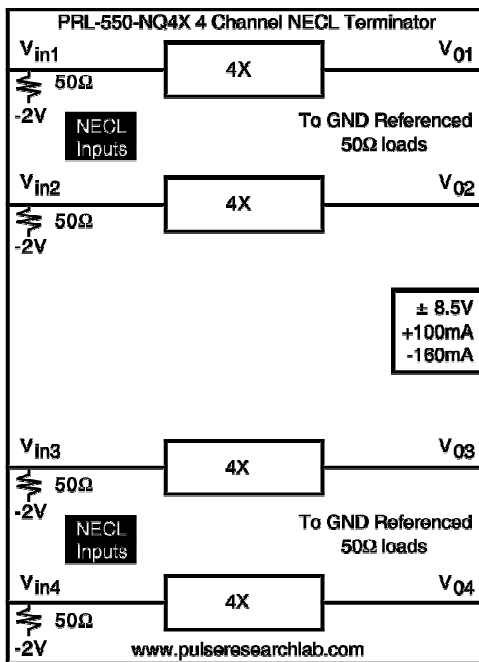


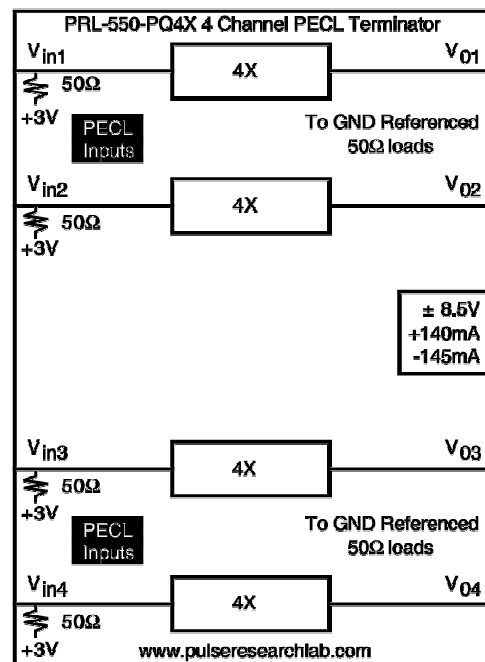
Fig. 2 PECL driving a 50 Ω input instrument using the PRL-550PQ4X

SPECIFICATIONS (0° C ≤ T_A ≤ 35°C)

Symbol	Parameter	PRL-550NQ4X			PRL-550PQ4X			Unit
		Min	Typ	Max	Min	Typ	Max	
R _{in}	Input Resistance	49.5	50	50.5	49.5	50	50.5	Ω
V _{TT}	Input Termination Voltage	-2.2	-2	-1.8	2.7	3	3.3	V
V _{OS}	Output Offset Voltage*	-20	0	20	-20	0	20	mV
	Signal Attenuation	11.8	12 (4X)	12.2	11.8	12 (4X)	12.2	dB
I _{DC}	DC Input Current		+60, -125	+85, -150		+80, -125	+120, -150	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 _{PLH}	Propagation Delay to output ↑		475	575		475	575	ps
t _{PHL}	Propagation Delay to output ↓		475	575		475	575	ps
t _r /t _f	Rise/Fall Times		43	61		43	61	ps
BW	Equivalent bandwidth	5.7	8		5.7	8		GHz
t _{SKEW}	Skew between outputs		20	50		20	50	ps
	Cross Talk ↔ chs @ 1.4 GHz	34	40		34	40		dB
	Size	1.3 x 2.9 x 2.2			1.3 x 2.9 x 2.2			in.
	Weight	5			5			Oz



PRL-550NQ4X Block Diagram



PRL-550PQ4X Block Diagram

*The output offset and input termination voltages are factory set to 0 V and V_{TT} = V_{CC}-2 V, respectively, before the input is connected to an NECL/PECL device. When connected to an NECL/PECL device, the output low level will be slightly offset from ground depending on the low level output voltage of the connected device, which is typically V_{CC}-1.8 V. When its input is connected to an NECL or PECL device, the Terminator output Low level is typically +50 mV.