

HD26920 2400–4200MHz Input Block Down Converter

Features

- Input Frequency : 2400 to 4200MHz
- Output Frequency: DC to 1800MHz
- Fixed Local Oscillator: 2400MHz
- Conversion Gain: -8.5 to +8.5dB
- Noise Figure: 5dB
- Internal Reference TCXO: 20MHz
- DC Power: 12V
- SMA Connector



Description

HD26920 is a low cost Block-Down Converter, designed for extending 1.8GHz spectrum analyzer measurement range to 4.2GHz or similar applications.

Electrical Specifications @ +25 °C, $Z_s = Z_L = 50$ Ohms

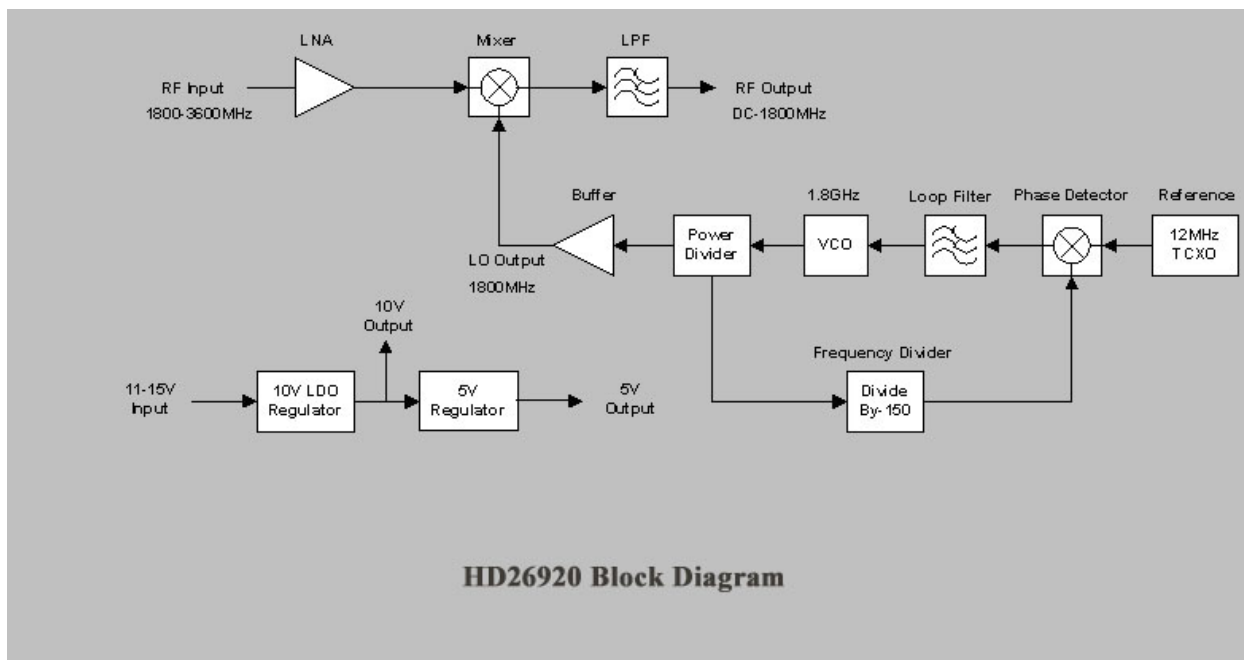
Parameter	Unit	Minimum	Typical	Maximum
Input Frequency Range	MHz	2400		4200
Output Frequency Range	MHz	DC		1800
Maximum Input Power Level	dBm		-5	
Conversion Gain	dB	-8.5		+8.5
Noise Figure	dB		5	
P_{1dB} @ 3.3GHz Input	dBm		3	
Fixed Local Oscillator Frequency	MHz		2400	
Fixed Frequency Divider Ratio			120	
Internal Reference TCXO	MHz		20	
Phase Noise @ 10KHz Offset*	dBc/Hz		-90	
LO Leakage at RF Output	dBm		-24	
Input VSWR			1:1.5	
Output VSWR			1:2.0	

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DC Power Supply	V	11	12	15
Supply Current	mA		290	

* Phase Noise is measured at 2400MHz LO

Block Diagram

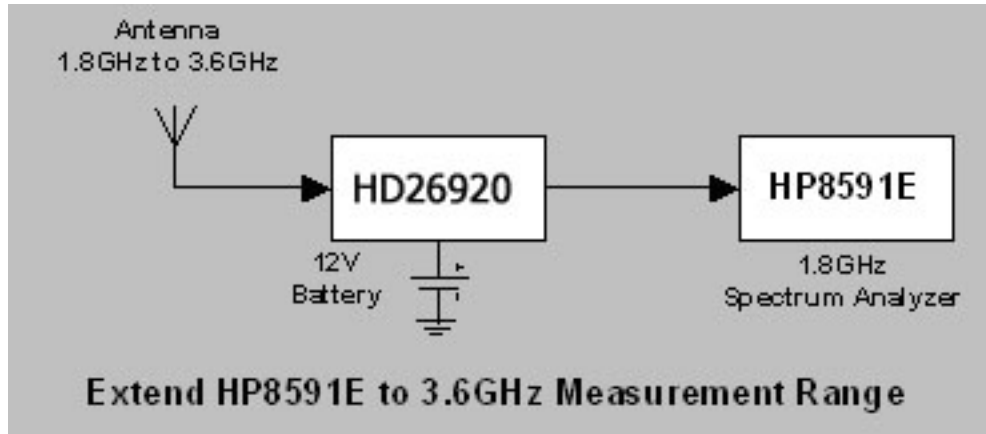


Operation Theory

HD26920 Block-Down Converter is designed for using with 1.8GHz spectrum analyzer to extend its operating range to 4.2GHz by converting 2.4GHz-4.2GHz frequency spectrum to DC-1.8GHz frequency spectrum. The internal 2.4GHz local oscillator is phase locked to a 20MHz Temperature Compensated Crystal Oscillator (TCXO). Internal linear voltage regulator allows unit to operate from 11V to 15V.

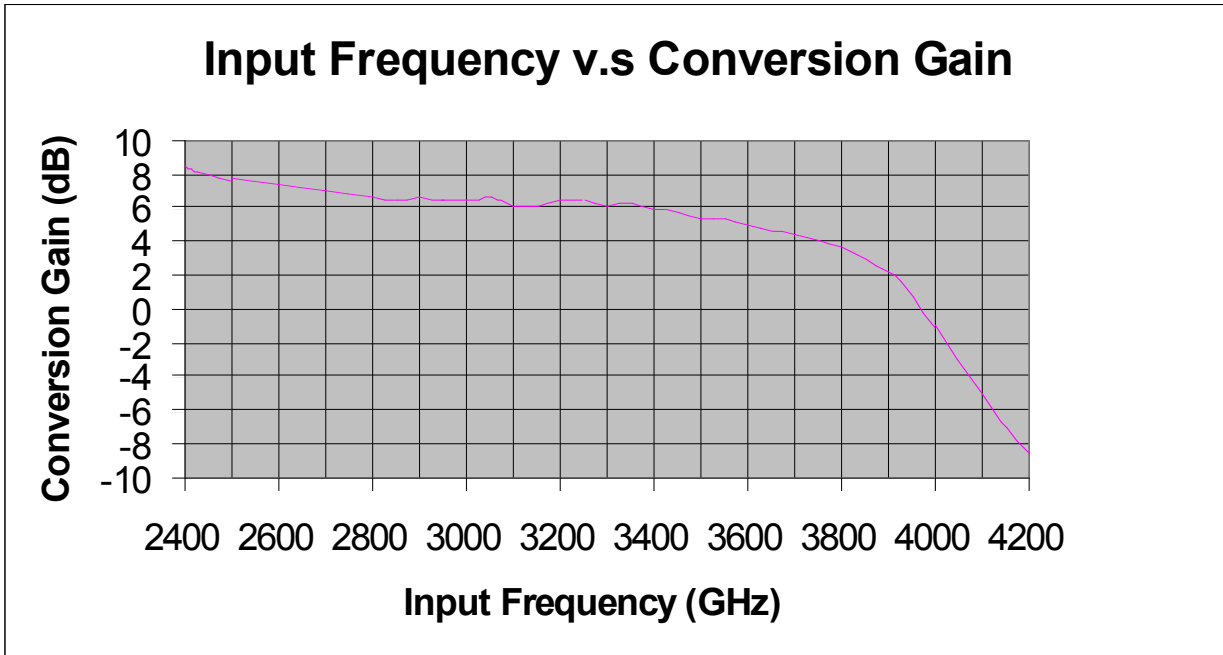
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Typical Application

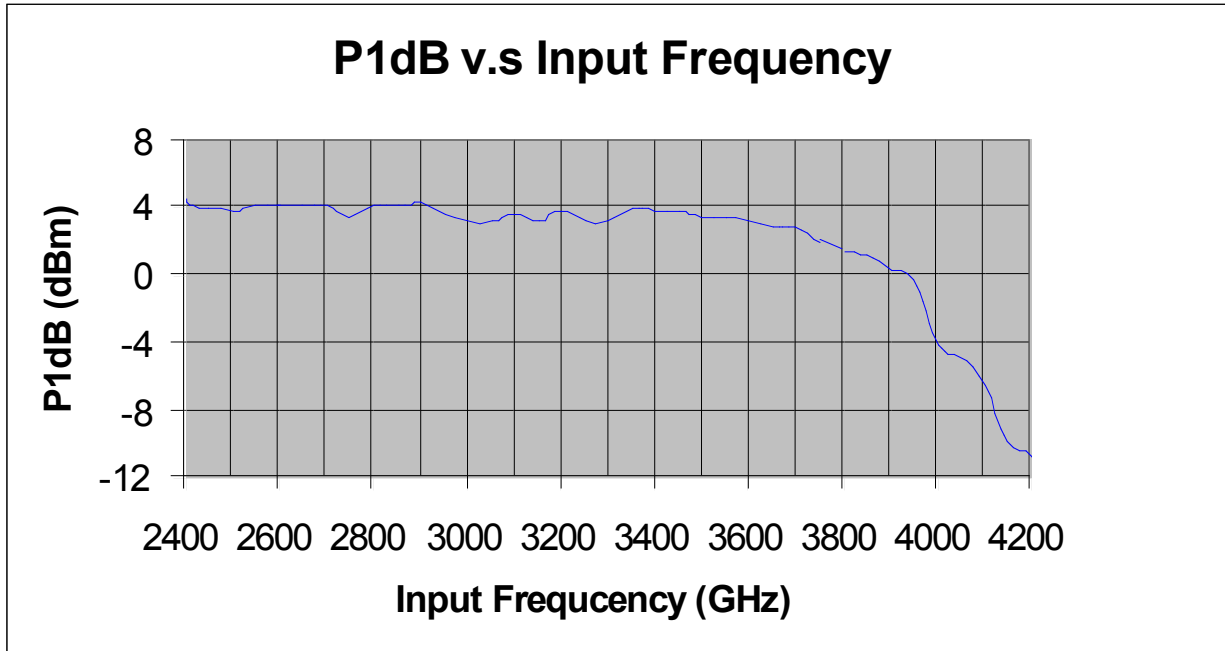


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Typical Performance @ +25 °C



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Gain Table @ +25 °C

In(MHz)	Out(MHz)	Gain(dB)	P _{1dB} (dBm)	In(MHz)	Out(MHz)	Gain(dB)	P _{1dB} (dBm)
2401	1	8.50	4.50	3900	1500	2.33	0.33
2410	10	8.33	4.17	3950	1550	0.83	-0.17
2450	50	8.00	4.00	4000	1600	-1.00	-4.17
2500	100	7.67	3.83	4050	1650	-3.00	-4.83
2550	150	7.50	4.17	4100	1700	-5.00	-6.50
2600	200	7.33	4.17	4150	1750	-7.00	-9.83
2650	250	7.17	4.17	4200	1800	-8.50	-10.7
2700	300	7.00	4.17	4250	1850	-9.80	-12.5
2750	350	6.83	3.50	4300	1900	-11.0	-13.0
2800	400	6.67	4.17	4350	1950	-11.7	-14.3
2850	450	6.50	4.17	4400	2000	-12.3	-15.1
2900	500	6.67	4.33	4450	2050	-12.7	-15.1
2950	550	6.50	3.67	4500	2100	-13.0	-16.1



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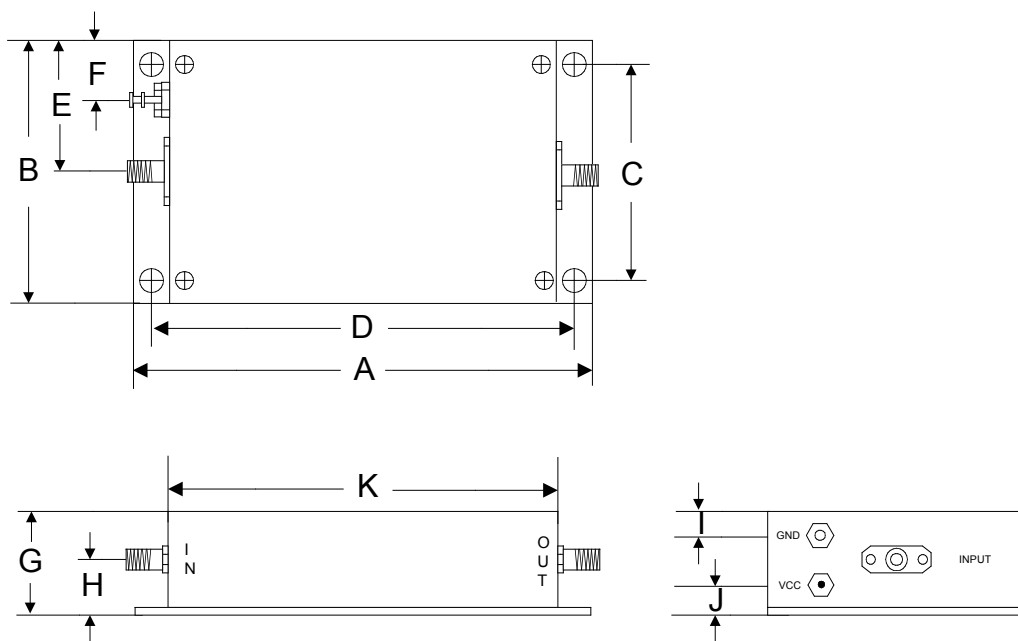
3000	600	6.50	3.17	4550	2150	-13.3	-16.5
3050	650	6.67	3.17	4600	2200	-13.8	-16.8
3100	700	6.17	3.67	4650	2250	-13.8	-17.5
3150	750	6.17	3.17	4700	2300	-16.0	-18.6
3200	800	6.50	3.83	4750	2350	-19.0	-21.5
3250	850	6.50	3.17	4790	2390	-21.0	-23.3
3300	900	6.17	3.17	4799	2399	-21.1	-23.3
3350	950	6.33	4.00				
3400	1000	6.00	3.83				
3450	1050	5.87	3.83				
3500	1100	5.50	3.50				
3550	1150	5.33	3.50				
3600	1200	5.00	3.17				
3650	1250	4.67	2.83				
3700	1300	4.50	2.83				
3750	1350	4.17	2.00				
3800	1400	3.67	1.50				
3850	1450	3.00	1.17				

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Absolute Maximum Ratings

Parameter	Absolute Maximum
Input Power	+20dBm
Supply Voltage	+16V
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C

Outline



	A	B	C	D	E	F	G	H	I	J	K
Inch	3.750	2.000	1.750	3.400	1.000	0.400	0.813	0.375	0.300	0.238	3.000
mm	92.25	50.80	44.45	86.36	25.40	10.16	20.64	9.53	7.62	6.03	76.20