



PRODUCT SUMMARY

The HL590x series is a wideband frequency prescaler with minimal additive phase noise. It supports division ratios of 2, 4, 8, 16, 32, or 64 depending on model from 100 MHz to 40 GHz. The output frequency ranges from 12.5 MHz to 20 GHz with a buffered typical output power of 2 dBm.

The design operates over a maximum temperature range of -40°C to +85°C utilizing internal voltage regulation to allow for a wide range of supply voltages from +7 to 16 Vdc or +5 to 16 Vdc depending on model.

Applications include:

- PLL Applications
- Test Instrumentation
- Point to Point Microwave Radio
- Satellite Communication Systems

MODELS & OPTIONS

The following models are available:

HL5902 24 GHz

HL5904 40 GHz

The following options need to be specified:

- 2, divide by 2
- 4, divide by 4
- 8, divide by 8
- 16, divide by 16*
- 32, divide by 32*
- 64, divide by 64*

* HL5904 only

CONNECTOR OPTIONS

-JP, jack RF_{in}, plug RF_{out}
(standard configuration)

-PJ, plug RF_{in}, jack RF_{out}

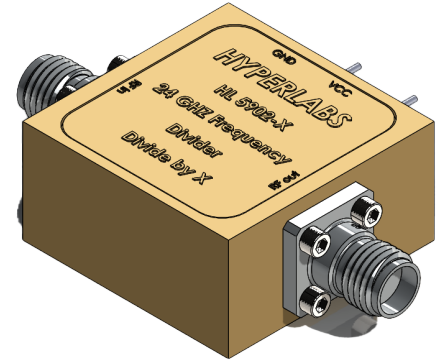
-JJ, jack RF_{in}, jack RF_{out}

-PP, plug RF_{in}, plug RF_{out}

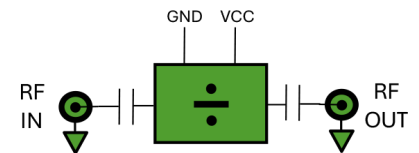
HL590x Series Frequency Divider/Prescaler

Key Features and Technical Specifications (HL5904)¹

Input Frequency Range ²	1 to 40 GHz
Output Frequency	15.125 MHz to 20 GHz
Divide by Prescaler	2, 4, 8, 16, 32, or 64
Input Power	+10 dBm, maximum
Output Power	+2 dBm, typical
Operating DC Supply Range	+5 to 16 V
Operating DC Current	238 mA, typical
Impedance	50 Ω
Connectors	2.92 mm
Dimensions (W x D x H), not including connectors	1.0" x 1.0" x 0.5" 25.4 x 25.4 x 12.7 mm
Weight	23 g
Temperature Limits	-40° to +85° C, operating -65° to +125° C, non-operating
RoHS Compliant	Yes, assembled with lead-free solder
REACH Compliant	Yes
Warranty	1 year, see website



HL590x, opt. JJ shown
(HL590x-X-JJ)



HL590x Schematic and Port Assignments

Note 1 - Unless otherwise noted, the specifications in this table are typical for Model Number HL5904 using the standard connector configuration (-JP, jack / plug). See page 2 for full specifications of all models.

Note 2 - Operation below 1 GHz input frequency is possible using square wave stimulus with ≥ 4 V/ns slew rate.

HL590x Full Specifications¹

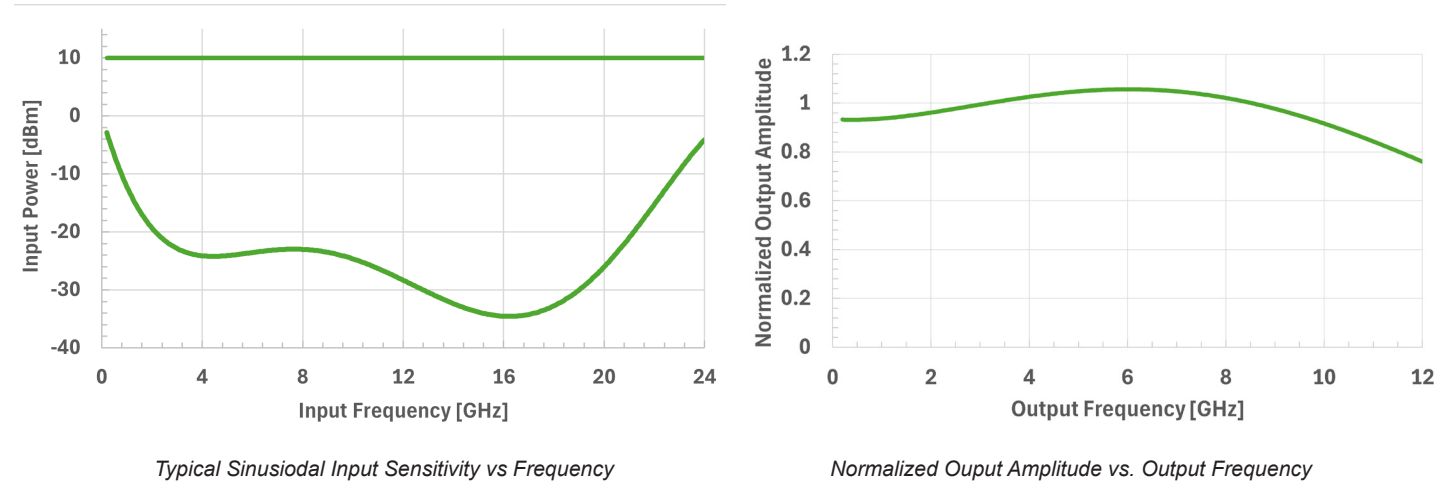
Parameter	HL5902	HL5904	Comments
Input Frequency Range ^{2,3}	100 MHz to 24 GHz	1 to 40 GHz	See Notes 2 and 3 below
Output Frequency	12.5 MHz to 12 GHz	15.125 MHz to 20 GHz	
Divide by Prescaler	2, 4, or 8	2, 4, 8, 16, 32, or 64	Must be specified at order time
Input Power	+10 dBm		Maximum
Output Power	+2 dBm		Typical
Impedance	50 Ω		
Operating DC Supply Range	+7 to 16 V	+5 to 16 V	
Operating DC Current	62 mA	238 mA	Typical
Connectors	SMA	2.92 mm	
Connector Configurations (specify when ordering)	-JP: jack / plug -PJ: plug / jack -JJ: jack / jack -PP: plug / plug		Standard configuration is -JP
Dimensions (W x D x H)	1.0" x 1.0" x 0.5" 25.4 x 25.4 x 12.7 mm		Package including connectors
Weight	23 g (0.81 oz.)		
Temperature Limits	-40° to +85° C, operating -65° to +125° C, non-operating		Case temperature
RoHS Compliant	Yes, assembled with lead-free solder		

Notes:

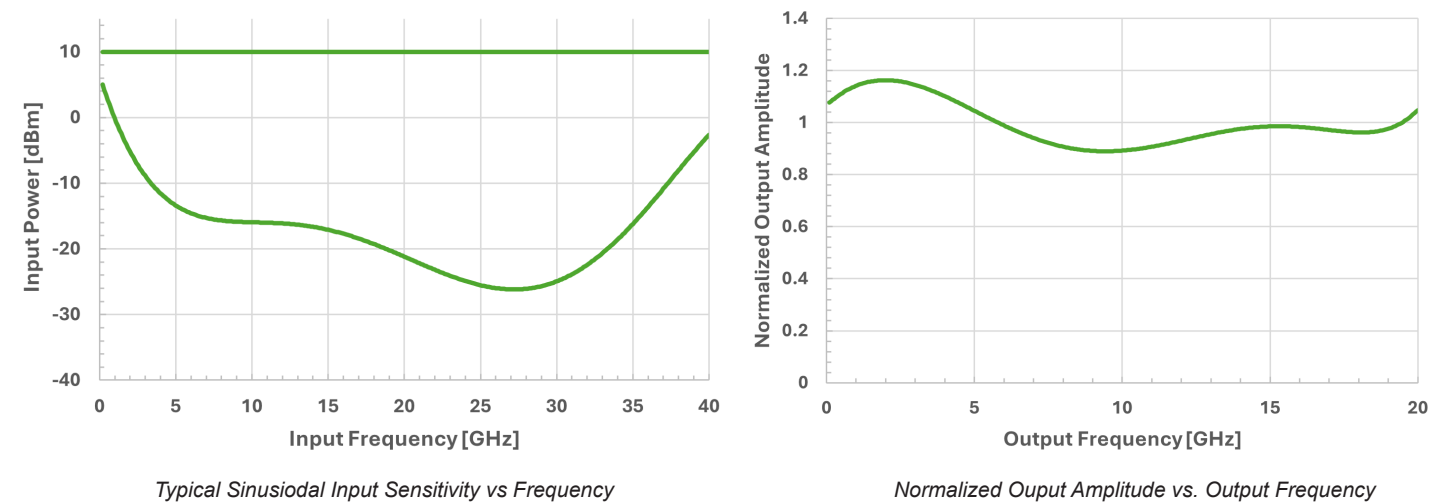
- 1 - All specifications are based on test results using the standard connector configuration (-JP). Specifications may vary slightly for other configurations.
- 2 - HL5902 operation below 100 MHz input frequency is possible using square wave stimulus with ≥ 1 V/ns slew rate
- 3 - HL5904 operation below 1 GHz input frequency is possible using square wave stimulus with ≥ 4 V/ns slew rate

HL590x Data Plots

The following data plots show the characteristics of an HL5902-2-JP.

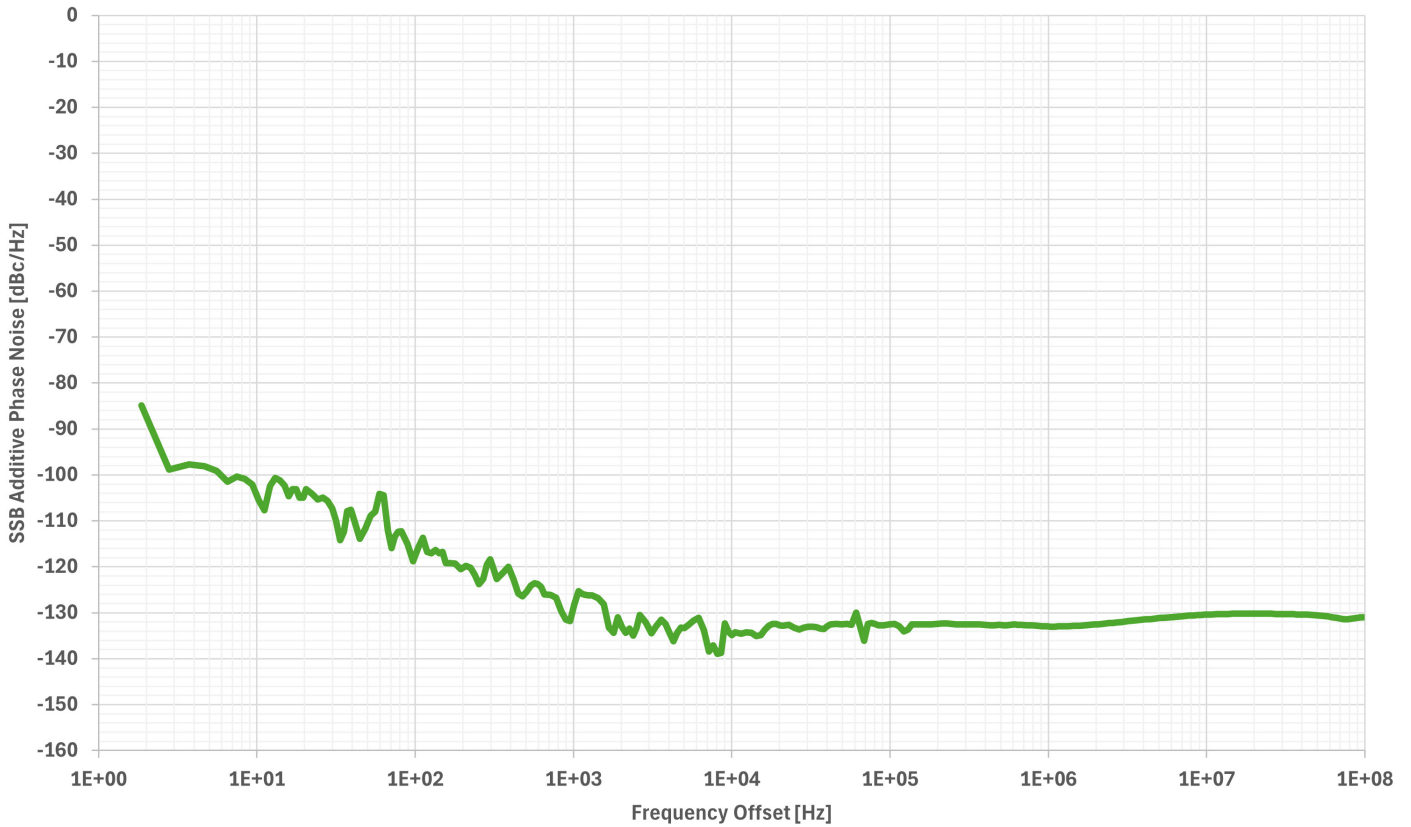


The following data plots show the characteristics of an HL5904-2-JP.



HL590x Data Plots

The following plot shows an example of additive phase noise of an HL5902-2 at 6 GHz input.



See AN-013 for more information about HL590x spectral performance.

HL590x Mechanical Drawing

The drawing contained here is for the HL5902-X-JJ configuration. Dimensions are also noted on page 1. The HL5904 is identical but with 2.92 mm connectors.

