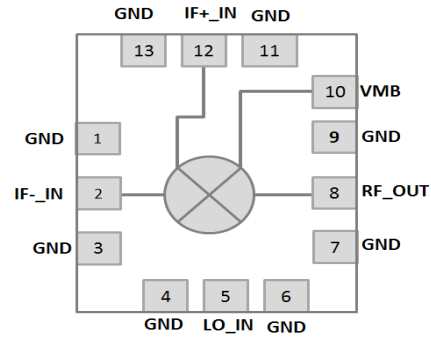


### Features:

- RF Frequency:56 to 70 GHz
- IF Frequency:3-6 GHz
- LO Frequency:53-64 GHz
- Conversion Loss of 12-15 dB over 56 to 70 GHz Bandwidth.
- IIP3 of +4 dBm with min LO power.

### Functional Block Diagram



### Description:

RFICUC04 (UPC Mixer) is LO reject Mixer used in receive application. The process used to design UPC Mixer is 0.1um GaAs pHEMT.

This is singly balanced resistive Mixer. The IF+ and IF ports are connected to an off-chip IF Balun. The LO is applied to a balun to generate the required 180 phase shift at the transistor gates. DC bias gate is applied to gate of resistive mixer which improves LO rejection, IIP3 and CG as well.

### Applications

- Wireless 5G Systems
- Satellite Communication
- TDD/FDD System.

### Pin Configuration:

Pin No.	Pin Name	Description
1	GND	RF Ground
2	IF-_IN	IF Input
3	GND	RF Ground
4	GND	RF Ground
5	LO_IN	LO Input
6	GND	RF Ground
7	GND	RF Ground
8	RF_OUT	RF output
9	GND	RF Ground
10	VMB	Mixer Bias
11	GND	RF Ground
12	IF+_IN	IF+ Input
13	GND	RF Ground

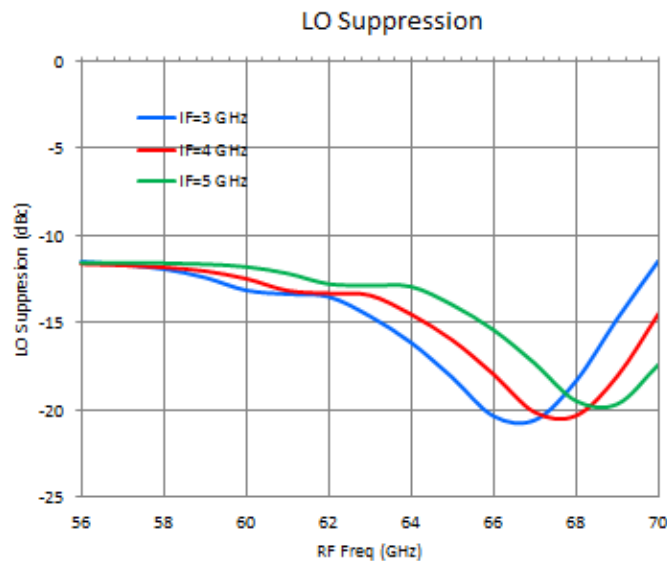
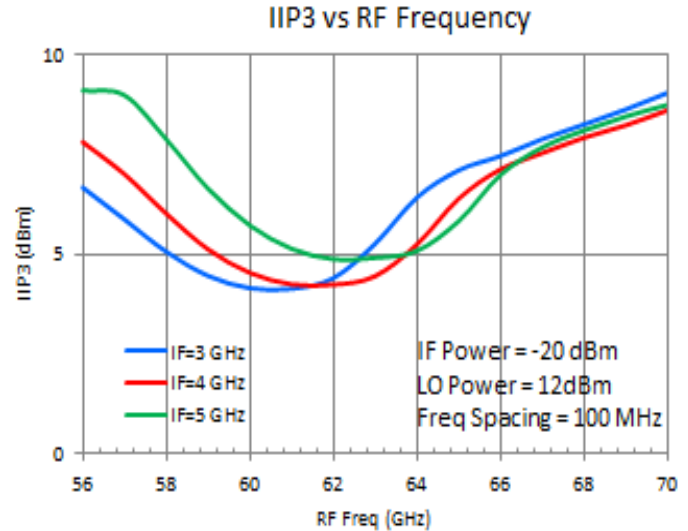
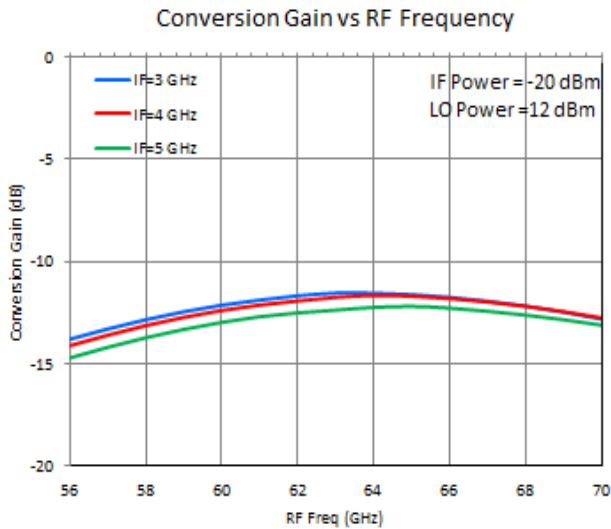
### Electrical Specification:

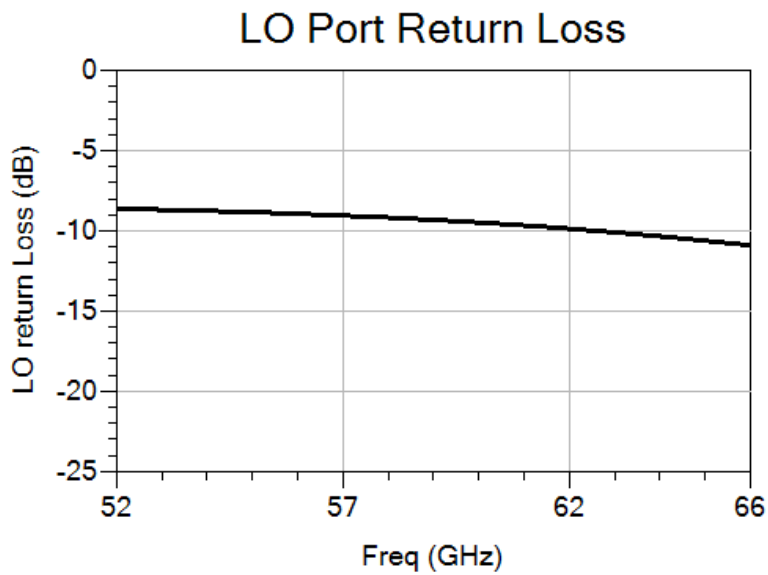
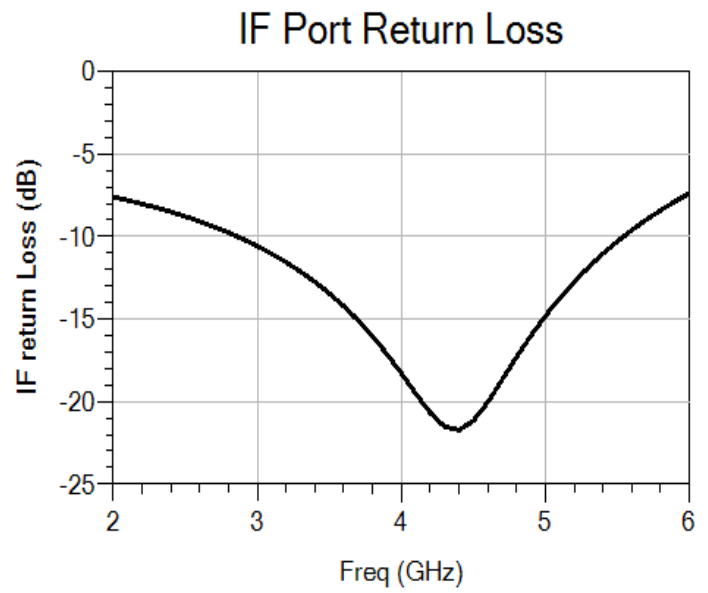
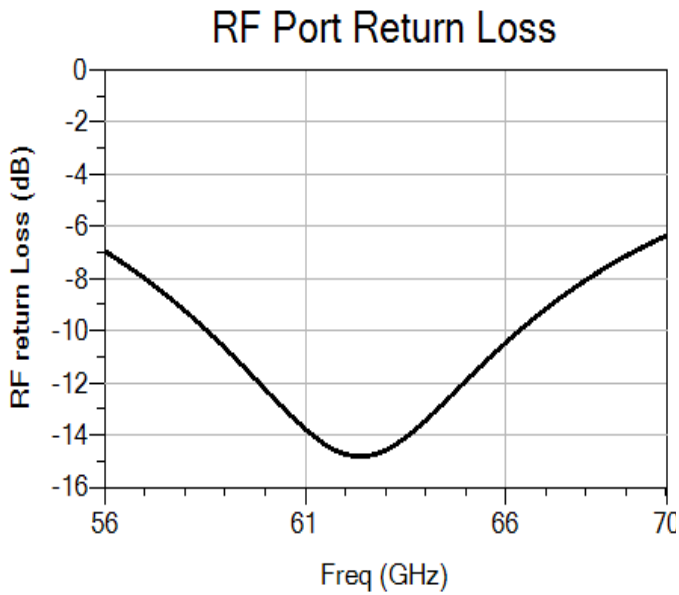
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for a down conversion application with a +12dBm sine wave LO input and a mixer bias of -0.5 V.

Parameter	Test Condition	Min	Typ	Max	Unit
RF (Port 1) Frequency Range		56	-	70	GHz
LO (Port 2) Frequency Range		53	-	64	GHz
IF (Port 3) Frequency Range		3	-	6	GHz
Conversion Loss (CL)	IF=3 GHz	-14	-	-12	dB
	IF=4 GHz	-14	-	-12	
	IF=5 GHz	-15	--	-12	
Isolation			+25		dB
			+25		dB
			+25		dB
Input IP3 (IIP3) RF power = -20 dBm , Freq spacing= 100MHz , LO Power = 12 dBm	IF=3 GHz	4	-	8	
	IF=4 GHz	4	-	8	
	IF=5 GHz	5	-	9	dBm
Input 1 dB Gain Compression Point (P1dB)			-5		dBm

**Typical Performance Curves:** The test conditions and frequency plan below applies to all following sections, unless otherwise specified.

Frequency spacing = 100 MHz , VMB (Mixer bias) = -0.5 V, LO power = 12dBm





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