Keysight Technologies
N4984A Clock Divider

Data Sheet

KEYSIGHT TECHNOLOGIES

For microwave, communications, and test applications

Features

- Divide by 1/2/4/8
- Wide operating range
- Fast rise/fall times
- Low jitter
- Excellent signal quality

N4984A-020 Clock Divider

Description

The N4984A-020 clock divider divider is a general purpose test accessory designed for microwave, communications and test applications. The accessory provides divide-by-1, divide-by-2, divide-by-4, or divide-by-8 output. Inputs and outputs are AC coupled. The divider is self contained and plugs into standard AC power sources.

Application

The N4984A-020 clock divider divider can be used to extend the trigger range of high speed sampling oscilloscopes. Precision timebase measurements will benefit from the very low added jitter and fast waveform edges. The N4984A-020 clock divider can be used to generate synchronized, high frequency clocks from existing sinusoidal, synthesized sources. The low 1/f phase noise characteristics of the divider will benefit high frequency phase lock loop designs.

Key specifications

Description	
Input frequency range	0.2 to 20 GHz
Input power range	0 to +10 dBm (~0.6 to 2 Vpp) from 0.2 to 1 GHz
	10 to +10 dBm (0.2 to 2 Vpp) from >1 to 20 GHz
Output power range	5 dBm (355 mV pp) typical (see plot)
Single sideband phase noise	153 dBc nominal @ 10 kHz offset

Features

- Wide frequency range: 0.2 to 20 GHz
- High input sensitivity
- Very low phase noise
- Fast rise/fall times
- Divide-by-1/2/4/8 outputs
- AC power supply included

Frequency Divider Application

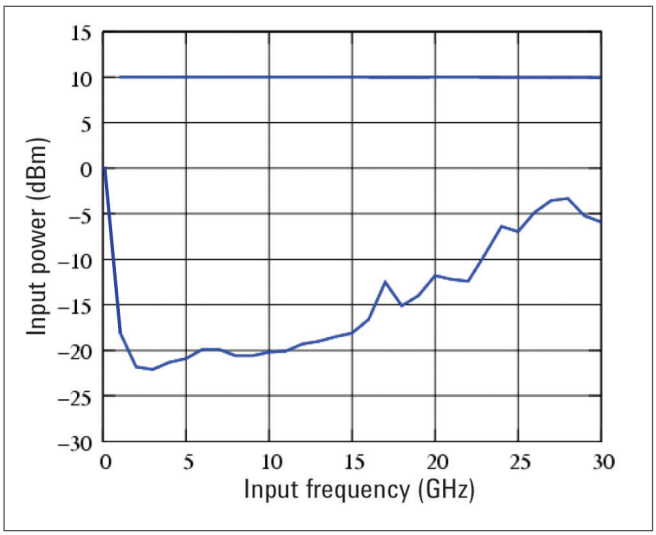

Figure 1. Min/Max single-ended power Input sensitivity window

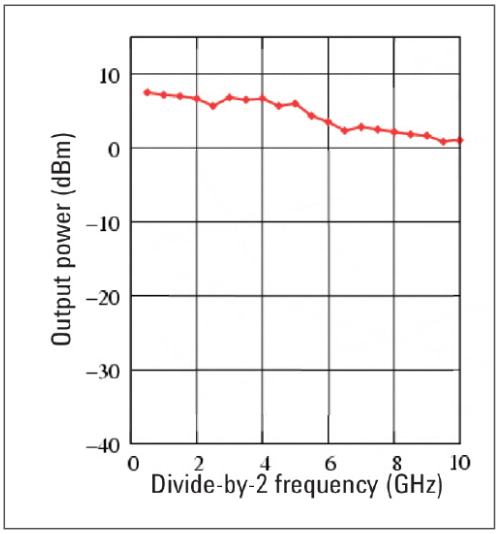

Figure 2. Binary divide-by-2 output power

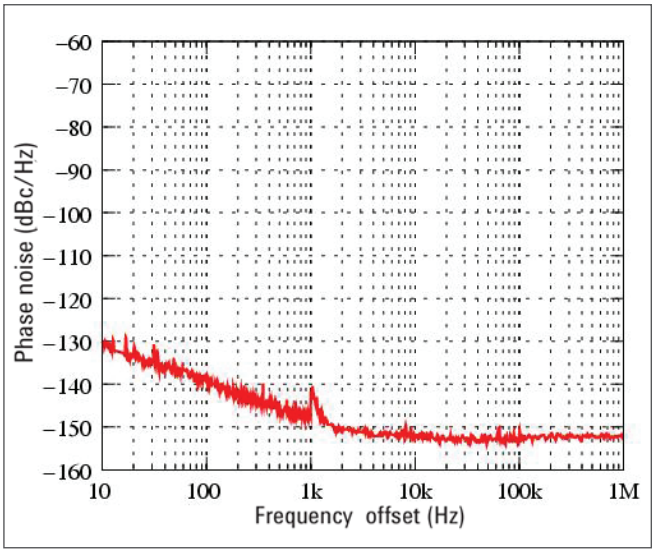

Figure 3. N4984A-020 clock divider: SSB phase noise for binary divide-by-8 configuration
Input freq = 7.8 GHz, gain S21

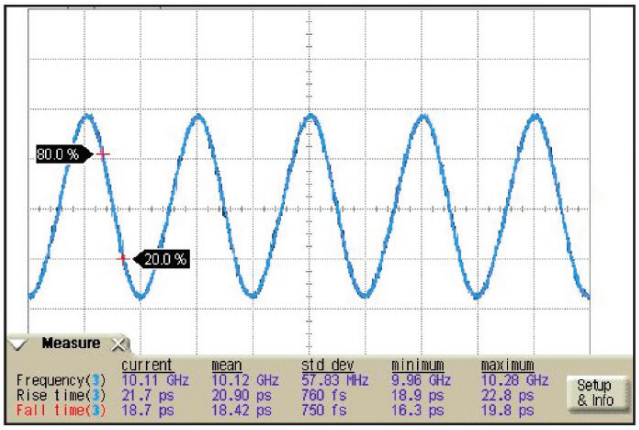

Figure 4. Binary divide-by-2 configuration
Input freq = 20 GHz, 150 mV/div

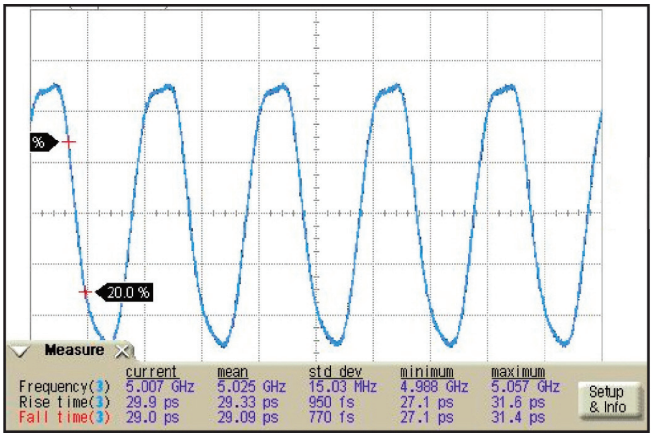

Figure 5. Binary divide-by-4 configuration
Input freq = 20 GHz, 150 mV/div

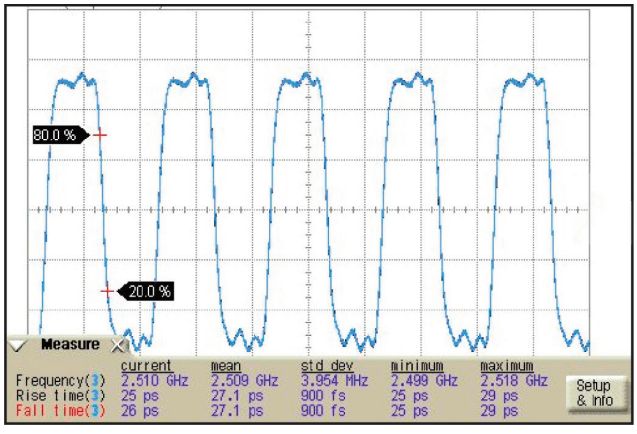

Figure 6. Binary divide-by-8 configuration
Input freq = 20 GHz, 150 mV/div

N4984A-040 Clock Divider

Description

The N4984A-040 clock divider divider is a general purpose test accessory designed for microwave, communications and test applications. The accessory simultaneously provides divide-by-2, divide-by-4, and divide-by-8 outputs. The single-ended input is accessed from the rear via a 2.9 mm connector while the outputs are provided at the front panel via SMA connectors. All inputs and outputs are AC coupled. The divider is self contained and plugs into standard AC power sources.

Application

The N4984A-020 clock divider divider can be used to extend the trigger range of high speed sampling oscilloscopes. Precision timebase measurements will benefit from the very low added jitter and fast waveform edges. The N4984A-020 clock divider can be used to generate synchronized, high frequency clocks from existing sinusoidal, synthesized sources. The low 1/f phase noise characteristics of the divider will benefit high frequency phase lock loop designs.

Key specifications

Description	
Input frequency range	0.2 to 20 GHz
Input power range	0 to +6 dBm (~0.6 to 1.2 Vpp) from 0.2 to 35 GHz +2 dBm (800 mV pp) nominal with minimum window of 3 dB from >35 to 40 GHz (see plot)
Output power range	> -6 dBm (315 mV pp) typical
Single sideband phase noise	-153 dBc nominal @ 10 kHz offset

Features

- Wide frequency range: 0.2 to 40 GHz
- High input sensitivity
- Very low jitter
- Fast rise/fall times
- Divide-by-2/4/8 outputs
- AC power supply included

Frequency Divider Application

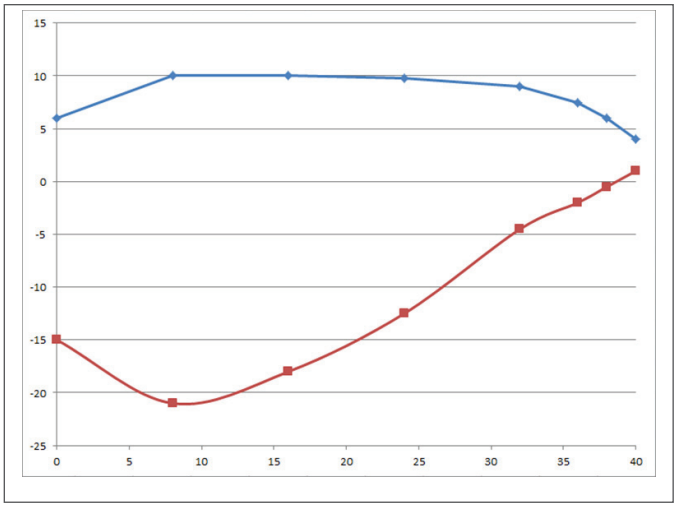

Figure 7. Input sensitivity window
min/max single-ended input power

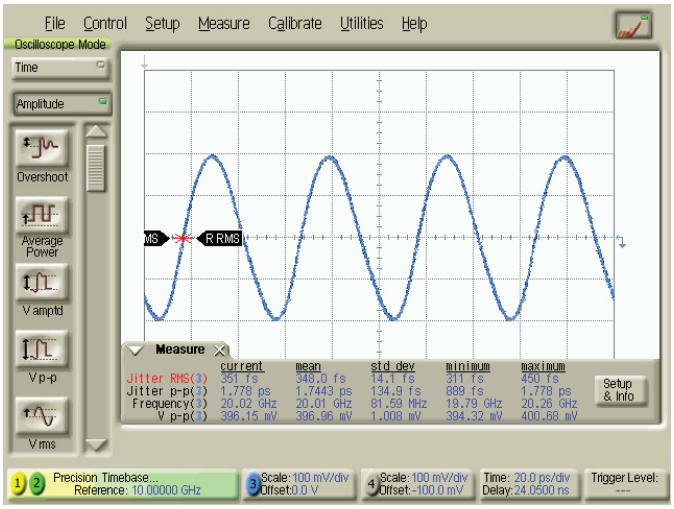

Figure 8. Divide-by-2 output waveform
input signal: 40 GHz @ 0 dBm

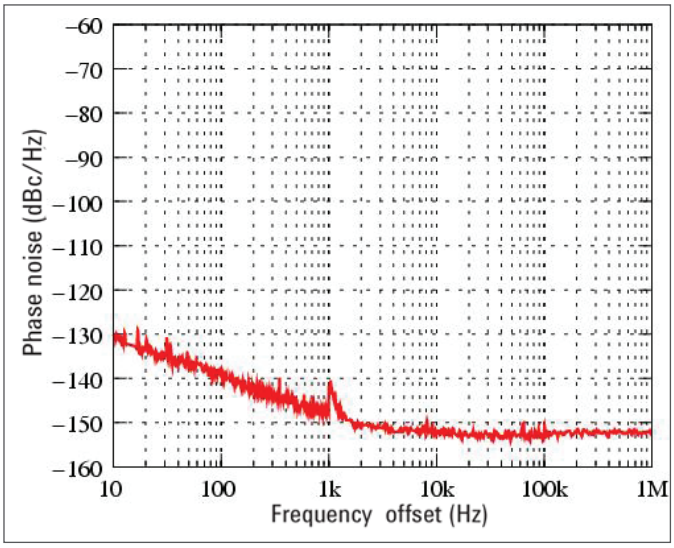

Figure 9. SSB phase noise of div-by-8 port
input freq = 7.8 GHz

Figure 10. N4984A-040 clock divider front panel

Figure 11. N4984A-040 clock divider rear panel

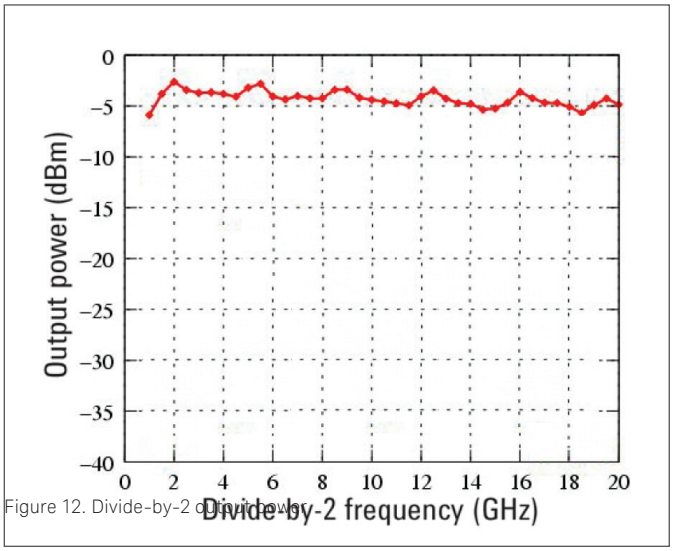

Figure 12. Divide-by-2 output power

Functional Block Diagram

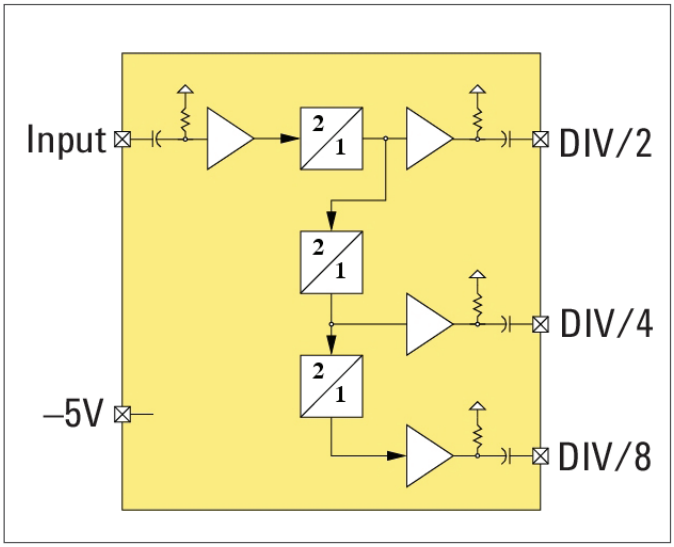

Figure 13. Functional block diagram

Specifications

General and Mechanical Parameters	
Operating temperature	+10 to +40 °C
Storage temperature	–40 to +70 °C
Power requirements	42 W External AC Adaptor (included) · 100 to 240 V AC, 50 to 60 Hz, 0.6 A
Physical dimensions (W x H x D)	N4984A-020: 90 x 22 x 90 mm (3.5 x 0.875 x 3.5 in) N4984A-040: 90 x 22 x 100 mm (3.5 x 0.875 x 4.0 in)
Weight	0.5 lbs

Regulatory standards

EMC

Complies with European EMC Directive 2004/108/EC

- IEC/EN 61326-1
- CISPR Pub 11 Group 1, class A
- AS/NZS CISPR 11
- ICES/NMB-001

This ISM device complies with Canadian ICES-001.
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For warranty and calibration service information, contact your local authorized Keysight distributor or Keysight sales department.

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Published in USA, August 3, 2014
5991-0717EN
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