

## BDC Series

## 3200-6400MHz Input Block Down Converter

### Features

- Input Frequency : 3200 to 6400MHz
- Output Frequency: DC to 3200MHz
- Fixed Local Oscillator: 3200MHz
- Conversion Gain: -5 to +5dB
- Noise Figure: 5dB
- Internal Reference TCXO: 20MHz
- DC Power: 12V
- SMA Connector

### Description

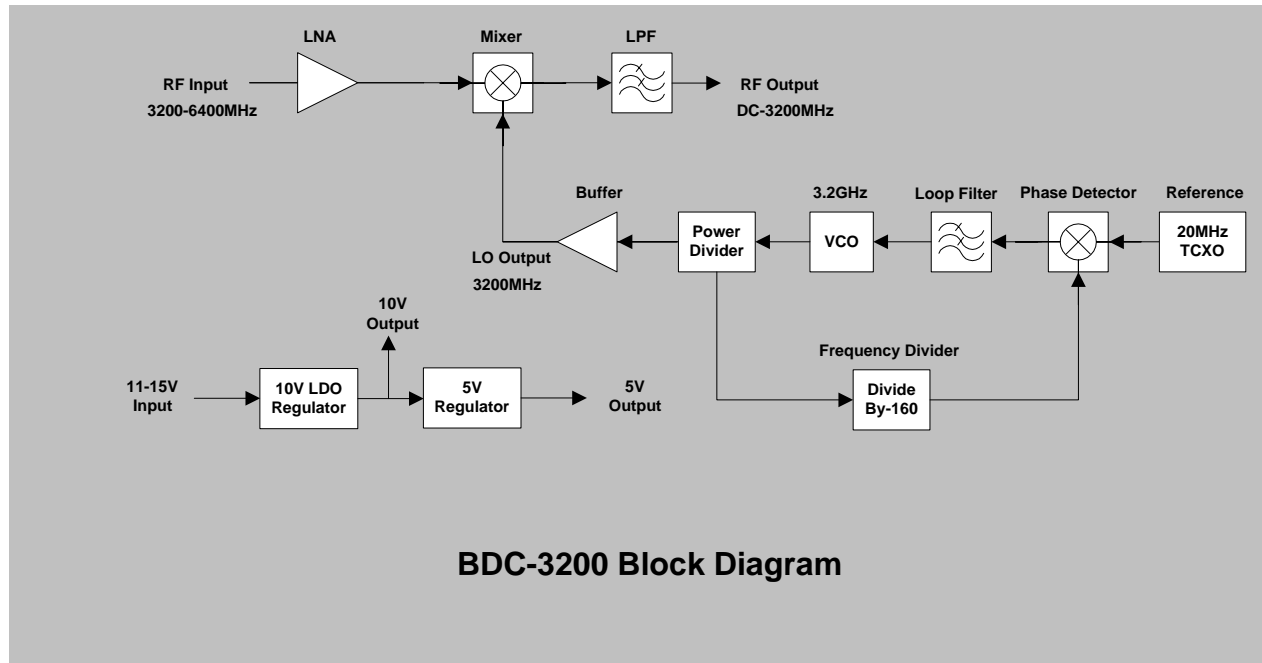
BDC-3200 is a low cost Block-Down Converter, designed for extending 2.9GHz spectrum analyzer measurement range to 3.2-6.1GHz.

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

Parameter	Unit	Minimum	Typical	Maximum
Input Frequency Range	MHz	3200		6400
Output Frequency Range	MHz	DC		3200
Maximum Input Power Level	dBm		-7	
Conversion Gain	dB	-5		+5
Noise Figure	dB		5	
$P_{1dB}$ @ 5GHz Input	dBm		-2	
Fixed Local Oscillator Frequency	MHz		3200	
Fixed Frequency Divider Ratio			160	
Internal Reference TCXO	MHz		20	
Phase Noise @ 1KHz Offset*	dBc/Hz		-80	
LO Leakage at RF Output	dBm		-17	
Input VSWR			1:1.5	
Output VSWR			1:2.0	
DC Power Supply	V	11	12	15
Supply Current	mA		300	

\* Phase Noise is measured at 3200MHz LO

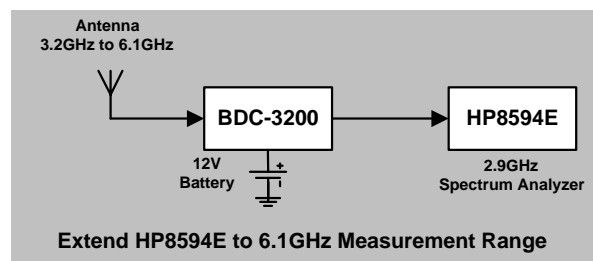
## Block Diagram



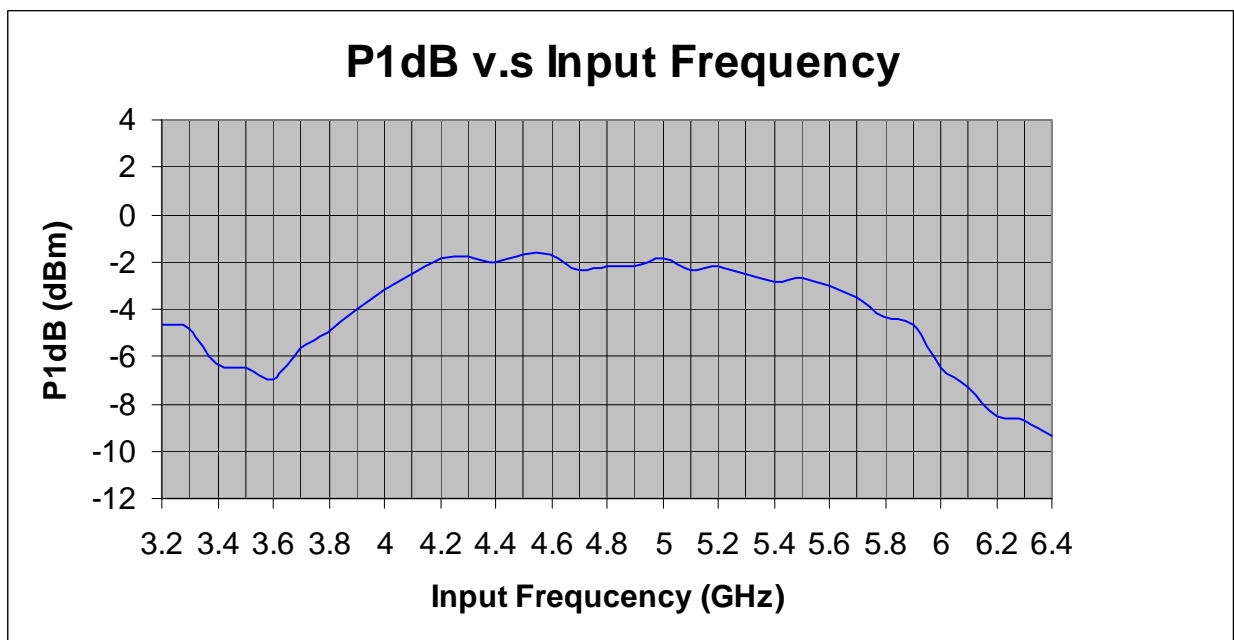
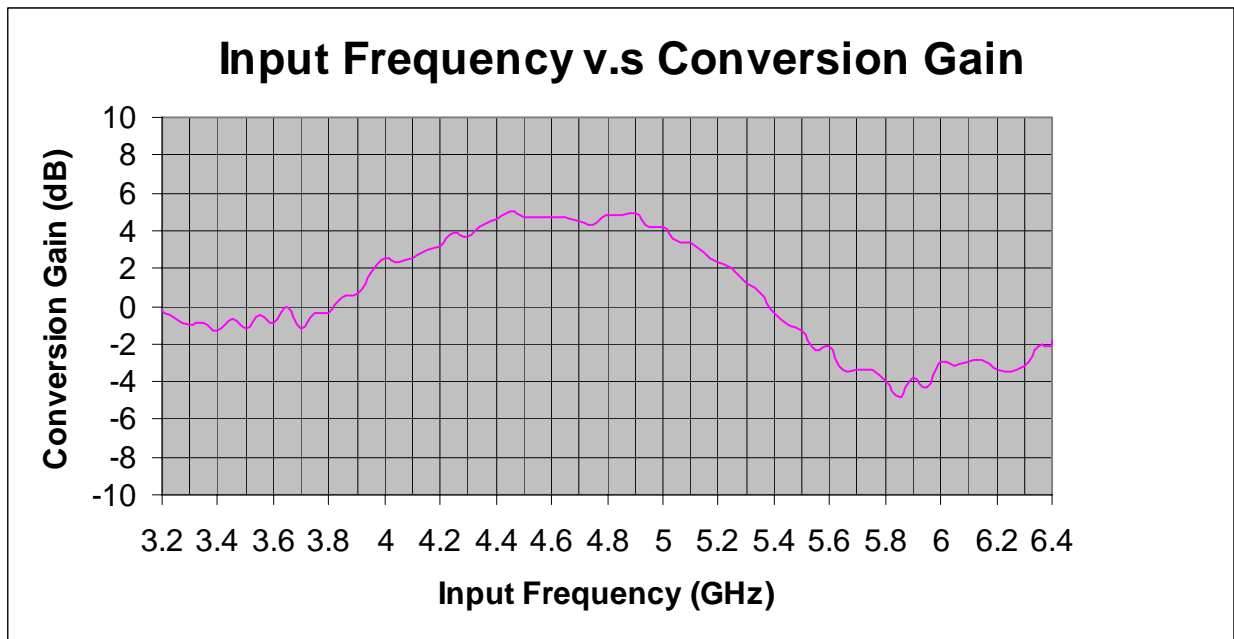
## Operation Theory

BDC-3200 Block-Down Converter is designed for using with 2.9GHz spectrum analyzer to extend its operating range to 6.1GHz by converting 3.2GHz-6.1GHz frequency spectrum to DC-2.9GHz frequency spectrum. The internal 3.2GHz local oscillator is phase locked to a 20MHz Temperature Compensated Crystal Oscillator (TCXO). Internal Low-Drop Out (LDO) linear voltage regulator allows unit to operate from 11V to 15V.

## Typical Application



**Typical Performance @ +25 °C**





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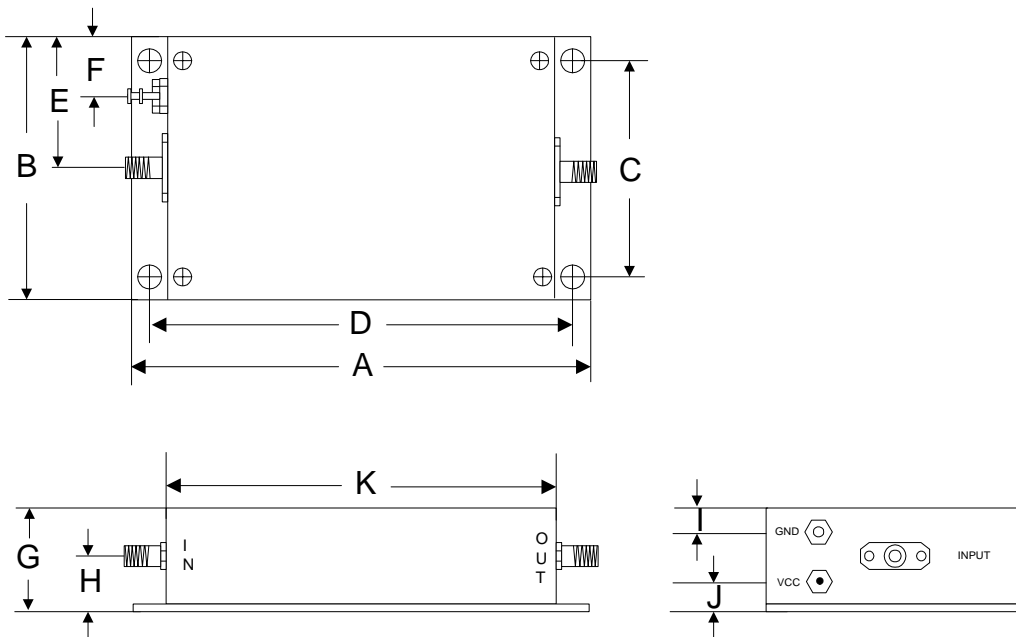
**Gain Table @ +25 °C**

In(MHz)	Out(MHz)	Gain(dB)	In(MHz)	Out(MHz)	Gain(dB)	In(MHz)	Out(MHz)	Gain(dB)
3201	1	-0.17	4700	1500	4.50	6250	3050	-3.50
3210	10	-0.34	4750	1550	4.34	6300	3100	-3.17
3250	50	-0.67	4800	1600	4.83	6350	3150	-2.17
3300	100	-1.00	4850	1650	4.83	6390	3190	-2.17
3350	150	-0.83	4900	1700	4.96	6399	3199	-1.84
3400	200	-1.33	4950	1750	4.16			
3450	250	-0.66	5000	1800	4.16			
3500	300	-1.16	5050	1850	3.50			
3550	350	-0.50	5100	1900	3.33			
3600	400	-0.84	5150	1950	2.83			
3650	450	0.00	5200	2000	2.33			
3700	500	-1.17	5250	2050	2.00			
3750	550	-0.34	5300	2100	1.17			
3800	600	-0.33	5350	2150	0.67			
3850	650	0.50	5400	2200	-0.37			
3900	700	0.67	5450	2250	-1.00			
3950	750	1.84	5500	2300	-1.33			
4000	800	2.50	5550	2350	-2.33			
4050	850	2.33	5600	2400	-2.16			
4100	900	2.50	5650	2450	-3.33			
4150	950	3.00	5700	2500	-3.34			
4200	1000	3.16	5750	2550	-3.34			
4250	1050	3.84	5800	2600	-4.00			
4300	1100	3.66	5850	2650	-4.83			
4350	1150	4.34	5900	2700	-3.83			
4400	1200	4.66	5950	2750	-4.34			
4450	1250	5.00	6000	2800	-3.00			
4500	1300	4.70	6050	2850	-3.17			
4550	1350	4.67	6100	2900	-3.00			
4600	1400	4.67	6150	2950	-2.84			
4650	1450	4.67	6200	3000	-3.33			

### 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