

PRL-302N-6dB and PRL-302I-6dB, 1:2 RF Splitter Amplifiers

APPLICATIONS

- 1:2 RF signal Fanout
- Transmission Line Drivers
- Single-Ended to Differential Signal Conversion (6 dB passive power divider recommended)
- RF Receivers
- Pulse Amplifiers
- General Purpose Wideband Amplifiers

FEATURES

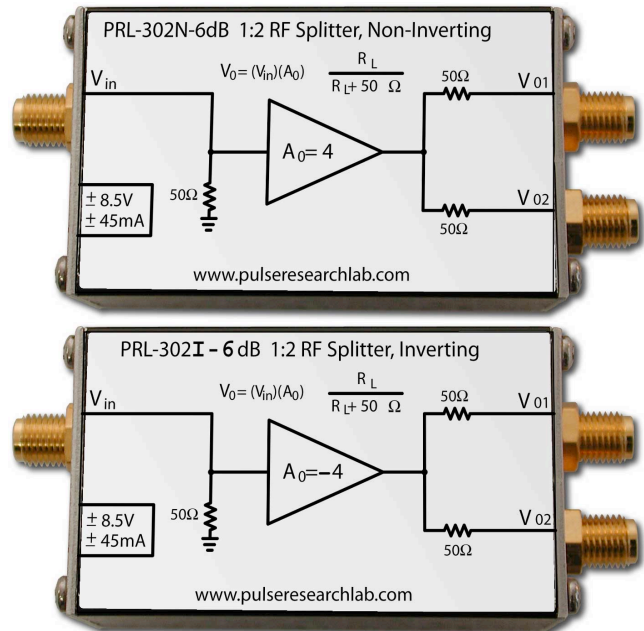
- Ready to Use Amplifiers each with Two Identical Outputs
- Small Signal 3dB BW to 390 MHz for PRL-302N-6dB and 350 MHz for PRL-302I-6dB
- Clean Pulse Response
- 6 dB gain, $V_O = 2 V_{IN}$ ($R_L = 50 \Omega$), well suited for Single-ended input to Differential output conversion with the addition of a 6 dB Splitter
- $\pm 1.25 V$, $2.5 V_{P-P}$, Maximum Outputs, $R_L = 50 \Omega$
- DC Coupled 50Ω I/Os
- ± 45 mA Supply Current Maximum
- $1.0 \times 1.3 \times 2.2$ -in. Module includes $\pm 8.5 V$ AC/DC adapter

DESCRIPTION

The PRL-302N-6dB and PRL-302I-6dB are, respectively, DC coupled non-inverting and inverting, 6 dB 1:2 RF splitter amplifiers. Each amplifier has two identical 50Ω back-terminated outputs and a 50Ω -to-ground terminated input. One pair of these amplifiers (one inverting, one non-inverting) can produce two pairs of complementary RF signals (180° out of phase) when driven by a 6 dB passive power divider (assuming the input signal is already AC coupled).

These splitter amplifiers have been optimized for pulse response as well as for CW response, so that output overshoots and ringing for a fast pulse input are much smaller than those from amplifiers designed mainly for CW applications. With a 50Ω back termination at each output, these amplifiers can drive long transmission lines with or without load terminations. For optimum output response, however, both outputs should be terminated into 50Ω .

Each amplifier is housed in a $1.0 \times 1.3 \times 2.2$ -in. aluminum enclosure and is supplied with a $\pm 8.5 V$ AC/DC adapter. Besides the I/O and power connections, no other set up or connection is required. These amplifiers are part of the PRL family of Mini Modular Instruments (MMIs).



**PRL-302N-6dB and PRL-302I-6dB
1:2 RF Fanout Amplifiers**

SPECIFICATIONS (0° C ≤ T_A ≤ 35°C)

Unless otherwise specified, dynamic measurements are made @ 50MHz, with all outputs terminated into 50 Ω.

V_O = ±0.4 V (0.8 V_{P-P}) for small signal response, and V_O = ±1.25 V (2.5 V_{P-P}) for large signal response

SYMBOL	PARAMETER	PRL-302N-6dB			PRL-302I-6dB			UNIT
		Min	Typ	Max	Min	Typ	Max	
R _{IN}	Input Resistance	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	Ω
A _O	Open Circuit Voltage Gain		4			-4		R _L =1 MΩ
A _L	Loaded Voltage Gain	1.94	2	2.06	1.94	-2	2.06	R _L =50 Ω
A _{dB}	Voltage Gain in dB	5.75	6	6.25	5.75	6	6.25	dB
V _{OP-P1}	Max. Output, one output only	±1.1	±1.25		±1.1	±1.25		V
V _{OP-P2}	Max. Output, both outputs	±0.8	±1.0		±0.8	±1.0		V
I _{DC}	DC Input Current(NL) DC Input Current(V _O ±1.25V)		±17 ±40	±50		±20 ±40	±50	mA
V _{DC}	DC Input Voltage	±7.5	±8.5	±12	±7.5	±8.5	±12	V
V _{AC}	AC/DC Adapter Input Voltage	103	115	127	103	115	127	V
t _{PLH}	Propagation Delay to output ↑		1.5			1.5		ns
t _{PHL}	Propagation Delay to output ↓		1.5			1.5		ns
t _R /t _F (10%-90%)	Small Signal Rise/Fall Times		0.9/0.9	1.0/1.0		1.0/1.0	1.1/1.1	ns
BW1	Small Signal 3 dB BW	350	390		318	350		MHz
t _R /t _F (10%-90%)	Large Signal Rise/Fall Times		1.4/1.6	1.6/1.8		1.5/1.5	1.7/1.7	ns
BW2	Large Signal 3 dB BW	200	218		206	233		MHz
t _{SKREW}	Skew between outputs		20	50		20	50	ps
	Size	1.0 x 1.3 x 2.2			1.0 x 1.3 x 2.2			in.
	Weight	4			4			Oz

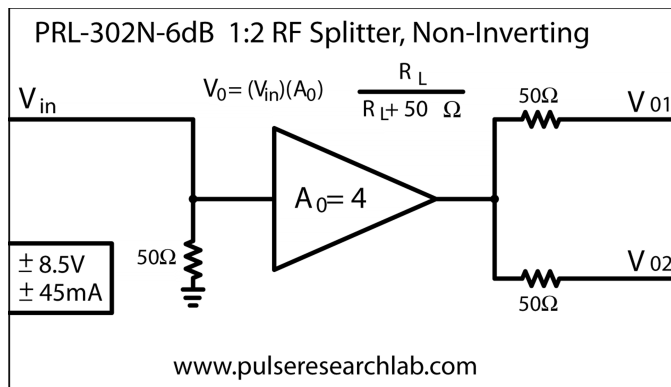


Fig. 1A PRL-302N-6dB
1:2 Non-Inverting Splitter Amplifier

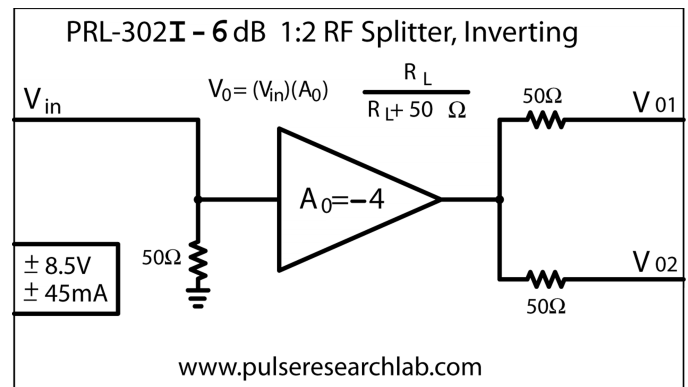


Fig. 1B PRL-302I-6dB
1:2 Inverting Splitter Amplifier