



# RF-LAMBDA

The power beyond expectations

RFBDC4M6MA

## BLOCK DOWN CONVERTER

**IF Output** 25MHz~100MHz  
**RF Input** 400MHz~600MHz



## Summary

RFBDC4M6MA down-converter unit uses the phase lock technology, and it uses the crystal oscillator with temperature compensating function as the referenced signal of PLL, what's more, it uses the low phase noise Analog Device ADF4107BRS as the frequency synthesizer chip of PLL. So the frequency of its inner part LO has a good stability in a wider temperature range.

RFBDC4M6MA Down-converter use two band pass filter inside so that It can give better out band rejection.

## General Specification

IF Output frequency: 25MHz~100MHz  
 RF Input frequency: 400MHz~600MHz  
 External reference 10MHz interface available.  
 Frequency stability  $2 \times 10^{-6}$  / Hour  
 Frequency hopping < 10ms / 5MHz  
 High linearity low spurious in / out band  
 Handle high peak to average ratio signal such as OFDM, QPSK, DSSS signal.  
 Ideal for point to point radio station.  
 Small package, high mobility.

### Electrical Specifications

<b>RF input range</b>	400MHz-600MHz	<b>IF Output Frequency</b>	25-100MHz
<b>P1dB</b>	+13dBm	<b>Stability</b>	$2 \times 10^{-6}$
<b>Conversion Gain:</b>	60dB $\pm$ 0.5dB $\Delta G/\Delta T=0.03\text{dB}/^\circ\text{C}$	<b>In/ Out VSWR:</b>	1.5 : 1
<b>Flatness:</b>	+/-2.0dB max.	<b>Frequency step</b>	0.5MHz
<b>In-Band spurious</b>	65dBc min. (-10dBm output)	<b>Out-Band Spurious</b>	50dBc min (-10dBm output)
<b>LO Phase Noise</b>	-110dBc/Hz (100KHz offset)	<b>Reference</b>	10MHz external reference (GPS)
<b>Input Power</b>	-20dBm (Max)	<b>DC Voltage:</b>	+11VDC~+15VDC (2W)

### Mechanical and Environmental Specifications

<b>Operation Temperature:</b>	-40°C to 85°C base plate	<b>Mechanical shock</b>	30G, 11mSec half sin wave, 3 axis both directions
<b>Vibration:</b>	14.2g RMS (15-2000Hz) functional	<b>Humidity</b>	95% relative humidity, 65°C 96Hour
	16.2g RMS (15-2000Hz) endurance, 1 hour /axis	<b>MTBF</b>	50000 hour min
<b>Connectors:</b>	RF SMA-F / N-F Removable	<b>Case:</b>	Sea Gray Paint
	Power Supply feed in through IF port.	<b>Dimension Size (L x W x H):</b>	133.5mm x 85.5mm x 30.5mm

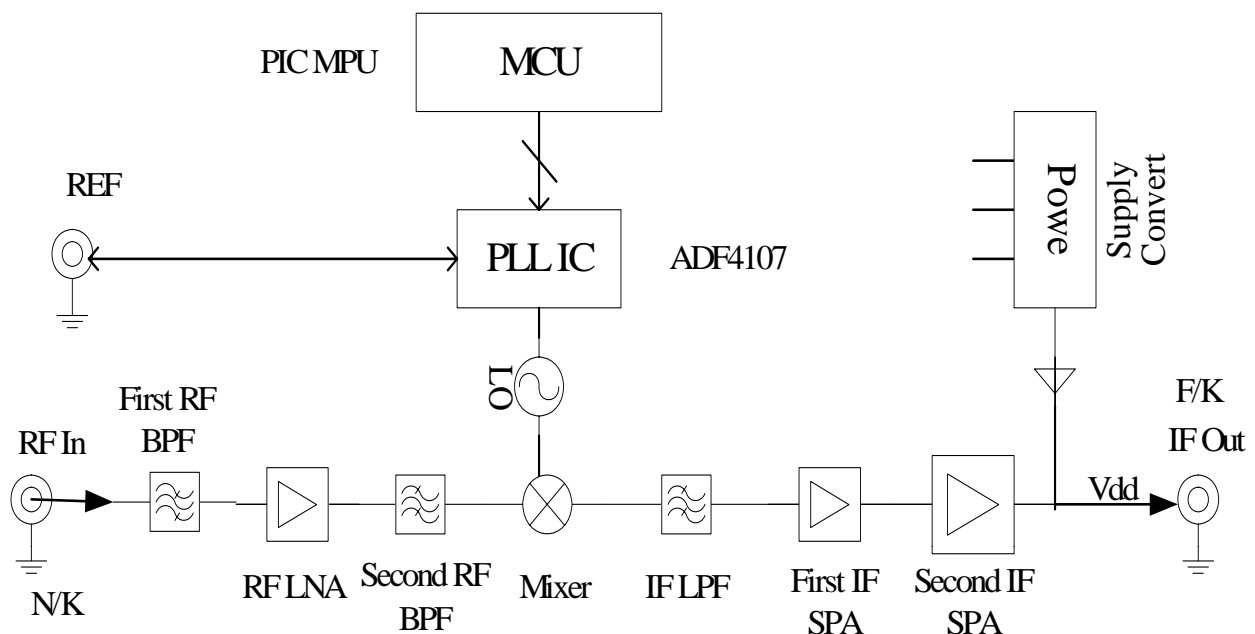
FREQUENCY BLOCK DOWN CONVERTER 400MHZ-600MHZ



### 400MHz-600MHz DOWNCONVERTER TESTING TABLE

Output IF Frequency (MHz)	Input RF Frequency 400MHz				Supply Current (mA)
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	
400	Gain (dB)	61.3	60.4	59.8	160
	NF (dB)		3.54		
	P1dB (dBm)		13.1		
Output IF Frequency (MHz)	Input RF Frequency 500MHz				Supply Current (mA)
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	
500	Gain (dB)	61.4	59.1	58.5	160
	NF (dB)		3.92		
	P1dB (dBm)		13.3		
Output IF Frequency (MHz)	Input RF Frequency 600MHz				Supply Current (mA)
	Output IF Parameter	-20 Deg	+25 Deg	+70 Deg	
600	Gain (dB)	61.2	59.5	58.5	160
	NF (dB)		3.90		
	P1dB (dBm)		13.4		

### BLOCK DIAGRAM



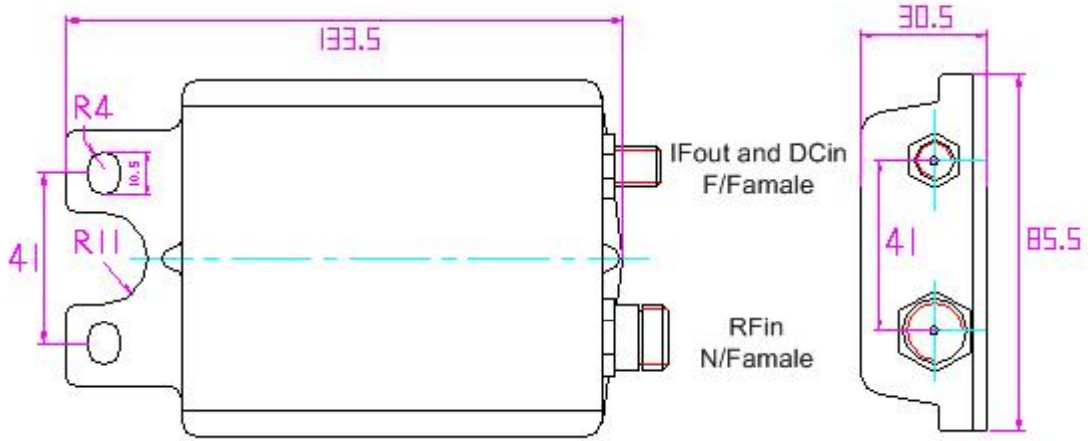


# RF-LAMBDA

The power beyond expectations

## RFBDC4M6MA

### MECHANICAL DRAWING



FREQUENCY BLOCK DOWN CONVERTER 400MHZ-600Mhz