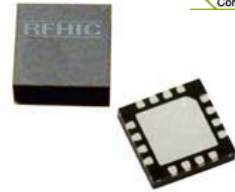


Product Features

- 4-Way Splitter
- Small size (3X3 mm)
- QFN SMD Type package
- Higher productivity
- Lower manufacturing cost
- -63dBc CSO 135 Channels @ +15dBmV/ch
- -77dBc CTB 135 Channels @ +15dBmV/ch
- -78dBc XMD 135 Channels @ +15dBmV/ch
- 5.2 dB Typical Noise Figure
- 75 ohm input and outputs

Application

- Multi Tuner Set-Top Boxes
- Home Gateways
- FTTx (G-PON, GE-PON)



Package : QFN 3X3

Description

AD412 is designed as low cost Active Divider for many applications including FTTH, CATV System.

This MMIC is based on Gallium Arsenide Enhancement Mode pHEMT which shows low current draw and very low noise.

The data in this spec sheet is valid only for 75 ohm application.

Specifications

PARAMETER		UNIT	MIN	TYP	MAX	Condition
Frequency		MHz	50 ~ 1000			
Gain		dB	5	6		
Gain Flatness		dB		0.4	1	
Input Return Loss		dB		-10		
Output Return Loss		dB		-12		
IN&OUT Port Isolation		dB		-26		
OUT&OUT Port Isolation		dB		-29		
Output IP3		dBm	30	33		
1dB Compression Point		dBm	16.3	18.3		
Noise Figure		dB		5.2	6	
CSO	30 ~ 870MHz	dBc		-63	-60	135 channel @ Input Power +15dBmV/ch
CTB		dBc		-77	-70	
XMOD		dBc		-78	-70	
DC Current		mA		220		Vdd = 5.0V

NOTE

1. Test conditions unless otherwise noted. Test Freq = 500MHz, T=25°C, Vdd=5V, 75Ω system
2. OIP3 measured with 2 tones at an output power of +0dBm/tone separated by 1MHz, Test Freq = 500MHz

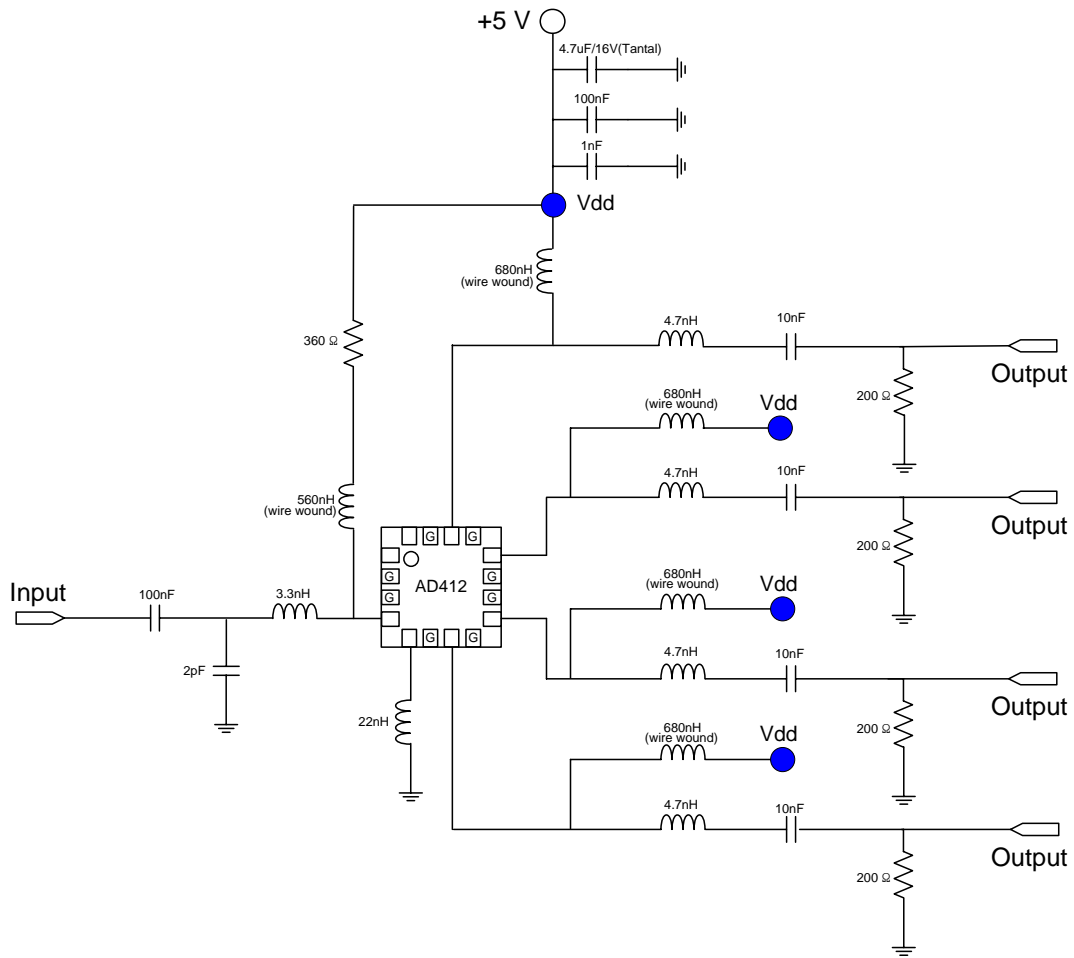
Absolute Minimum and Maximum Ratings

PARAMETER	UNIT	MIN	TYP	MAX
Device Voltage	VDC		+5	+5.5
Operating Temperature	°C	-40		+85
Storage Temperature	°C	-40		+150

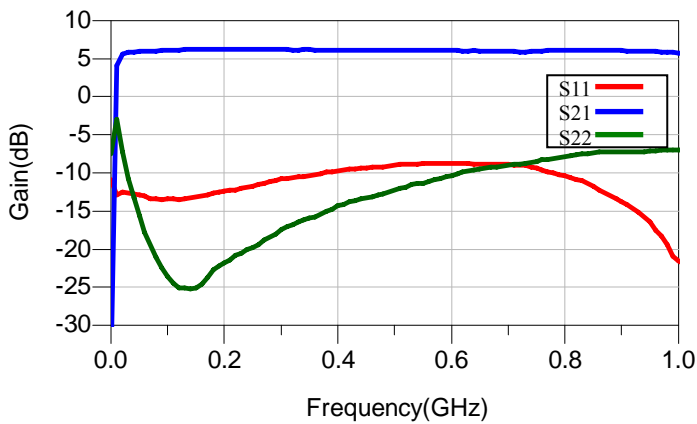
E-pHEMT MMIC (Preliminary)



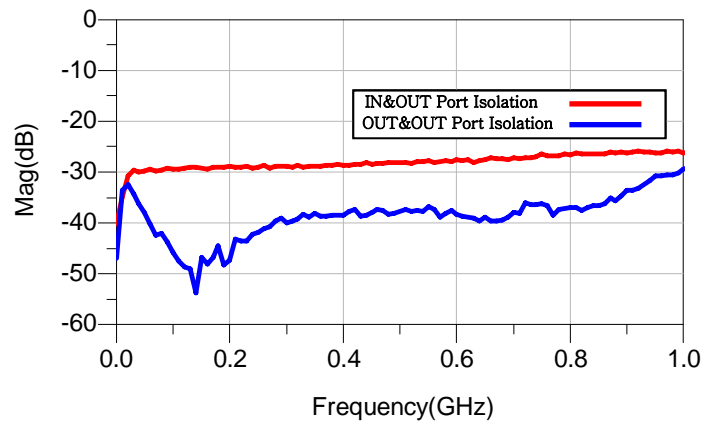
Application Circuit: 50~ 1000MHz, 5v, 75ohm System



S-Parameter



Isolation



Multi-Tone Test 135CH_FLAT@Input Power +15dBmV/Ch

Level: Input +15dBmV		Tilt: 135CH								
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ
55.25	80.2	81	85.4	81.7	79.2	82.8	56	66.2	66.3	53.99
77.25	81.2	81.3	85.7	82.2	67	67.1	77.99	81.7	86	76.58
109.25	80.3	81.6	85.9	82.5	79.7	82.7	109.99	67.8	67.9	107.99
211.25	80	80.7	85	81.9	74.4	75.2	212.5	69.1	69.3	209.99
331.25	79.8	79.4	83.8	80.7	70.4	70.8	332.5	70	70.4	329.99
445.25	78.9	79.8	84.1	81.3	69.1	69.4	446.5	72	72.6	443.99
547.25	80	78.7	83	80	65.9	66	548.49	72.7	73.7	545.99
637.25	79.8	78.6	83	80	66.1	66.3	638.5	75.3	77.2	635.99
745.25	78.9	78.5	82.9	79.8	65.1	65.3	746.49	76.9	79.9	744.48
859.25	78.6	77.1	81.4	77.8	63.7	63.9	860.49	74.6	77.1	858.49
Min	78.6	77.1	81.4	77.8	63.7	63.9	56	66.2	66.3	53.99
Max	81.2	81.6	85.9	82.5	79.7	82.8	860.49	81.7	86	858.49

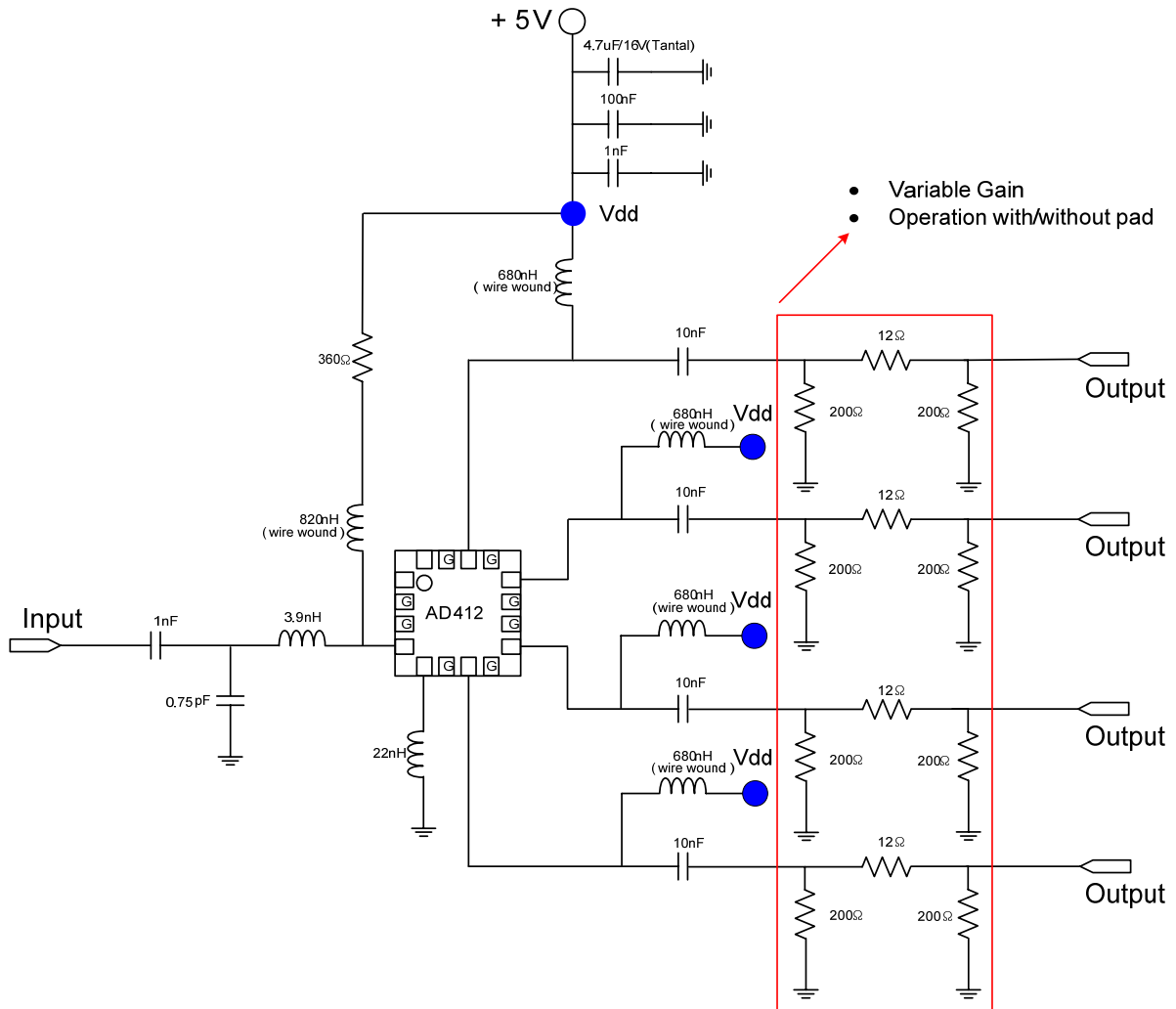
Ⓢ Specifications (Insert Pad)

Parameter	Unit	Typical Data	Condition
Frequency	MHz	50~1000	
Supply Voltage	V	5	
Gain	dB	4.3	
Gain Flatness	dB	0.3	
Input Return Loss	dB	-10	
Output Return Loss	dB	-15	
IN&OUT Port Isolation	dB	-27	
OUT&OUT Port Isolation	dB	-30	
OIP3	dBm	30	
P1dB	dBm	16	
Noise Figure	dB	5.2	
CSO	dBc	-64	135 channel, +15dBmV/ch
CTB	dBc	-74	135 channel, +15dBmV/ch
XMOD	dBc	-78	135 channel, +15dBmV/ch
DC Current	mA	220	Vdd = 5.0V

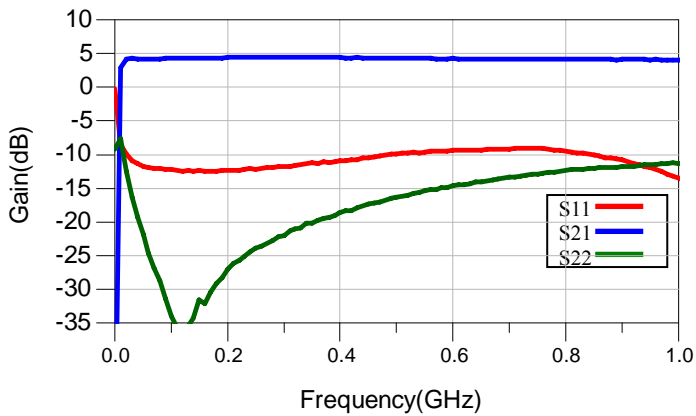
E-pHEMT MMIC **AD412** (Preliminary)



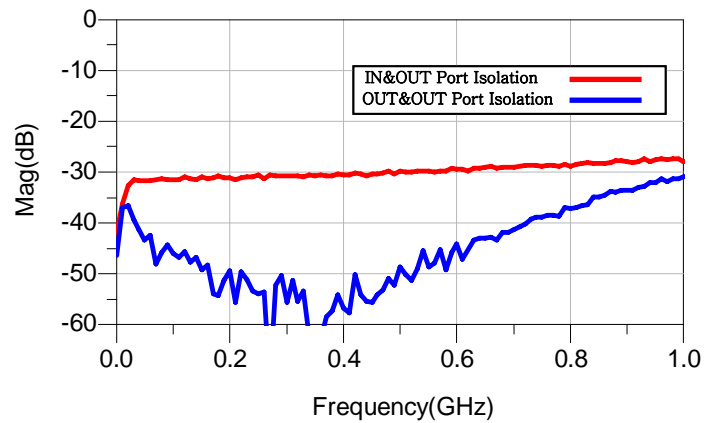
Application Circuit: 50~ 1000MHz, 5v, 75ohm System (Insert Pad)



S-Parameter



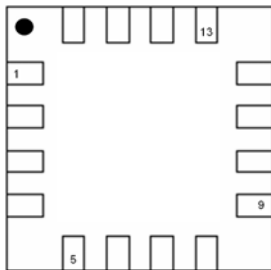
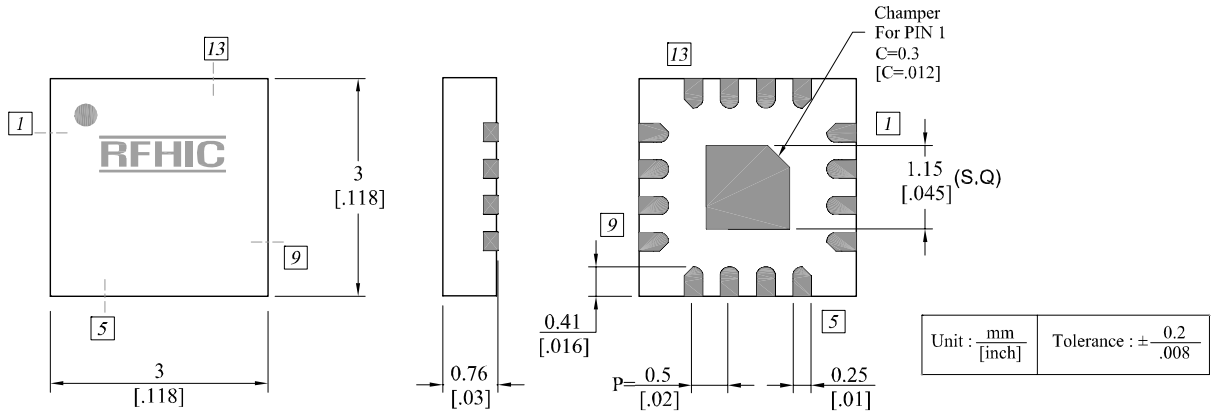
Isolation



Multi-Tone Test 135CH_FLAT@Input Power +15dBmV/Ch

Level: +15dBmV		Tilt: 135CH_FLAT								
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ
55.25	78.1	79.1	83.4	79.7	77.4	81.8	55.99	64.6	64.8	54
77.25	78.8	79.1	83.4	79.8	66	66.2	78	79.5	83.8	76.38
109.25	78	79.4	83.7	80.3	78.3	82.6	109.99	65.8	66	108
211.25	79.2	78.6	83	79.5	74.4	76.1	212.5	66.7	67	209.99
331.25	80.5	77.6	81.9	78.4	70.1	70.7	332.49	65.8	66.1	329.99
445.25	81.9	78.3	82.6	79.3	68.7	69	446.49	67.4	67.7	443.99
547.25	83	77	81.3	77.8	66.5	66.9	548.5	67.1	67.5	545.99
637.25	85.7	76.8	81.1	77.9	66.3	66.6	638.5	69.3	70	635.99
745.25	87.3	76.3	80.7	77	64.9	65.1	746.49	72.8	74.7	743.99
859.25	91	74.6	78.9	75.6	64	64.3	860.49	73.9	78.3	858.49
Min	78	74.6	78.9	75.6	64	64.3	55.99	64.6	64.8	54
Max	91	79.4	83.7	80.3	78.3	82.6	860.49	79.5	83.8	858.49

Package Dimensions (Type :QFN3)



Pin No	Function
4	Input
5	Input Matching
7	Output - 1
9	Output - 2
12	Output - 3
14	Output - 4
2, 3, 10, 11	GND
Other	NC

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