



## RFHIC Products For Quality & Value Performance!

### Introduction

RFHIC is a manufacturer of components and subassemblies primarily for the RF & CATV markets and Microwave wireless. All RFHIC products developed are manufactured in our facility, which means Die Attach, Wire bonding, Packaging, Chip on Board, Hybrid, SMT Line, RF Test Line, and Quality Control are being done in RFHIC building. We value our One Stop facilities to accommodate high quality control, high reliability, and cost cutting technology along with the mass production ability of various high frequency components that are used in wired and wireless telecommunication system and its Base stations, Repeaters, Cable Network and Test Equipment for Infrastructure. RFHIC and its employees strive hard to become the world class leader in the wired and wireless communication industry in the 21st Century by investing in the growth of company and its future.



ISO 9001 / 14001 : 2004



New Technology



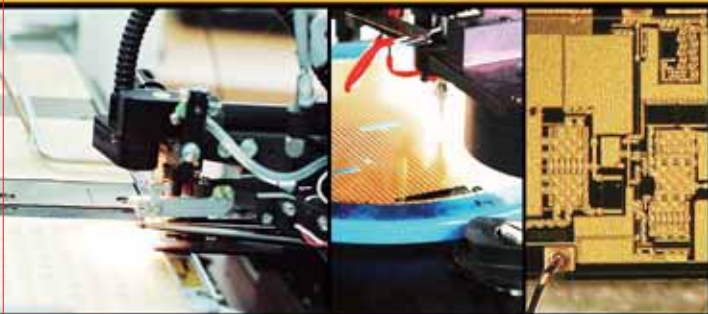
KAB  
KAB-OC-26



Reliability

2007 AUTUMN

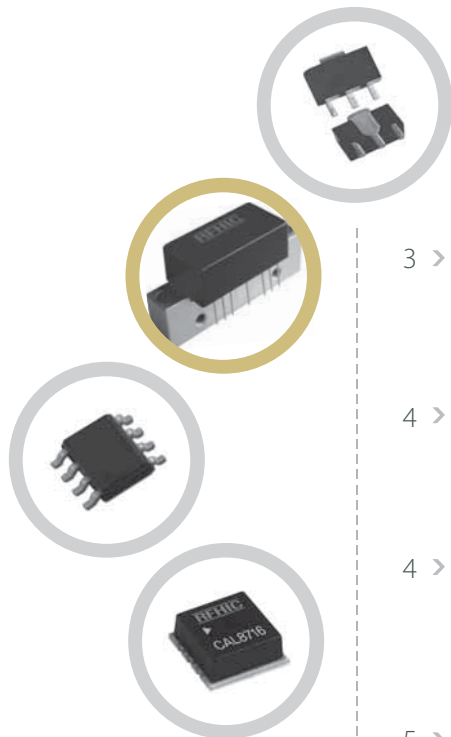
SUNSTAR微波光电 <http://www.rfoe.net/> TEL:0755-83396822 FAX:0755-83376182 E-MAIL:szss20@163.com



# CATV · DIGITAL TV BROADBAND AMPLIFIER

**RFHIC**  
[www.rfhic.com](http://www.rfhic.com)

SUNSTAR射频通信 <http://www.rfoe.net/> TEL:0755-83397033 FAX:0755-83376182 E-MAIL:szss20@163.com



3 > Cable TV Line Amplifier

24V Power Doubler (870MHz)

24V Push-Pull (870MHz)

24V Power Doubler (1000MHz)

4 > 24V Push Pull (1000MHz)

12V Power Doubler

12V Push-Pull

4 > GaN Cable TV Line Amplifier

24V Power Doubler (1000MHz)

24V Push-Pull (1000MHz)

5 > MMIC (75Ω)

5 > Wideband Amplifier

5 > High Power Wideband Amplifier

6 > Passive Filter

7 > CATV Low Noise Amplifier

8 > Band Switch Filter (75Ω)

**2007 AUTUMN  
CATV · DIGITAL TV  
BROADBAND AMPLIFIER**

Manufacturer of high frequency components  
for wired & wireless telecommunication



**RoHS Compliant**

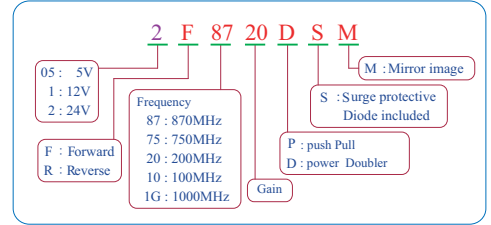
RFHIC warrants and truly realizes the RoHS regulations, and does not use hazardous substances such as lead, cadmium, mercury, hexavalent chromium, brominated flame retardants for all the RFHIC parts in this catalog.

# CATV & DTV Broadband Amplifier

## » Cable TV Line Amplifier

### Product Features

- GaAs MMIC
- Very Low Distortion
- Guaranteed Broadband Power Gain
- Excellent Thermal Conductivity
- Single Supply Voltage @ 24V or 12V
- Heatsink 99.9% Copper, Ag or Gold Plate
- Internal TVS
- No External Circuits Needed



### Applications

- CATV Trunk Amplifier
- Optical Drive Amplifier

## 24V Power Doubler (870MHz)

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
2F7522D	45 ~ 750	22	-17	110@48	-61	-64	-62	5	400
2F8718DS	45 ~ 870	18	-18	135@44	-65	-70	-66	7	400
2F8719DS	45 ~ 870	19	-18	135@44	-65	-70	-66	6	400
2F8720DS	45 ~ 870	20	-18	135@48	-60	-63	-60	5.5	400
2F8720DSM	45 ~ 870	20	-18	135@48	-60	-63	-60	5.5	400
2F8722D	45 ~ 870	22	-16	135@48	-58	-60	-60	5	400
2F8722DS	45 ~ 870	22	-18	135@48	-61	-65	-60	5	400
2F8722DSM	45 ~ 870	22	-18	135@48	-61	-65	-60	5	400
2F8725D	45 ~ 870	25	-16	135@48	-62	-64	-62	3.5	400
2F8727D	45 ~ 870	27	-16	135@48	-62	-64	-62	3.6	400
2F8729D	45 ~ 870	29	-16	135@48	-58	-57	-60	3.5	400

## 24V Push-Pull (870MHz)

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
2F7523P	45 ~ 750	23	-17	110@40	-68	-66	-61	4.7	220
2F8718P	45 ~ 870	18	-16	135@40	-60	-62	-55	5.5	220
2F8720P	45 ~ 870	20	-16	135@40	-66	-66	-59	5.5	220
2F8723P	45 ~ 870	23	-16	135@40	-65	-66	-60	4.7	220
2F8725P	45 ~ 870	25	-16	135@40	-63	-62	-61	3.5	300
2F8727P	45 ~ 870	27	-16	135@40	-63	-62	-61	3.6	300
2F8734P	45 ~ 870	34	-16	135@45	-60	-56	-60	3.3	400

## 24V Power Doubler (1000MHz)

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
2F1G20DS	45 ~ 1000	20	-16	79@52	-65	-63	-68	5.5	400
2F1G22DS	45 ~ 1000	22	-16	79@52	-68	-70	-68	5	400
2F1G24D	45 ~ 1000	24	-16	79@52	-70	-66	-68	4.5	400

◀ Test Condition : 79 Channel, NTSC frequency raster : 55.25MHz to 547.25MHz, +45dBmV to +52dBmV tilted.

**24V Push Pull (1000MHz)**

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
2F1G18P	45 ~ 1000	18	-15	135@40	-59	-60	-57	5.5	220
2F1G20P	45 ~ 1000	20	-16	135@40	-60	-64	-63	5.5	220
2F1G23P	45 ~ 1000	23	-16	135@40	-65	-67	-66	4.7	220
2F1G27P	45 ~ 1000	27	-16	135@40	-66	-70	-66	4.5	310

**12V Power Doubler**

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
1F8719D	50 ~ 870	19	-16	135@44	-63	-63	-63	6	560

**12V Push-Pull**

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
1F8734P	50 ~ 870	34	-16	135@44	-58	-58	-60	4.5	580
1F7534P	50 ~ 750	34	-16	110@44	-60	-62	-62	4.5	580
	50 ~ 750	34	-16	79@46	-61	-62	-61	4.5	580
1F8719P	50 ~ 870	19	-16	135@40	-65	-65	-62	5.5	360

**» GaN Cable TV Line Amplifier****Product Features**

- GaN HEMT
- High Breakdown Voltage
- High Power, P1dB 4W
- Low Noise Figure

**Applications**

- CATV Trunk Amplifier
- Optical Drive Amplifier

**24V Power Doubler (1000MHz)**

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
 3F1G20DG	50 ~ 1000	20	-16	79 @52/10dB Tilt	-62	-60	-60	3	500

**24V Push Pull (1000MHz)**

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (min)(dB)	CH@Vo (Flat)(dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)
					CTB	CSO	XMD		
 3F1G20PG	50 ~ 1000	20	-16	79 @44/10dB Tilt	-62	-62	-62	3	220

 : Under Development



# CATV & DTV Broadband Amplifier

## » MMIC (75Ω)

### Product Features

- GaAs MMIC
- High IP3
- Lower Noise Figure

### Application

- CATV Amplifier
- Satellite Transceiver Application
- Repeater
- Base Station



SOT-89

SOIC-8

Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (dB)	CH@Vo (dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)	Package
					CTB	CSO	XMD			
AP112	3 ~ 2500	18	-12	135@30	-67	-53	-65	3.5	110	SOT-89
AP230	3 ~ 1000	15	-11	135@37	-60	-63	-55	4	220	SOIC-8
AP2301	30 ~ 2000	15	-10	135@37	-60	-63	-55	4.5	220	SP-12
AP211	30 ~ 870	12	-6.5	135@40	-70	-63	-53	2.5	205	SOIC-8
AP201	30 ~ 870	12	-8	135@30	-72	-50	-80	2.5	120	SOT-89
AP222	30 ~ 870	12	-11	135@40	-52	-55	-52	4.5	220	SOIC-8
AE308	50 ~ 1000	22	-15	135@16	-64	-58	-67	2	55	SOT-89

: Under Development

## » Wideband Amplifier



DP-27

44.4 x 20 x 13.5 mm

Part Number	Frequency (MHz)	Gain (dB)	N.F (Typ.)(dB)	P1dB (Typ.)(dBm)	OIP3 (Typ.)(dBm)	Vd (V)	Id (Typ.)(mA)	Package
RFC041	400 ~ 800	19	7.5	30	47	12	550	DP-27
RFC042	400 ~ 800	23	4	30	50	24	400	
RFC091	800 ~ 1000	20	7	29	45	12	550	
RFC092	800 ~ 1000	23	5	30	50	24	400	
1F5500	5 ~ 500	19	6.5	31	49	12	500	
RFC1G19-12	5 ~ 1000	19	7	30	46	12	500	
RFC1G22-24	20 ~ 1000	22	3.5	30	50	24	400	
RFC1G30-24	20 ~ 1000	30	3.3	30	46	24	400	
RFC1G18H4-12	20 ~ 1000	19	3	33	43	12	700	
RFC1G18H4-24	20 ~ 1000	19	3	36	46	24	700	
RFC3020H4-12	100 ~ 300	20	4	35	46	12	700	

◀ Test Condition : 800MHz, 20 dBm each tone : GaN Power Transistor

## » High Power Wideband Amplifier



DP-75

70 x 51 x 16 mm

Part Number	Frequency (MHz)	Gain (dB)	Return Loss (dB)	P3dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (A)	Package
RFW2500H10-28	20 ~ 2500	13	-	36	41	28	0.9	DP-75
RFW7735H20-28	450 ~ 770	33	-15 / -15	43	48	28	1.9	
RFW1G35H20-28	20 ~ 1000	33	-10 / -5	41	47	28	1.8	
RFW5035H40-28	20 ~ 500	35	-8 / -2	45	51	28	3.1	
RFW8835H40-28	450 ~ 880	33	-13 / -8	45	51	28	3.1	
RFW1G33H40-28	20 ~ 1000	32	-6 / -2	44	48	28	3.1	

» **PASSIVE FILTER**

**Product Features**

- SOT-89 Type Packages
- Passive Integration on Silicon
- Small Size
- High Power Handling
- Low Cost

**Application**

- Digital TV
- Sub-Systems
- CATV Set Top Box
- CATV Trunk Amp.



Part Number	Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Handling Power (W)	Rejection (dB)	Impedance (Ω)	Package
Up BWF870	270 ~ 470	0.9	13	2	-35	75	BGA Type (3 in 1)
	470	1.9	12	2	-20	75	
	470	1	10	2	-20	75	
LPF708	870	0.5	11	5	-40	75	SOT-89
LPF722	2200	0.5	12	5	-25	75	SOT-89

Up : Under Development

» **CATV LOW NOISE AMPLIFIER**

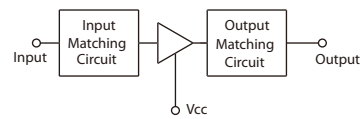
**Product Features**

- GaAs p-HEMT Chip On Board
- No Matching Circuit Needed
- High IP3
- Good Gain Flatness
- Hybrid Amplifier
- Small Size
- SMD Type

**Application**

- Distribution / Drop Amplifiers
- Digital TV
- Digital Set Top Box
- TV Antenna

**Functional Diagram**



Part Number	Frequency (MHz)	Power Gain (dB)	Return Loss (dB)	CH@Vo (dBmV)	Distortion (typical)			Noise Figure (dB)(typ)	Current (mA)(typ)	Package
					CTB	CSO	XMD			
CAL8716	50 ~ 870	18	-8/3.5	110@25	-65	-60	-80	1.5	155	CP-16
CAL1G20	50 ~ 1000	20	-12	110@15	-60	-54	-68	1.8	40	CP-16

» **BAND SWITCH FILTER (75Ω)**

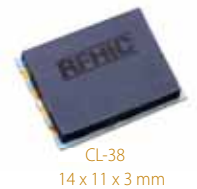
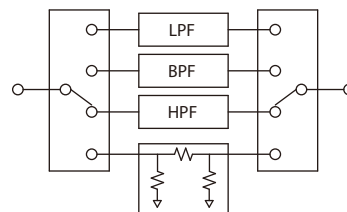
**Product Features**

- MCM Sub-Module
- High Dynamic Range
- Digital Control
- Low Insertion Loss
- Low Current
- Chip On Board
- Low Cost

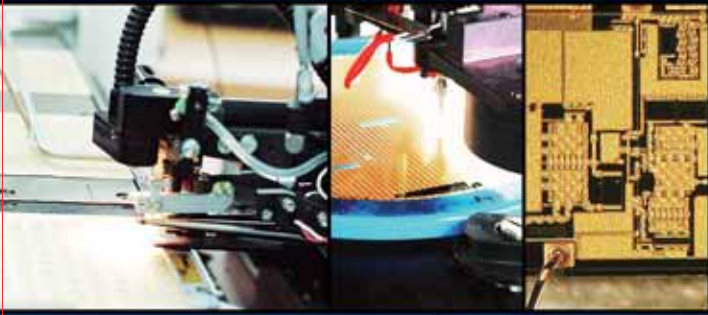
**Applications**

- Tuner
- Digital TV
- DVD
- Trunk Amp.
- Camcorder
- Broadband System Set Top Box

**Functional Diagram**



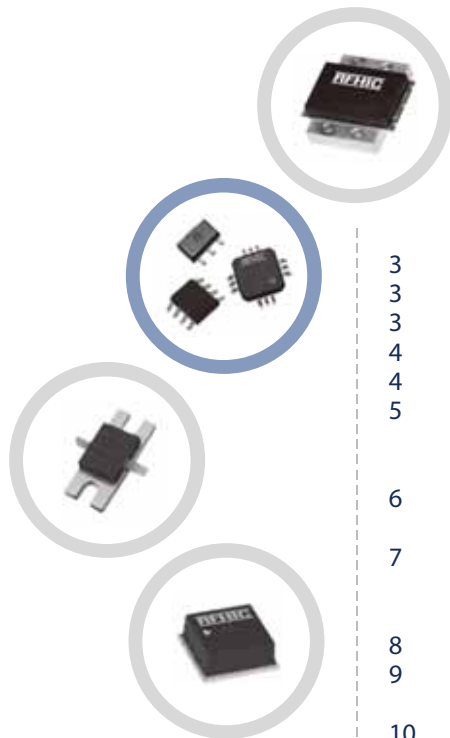
Part Number	Frequency (MHz)	Output Freq. (MHz)	Insertion Loss (dB)	OIP3 (dBm)	RF Input Power (W)	Digital On/Off (V)	Current (mA)	Package (mm)
SF8700	45~870	45~270	-1 ~ -30	65	10	3~5 / 0	0	CL-38



# RF HYBRID COMPONENT

**RFHIC**  
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## 2007 AUTUMN RF Hybrid Component

Manufacturer of high frequency components  
for wired & wireless telecommunication

- 3 > MMIC
- 3 > E-pHEMT
- 3 > Variable Attenuator
- 4 > Power Transistor
- 4 > Wideband Amplifier
- 5 > Low Noise Amplifier
  - GaAs p-HEMT LNA
  - Gain Block Amplifier
- 6 > Wideband LNA
- 6 > MCM Linear LNA
- 7 > Drive Amplifier
  - E-pHEMT
  - Linear Amplifier
- 8 > MCM Linear Amplifier
- 9 > PLL Synthesizer
  - Variable Type
  - Fixed Type (ROM Included)
  - Variable Type (TCXO Included)
- 11 > Fixed Type (ROM & TCXO Included)
- 11 > Fixed Type (ROM & Divider Included)
- 12 > Hybrid Up-Down Converter with PLL
  - Frequency Up / Down Converter
- 12 > Hybrid Up-Down Converter with PLL & ROM
- 13 > Mixer
  - Active Up / Down Mixer , Passive Mixer
- 14 -15 > Power Amplifier
  - M, A, T, N, W Series
- 15 > GaN Pallet High Power Amplifier
- 15 > GaN Pallet Wideband Amplifier
- 16 > 2Way Power Divider
- 16 > Directional Coupler
- 16 > MCM Passive Filter
- 16 > Band Switch Filter (75Ω)



### RFHIC Green Mark

RFHIC warrants and truly realizes the RoHS regulations, and does not use hazardous substances such as lead, cadmium, mercury, hexavalent chromium, brominated flame retardants for all the RFHIC parts in this catalog.

# RF Hybrid Component

## » MMIC



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package
AP112	50 ~ 2200	17.6	3.4	19.8	35	5	100	SOT-89
		17.3	3.1	17.5	30	4.5	45	
AP201	50 ~ 1000	14	2.5	21	40	6	115	
AP205A	50 ~ 3500	14	2.3	22	43	5	115	
AP209	50 ~ 3500	13.5	2.5	24	43	9	120	
AP211	50 ~ 3000	13	2.5	24	42	5	240	SOIC-8
AP222	50 ~ 3000	13	2.8	26	43	9	240	
AP230	50 ~ 2000	17.4	3.3	21	38	5	220	
AP245	50 ~ 3000	27	2.5	21	42	5	240	
AP249	50 ~ 3500	28	2.5	24	43	9	240	
AP409	50 ~ 3500	15.5	5	18.8	33.5	5	70	SOT-89
		15.3	5.1	18	30	4.8	65	
		15.2	5.1	16.5	27	4.5	52	
AP410	50 ~ 3500	19.5	5.5	20	35	5	85	
		19	5.4	18.7	31.5	4.8	64	
		18.5	5.3	16.7	26.7	4.5	50	

◀ Test Condition : @ 900 MHz

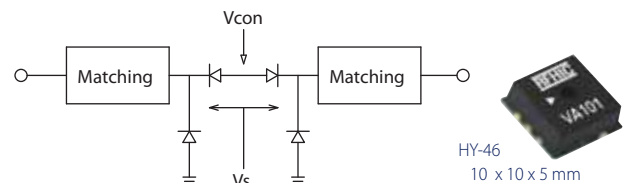
## » E-pHEMT



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (mA)	Package
AE308	50 ~ 1000	22@1000MHz	2	17	28	5	55	SOT-89
AE608	10 ~ 4000	19.5@50MHz	1	13	25	2.5	25	SOT-143
		13.5@2100MHz	0.7	14	32	3	45	
AE616	500 ~ 4000	20@900MHz	2.7	23	37	5	85	SOT-89
		14.5@2100MHz	1.7	24	39	5	85	
AE663	500 ~ 4000	19.5@900MHz	3	28	41	5	180	SOT-89
		12@2100MHz	2.5	28	42	5	180	

## » Variable Attenuator

- High Linearity
- Single Voltage with Low Cost



Part Number	Frequency (MHz)	Insertion Loss (dB)	Atten. Range (dB)	Return Loss (dB)	Flatness (dB)	Vdd (V)	Vctl (V)	Current (mA)
VA101	50 ~ 3000	3	30@1~2GHz	-15	±0.5	5	0 ~ 10	40 (max)
VA102	100 ~ 3000	2	27@1~2GHz	-15	±0.5	3	0 ~ 12	34 (max)
	100 ~ 3000	3	27@1~2GHz	-15	±0.5	3	0 ~ 4.5	10 (max)
VA103	3000 ~ 4000	2.2	17@3.5GHz	-16	±0.5	3	0 ~ 10	30 (max)

# Innovation is everything. Creative RF Leadership.

## > Power Transistor

- High Output Power
- High Efficiency
- High Power Gain
- High Linearity



Part Number	Frequency (MHz)	Gain (dB)	P <sub>3dB</sub> (dBm)	OIP3 (dBm)	Supply Voltage (V)	I <sub>dq</sub> (A)	Package
RT230PD	300 ~ 6000	15	33 (P <sub>1</sub> )	48	9, -1.2	0.5	SP-12
RT550PD	300 ~ 4000	12	39 (P <sub>1</sub> )	51	9 / -1.5	1.5	WP-22
RT232	50 ~ 6000	15	35	42	28 / -1.2	0.1	SP-12
RT233	50 ~ 6000	16	36	43	28 / -1	0.1	WP-22, WP-22EL
RT240J	50 ~ 6000	14	43	50	28 / -1.3	0.3	WP-22, WP-22EL
RT243	50 ~ 4000	12	45	52	28 / -1.3	0.6	WP-12
<b>Push Pull Type</b>							
RT433	50 ~ 6000	15.5	38	45	28 / -1.0	0.2	SP-12
RT440	50 ~ 6000	13.5	45	52	28 / -1.3	0.6	WP-14
RT443	50 ~ 4000	11.5	47	54	28 / -1.3	1.2	WP-14

★ Test Condition : @ 2GHz

## > Wideband Amplifier

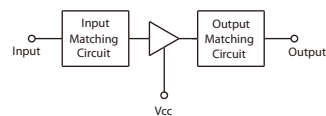
Part Number	Frequency (MHz)	Gain (dB)	N.F (Typ.)(dB)	P1dB (Typ.)(dBm)	OIP3 (Typ.)(dBm)	V <sub>d</sub> (V)	I <sub>d</sub> (Typ.)(mA)	Package
RFC041	400 ~ 800	19	7.5	30	47	12	550	DP-27
RFC042	400 ~ 800	23	4	30	50	24	400	
RFC091	800 ~ 1000	20	7	29	45	12	550	
RFC092	800 ~ 1000	23	5	30	50	24	400	
1F5500	5 ~ 500	19	6.5	31	49	12	500	
RFC1G19-12	5 ~ 1000	19	7	30	46	12	500	
RFC1G22-24	20 ~ 1000	22	3.5	30	50	24	400	
RFC1G30-24	20 ~ 1000	30	3.3	30	46	24	400	
RFC1G18H4-12	20 ~ 1000	19	3	33	43	12	700	
RFC1G18H4-24	20 ~ 1000	19	3	36	46	24	700	
RFC3020H4-12	100 ~ 300	20	4	35	46	12	700	

★ Test Condition : 800MHz, 20 dBm each tone : Under Development : GaN Power Transistor

## > Low Noise Amplifier

- High IP3, Small Size
- Single Supply Voltage (5V) with Ceramic Substrate
- Surface Mount Hybrid on Tape & Reel

No Additional Parts Needed  
 No Additional Matching Needed  
 No Additional Testing Needed  
 High Maximum Input Power  
 Custom Design Available



CP-16A  
10.2 x 10.2 x 4 mm

## > GaAs p-HEMT LNA

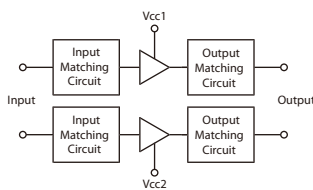
CL series : Low Noise Amplifier

Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Id (mA)	MAX Input Power (dBm)	Package
CL0901	800 ~ 894	19	0.5	14	27	65	25	CP-16A
	890 ~ 960	18	0.5	14	27	65	25	
CL0902	824 ~ 894	20.5	0.7	20	31	100	25	
	890 ~ 960	20	0.7	20	31	100	25	
CL1501	1400 ~ 1600	16	0.7	15	27	45	25	
CL1502	1400 ~ 1600	17	0.6	21	33	90	25	
CL1801	1700 ~ 2000	15.5	0.6	16	27	45	25	
CL1802	1700 ~ 2000	16	0.6	21	33	100	25	
CL2101	1850 ~ 2200	14	0.7	16	27	45	25	
CL2102	1850 ~ 2200	15	0.6	20	33	100	25	
CL2701	2300 ~ 2700	12	0.9	16	28	45	25	
CL2702	2300 ~ 2700	12.5	0.8	20	33	100	25	
CL3501	3400 ~ 3600	10	0.9	15	32	45	25	
CL3502	3300 ~ 3600	10.5	1	21	36	100	25	
CL1802D	1700 ~ 2200	15	0.7	20	33	100	30	
CL2102D	2200 ~ 2700	13	0.8	20	33	100	30	

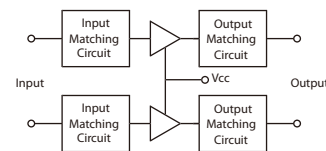
: Under Development

## BL Series

BL series : Balanced LNA



Dual-bias Type (CP-18)



Single-bias Type (CP-16C)

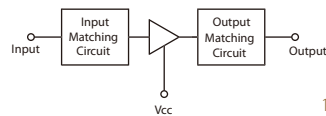


CP-16C  
10.2 x 10.2 x 4 mm

Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Id (mA)	MAX Input Power (dBm)	Package
BL0902D	700 ~ 1000	20	0.8	23	33	200	25	CP-18
BL0902S								CP-16C
BL1802D	1700 ~ 2200	16	0.7	24	35	200	25	CP-18
BL1802S								CP-16c

## > Gain Block Amplifier

GB series : Low Noise Gain Block

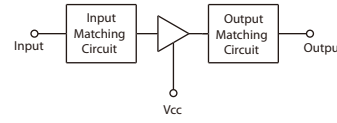


CP-16A  
10.2 x 10.2 x 4 mm

Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
GB0108	60 ~ 400	20	1.9	19	31	5	100	CP-16A
GB0115	60 ~ 400	20	1.9	21	34	5	160	
GB0408	400 ~ 800	18	1.4	19	32	5	100	
GB0415	400 ~ 800	18	1.3	21	34	5	160	
GB0908	824 ~ 960	18	1	20	32	5	90	
GB0915	824 ~ 960	18.5	1	20	35	5	160	
GB1808	1750 ~ 1870	14.5	1.1	20	33	5	90	
GB1815	1750 ~ 1870	15	1.2	21.5	36	5	160	
GB2108	1400 ~ 2000	15.5	1.2	20	33	5	90	
GB2115	1400 ~ 2000	16	1.3	21.5	36	5	160	

> **Wideband LNA**

WL series : Wideband Low Noise Amplifier



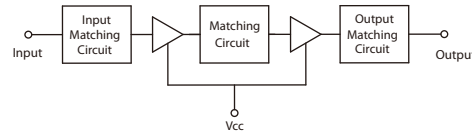
CP-16A  
10.2 x 10.2 x 4 mm



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Id (mA)	MAX Input Power (dBm)	Package
WL1008	50 ~ 1000	16	1.5	19	31	100	25	CP-16A
WL1015	50 ~ 1000	16	1.7	21	35	160	25	
WL2208	50 ~ 2200	15	1.5	20	31	100	25	
WL2215	50 ~ 2200	15	1.7	21	35	160	25	

> **MCM Linear LNA**

LCL series : Low Noise Amplifier with high OIP3



CP-16B  
10.2 x 10.2 x 4 mm



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Id (mA)	MAX Input Power (dBm)	Package
LCL0402	380 ~ 520	33.5	1.2	21	40	150 ~ 190	25	CP-16B
LCL0902	800 ~ 894	33.5	0.9	21	36	150 ~ 190	25	
	890 ~ 960	33	0.8	21	36	150 ~ 190	25	
LCL0912	800 ~ 894	35	0.8	21	42	180 ~ 240	20	
	890 ~ 960	34.5	0.7	21	42	180 ~ 240	20	
LCL1502	1300 ~ 1850	28	0.8	21	35	150 ~ 190	25	
LCL1503	1400 ~ 1600	32	0.9	16	30	90 ~ 120	25	
LCL1512	1400 ~ 1600	29	0.8	21	42	180 ~ 240	20	
LCL1802	1750 ~ 1870	27.5	0.9	21	35	150 ~ 190	25	
LCL1803	1750 ~ 1870	31.7	1	18	30	90 ~ 120	25	
LCL1812	1750 ~ 1870	28	0.8	21	42	180 ~ 240	20	
LCL1902	1920 ~ 1980	24.5	0.8	20	35	150 ~ 190	25	
LCL1903	1920 ~ 1980	30	0.9	18	29.5	90 ~ 120	25	
LCL1904	1700 ~ 1900	34	1	18	33	110 ~ 150	25	
	1900 ~ 2200	32	1	19	34	110 ~ 150	25	
LCL2102	2110 ~ 2170	24.5	0.9	20	35	150 ~ 190	25	
LCL2103A	2110 ~ 2170	29	1	18	29.5	90 ~ 120	25	
LCL2112	1920 ~ 2170	24.8	0.8	21	42	180 ~ 240	20	
LCL2302	2200 ~ 2400	21.5	0.9	20	35	150 ~ 190	25	
LCL2304	2200 ~ 2400	31	1.1	20	31	110 ~ 150	25	
LCL2312	2300 ~ 2400	22	1	20	41	180 ~ 240	20	
LCL2603	2500 ~ 2900	28.5 ~ 27	1.2 ~ 1.3	18	30	90 ~ 120	25	
LCL2702	2500 ~ 2700	20.5	1	20	34	150 ~ 190	25	
LCL2712	2300 ~ 2700	20.5	1	20	40	180 ~ 240	20	
LCL3212	2900 ~ 3400	20.5	1.1	21	42	180 ~ 240	20	
LCL3503	3400 ~ 3600	25	1.4 ~ 1.7	18	29	90 ~ 120	25	
LCL3504	3400 ~ 3600	25.7	1.6	19	34	110 ~ 150	25	
LCL3512	3400 ~ 3600	19	1.2	21	42	180 ~ 240	20	
LCL3712	3600 ~ 3800	18.5	1.3	21	42	180 ~ 240	20	



## » Drive Amplifier

- High IP3, Small Size
- Single Supply Voltage (5V) with Ceramic Substrate
- Surface Mount Hybrid on Tape & Reel

No Additional Parts Needed  
 No Additional Matching Needed  
 No Additional Testing Needed  
 Custom Design Available

CP-16A  
 10.2 x 10.2 x 4 mm



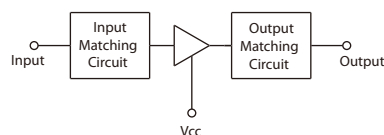
## > E-pHEMT

Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
<b>NEW</b> CE2027	1920 ~ 2170	13	3	28.5	42	5	270	CP-16A
<b>NEW</b> CE2029	1920 ~ 2170	12.5	3	29	45	5	400	
<b>NEW</b> CE2527	2300 ~ 2700	11.5	3	29	41.5	5	270	
<b>NEW</b> CE2529	2300 ~ 2700	11	3	30	45	5	400	

**NEW** : NEW Product

## > Linear Amplifier

LM series : High OIP3, High P1dB



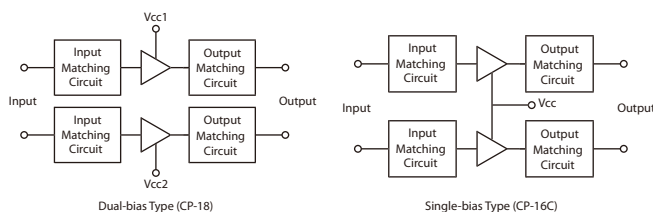
CP-16A  
 10.2 x 10.2 x 4 mm



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
LM0105	50 ~ 200	12	5	21.6	40	5	140	CP-16A
LM0409	400 ~ 500	14	2.5	23	43	9	120	
LM0905	800 ~ 1000	14	2.1	22	43	5	140	
LM0909	800 ~ 1000	14	2.6	24	43	9	140	
LM1009	800 ~ 1500	13	2.6	24	43	9	140	
LM1905	1700 ~ 2000	11	2.9	22	43	5	140	
LM1909	1710 ~ 1990	12.5	2.8	24	43	9	140	
LM2105	1900 ~ 2200	10.4	2.8	22	42	5	140	
LM2109	1910 ~ 2110	12	2.8	24	43	9	140	
LM2305	2200 ~ 2500	9.7	2.8	22	43	5	140	
LM2309	2200 ~ 2500	12	2.9	22.5	41	9	130	
LM2505	2500 ~ 2700	10	2.7	22	41	5	140	
LM2509	2500 ~ 2700	9	2.8	24	40	9	140	

## BLM Series

BLM series : Balanced Drive Amplifier



CP-16C  
 10.2 x 10.2 x 4 mm

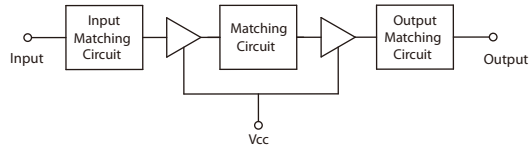


Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
<b>UD</b> BLM0905D	800 ~ 1000	14	3	25	45	5	280	CP-18
<b>UD</b> BLM0905S								CP-16C
<b>UD</b> BLM1909D	1700 ~ 2200	12.5	3.5	27	45	9	280	CP-18
<b>UD</b> BLM1909S								CP-16C

**UD** : Under Development

**> MCM Linear Amplifier**

GLM series : High Gain, High OIP3



Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
GLM0921	824 ~ 960	30	6	21	40	5	220	CP-16B
GLM1521	1429 ~ 1501	27	6	21	40	5	220	
GLM1821	1750 ~ 1870	25	6	21	40	5	220	
GLM2121	1920 ~ 2170	25	6	21	38	5	220	
GLM2123	1800 ~ 2200	26.5	5.9	22	42	5	200	
GLM2521	2100 ~ 3100	22	6	21	39	5	220	
GLM2523	2400 ~ 2600	25.5	6	22	40	5	200	
GLM2723	2500 ~ 2700	24	5.6	22	40	5	200	
GLM3623	3200 ~ 3800	21	5.7	22	40	5	200	

**2LM Series**

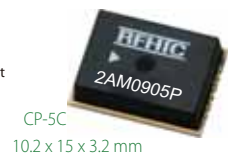
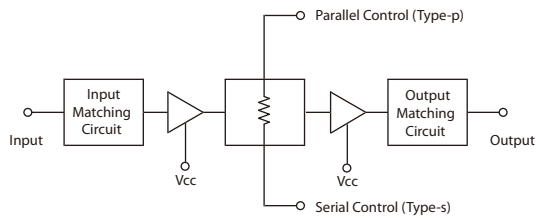
2LM series : High OIP3, High P1 dB

Part Number	Frequency (MHz)	Gain (dB)	N.F (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
2LM0905	800 ~ 1000	28	2.4	21.5	41	5	240	CP-16B
2LM0909	800 ~ 1000	27	2.9	23	40	9	220	
2LM2105	1700 ~ 2200	20	2.4	22	40	5	220	
2LM2109	1800 ~ 2200	21	2.9	23	40	9	220	

◀ Custom Design Available

**2AM Series**

2AM series : Variable Gain Amplifier



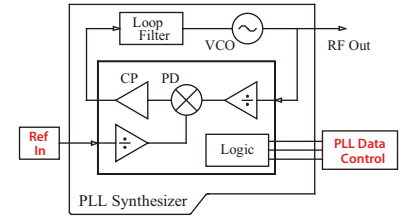
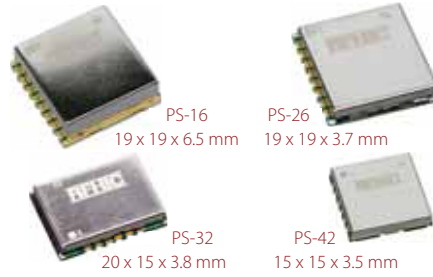
Part Number	Frequency (MHz)	Gain (dB)	Attenuation Range (dB)	P1dB (dBm)	OIP3 (dBm)	Vd (V)	Id (mA)	Package
2AM0905P	800 ~ 1000	28	31.5@0.5dB steps	21.5	41	5	240	CP-5CP
2AM0905S								CP-5CS
2AM2109P	1800 ~ 2200	21	31.5@0.5dB steps	23	40	9	220	CP-5CP
2AM2109S								CP-5CS

◀ Attenuator Insertion : 6 bit. Flexible parallel and serial programming interfaces. : Under Development

# RF Hybrid Component

## > PLL Synthesizer

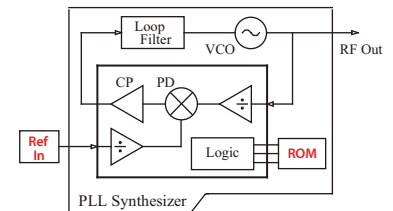
- Excellent Phase Noise
- Low Spurious
- 3~5V DC Voltage Supply
- 4 Different Types of Package Available
- Fractional-N & Integer-N PLL IC
- Custom Design Available



## > Variable Type

Part Number	Frequency (MHz)	Step Size (KHz)	Output Power (dBm)	Spurious (MAX)(dBc)	Voltage / Current (5V / (mA))	Phase Noise(C/N) Offset @ 10KHz [dBc/Hz]	Package
PLV 63	63±2.5	10	10.5	-70	22	-112	PS-16 PS-26 PS-32 PS-42 & (PLS Series 9.8 x 8 x 2 9.8 x 9.3 x 2)
PLV160	160±5	1000	2	-70	22	-111	
PLV 395	395±10	25	7.5	-70	23	-107	
PLV 746	746±10	10	8.5	-70	23	-107	
PLV 762.5	762.5±13	200	9	-70	23	-106	
PLV 805	805±10	10	3	-70	23	-106	
PLV 832.5	832.5±13	100	7.5	-70	23	-106	
PLV 948	948±15	200	10	-70	23	-106	
PLV 1017.5	1017.5±15	200	3	-70	24	-107	
PLV 1100	1100±30	10	5	-70	24	-105	
PLV 1300	1300±20	200	7	-70	24	-105	
PLV 1580	1580±45	200	9	-70	24	-103	
PLV 1610	1610±40	100	5	-70	24	-103	
PLV 1670	1670±20	50	6	-70	24	-104	
PLV 1770	1770±30	200	5	-70	24	-104	
PLV 1811	1811±40	500	5	-70	24	-100	
PLV 1987	1987±35	500	5	-70	25	-100	
PLV 2010	2010±40	200	2	-70	25	-101	
PLV 2120	2120±30	100	3.5	-70	25	-102	
PLV 2205	2205±40	250	3	-70	25	-103	
PLV 2220	2220±30	250	5	-70	25	-103	
PLV 2340	2340±40	500	2	-70	26	-100	
PLV 2440	2440±40	500	0	-70	26	-100	
PLV 2680	2680±10	20	3.5	-70	26	-99	
PLV 3700	3700±30	250	1	-70	26	-101	
PLV 5640	5640±50	500	1	-70	26	-95	
PLV2640F	2640±40	250	3	-70	30	-105	
PLV3600F	3600±15	250	3	-70	30	-104	
PLV5750F	5750±20	500	0	-70	30	-98	

## > Fixed Type (ROM Included)

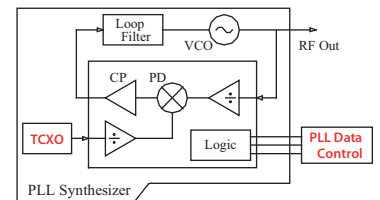


Part Number	Frequency (MHz)	Step Size (KHz)	Output Power (dBm)	Spurious (MAX)(dBc)	Voltage / Current (5V / (mA))	Phase Noise(C/N) Offset @ 10KHz [dBc/Hz]	Package
PLF 10	10	-	9	-70	23	-145	PS-16 PS-26 PS-42
PLF 40	40	-	8	-70	23	-140	
PLF 70	70	-	7	-70	23	-110	
PLF 115	115	-	7.5	-70	23	-109	
PLF 160	160	-	5	-70	23	-110	

## &gt; Fixed Type (ROM Included)

Part Number	Frequency (MHz)	Step Size (KHz)	Output Power (dBm)	Spurious (MAX)(dBc)	Voltage / Current 5V / (mA)	Phase Noise(C/N) Offset @ 10KHz [dBc/Hz]	Package
PLF 401	401	-	4	-70	23	-110	PS-16 PS-26 PS-42
PLF 677	677	-	5	-70	24	-108	
PLF 766	766	-	8	-70	24	-106	
PLF 832.5	832.5	-	7	-70	24	-106	
PLF 972.5	972.5	-	7	-70	24	-106	
PLF 1017.5	1017.5	-	6	-70	24	-105	
PLF 1450	1450	-	3	-70	25	-105	
PLF 1550	1550	-	5	-70	25	-105	
PLF 1685	1685	-	4	-70	25	-105	
PLF 1695	1695	-	4	-70	25	-105	
PLF 1697.5	1697.5	-	4	-70	25	-104	
PLF 1770	1770	-	0	-70	25	-104	
PLF 1830	1830	-	4	-70	25	-104	
PLF 1880	1880	-	0	-70	25	-104	
PLF 1907.4	1907.4	-	4	-70	25	-103	
PLF 1912.5	1912.5	-	4	-70	25	-103	
PLF 2020	2020	-	0	-70	26	-103	
PLF 2097.4	2097.4	-	5	-70	26	-103	
PLF 2270F	2270	-	2	-70	26	-106	
PLF 2345	2345	-	3	-70	26	-103	
PLF 2420F	2420	-	2	-70	26	-106	
PLF 2470F	2470	-	2	-70	26	-106	
PLF 2620	2620	-	3	-70	26	-100	
PLF 2642.5	2642.5	-	3	-70	26	-99	
PLF 3600	3600	-	2	-70	30	-101	

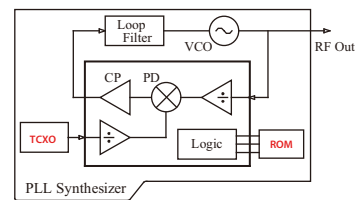
## &gt; Variable Type (TCXO Included)



Part Number	Frequency (MHz)	Step Size (KHz)	Output Power (dBm)	Spurious (MAX)(dBc)	Voltage / Current 5V / (mA)	Phase Noise(C/N) Offset @ 10KHz [dBc/Hz]	Package
PLT 760	760±15	50	5	-70	23	-107	PS-16 PS-26 PS-42
PLT 836	836±15	15	7	-70	23	-107	
PLT 866	866±7	100	8	-70	23	-107	
PLT 945	945±15	10	7	-70	23	-106	
PLT 1000	1000±10	200	8	-70	24	-105	
PLT 1600	1600±30	10	5	-70	24	-104	
PLT 1690	1690±20	200	5	-70	24	-104	
PLT 1705	1705±25	200	7	-70	24	-104	
PLT 1770	1770±40	200	6	-70	24	-103	
PLT 1810	1810±30	10	5	-70	24	-102	
PLT 1920	1920±20	100	3	-70	25	-102	
PLT 2040	2040±20	100	3	-70	25	-102	
PLT 2100	2100±20	10	0	-70	25	-101	
PLT 2210	2210±20	200	3	-70	25	-102	
PLT 2300	2300±20	200	0	-70	26	-101	
PLT 2460	2460±10	50	0	-70	26	-100	

## > PLL Synthesizer

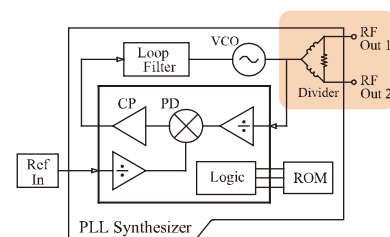
### > Fixed Type (ROM & TCXO Included)



Part Number	Frequency (MHz)	Step Size (KHz)	Output Power (dBm)	Spurious (MAX)(dBc)	Voltage / Current 5V / (mA)	Phase Noise(C/N) Offset @ 10KHz [dBc/Hz]	Package
PLA50	50	-	5	-70	24	-112	PS-16 PS-26 PS-42
PLA 89.9	89.9	-	1	-70	24	-110	
PLA 150	150	-	5	-70	24	-111	
PLA 315	315	-	5	-70	24	-109	
PLA 401.5	401.5	-	7	-70	24	-109	
PLA 433	433	-	5	-70	24	-108	
PLA 693	693	-	8	-70	25	-108	
PLA 766.5	766.5	-	7	-70	25	-107	
PLA 823.64	823.64	-	0	-70	25	-107	
PLA 915	915	-	7	-70	25	-107	
PLA 1000	1000	-	5	-70	26	-106	
PLA 1690	1690	-	6	-70	26	-106	
PLA 1780	1780	-	3	-70	26	-106	
PLA 1895	1895	-	5	-70	26	-104	
PLA 1935	1935	-	5	-70	26	-104	
PLA 2000	2000	-	0	-70	27	-104	
PLA 2040	2040	-	3	-70	27	-103	
PLA 2085	2085	-	5	-70	27	-103	
PLA 2150	2150	-	2	-70	27	-103	
PLA 2250	2250	-	3	-70	27	-102	
PLA 2410	2410	-	0	-70	27	-101	
PLA 2550	2550	-	0	-70	27	-101	
PLA 2650	2650	-	0	-70	27	-100	

### > Fixed Type (ROM & Divider Included)

Package Type : PS-16, PS-26

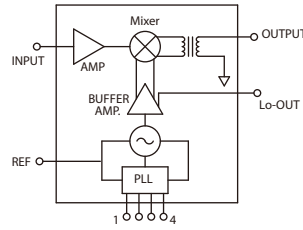


Part Number	Frequency (MHz)	Step Size (KHz)	Output Level 1 (dBm)	Output Level 2 (MAX)(dBc)	Spurious (dBc)	Voltage / Current 5V / (mA)	Phase Noise(C/N) @ 10KHz [dBc/Hz]
PLV 1920D	1920±20	100	4	4	-70	24	-102
PLV 2090D	2090±20	100	3	3	-70	25	-101
PLT 1945D	1945±40	10	1	1	-70	24	-100
PLT 2000D	2000±25	200	3	3	-70	25	-100
PLF 960D	960	-	6	6	-70	25	-105
PLF 2040D	2040	-	5	5	-70	25	-102
PLA 1945.3D	1945.3	-	4	4	-70	26	-103
PLA 2150D	2150	-	2	2	-70	26	-101



### » Hybrid Up-Down Converter with PLL

- No Additional Parts
- No Additional Matching
- No Additional Testing
- **Custom Design Available** (Frequency)



HY-5A 29.6 x 19.3 x 6.6 mm

### > Frequency Up Converter

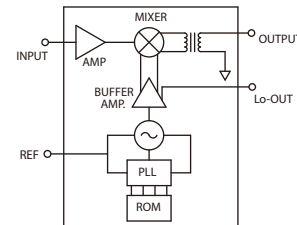
Part Number	Input Freq. (MHz)	Output Freq. (MHz)	LO Freq. (MHz)	Conv.Gain (dB)	N.F (dB)	OIP3 (dBm)	Phase Noise @ 10KHz (dBc)	Voltage / Current (V) / (mA)
RFUR08-50	70	824 ~ 849	754 ~ 779	8	6	26	-95	5 / 170
RFUR08-56	70	869 ~ 894	939 ~ 964	8	10	26	-95	5 / 170
RFUR09-50	70	890 ~ 915	820 ~ 845	8	8	24	-95	5 / 170
RFUR09-56	70	935 ~ 960	1005 ~ 1030	9	6.5	26	-95	5 / 170
RFUR14-59	70	1480 ~ 1520	1410 ~ 1450	6	10	24	-95	5 / 170
RFUR16-52	70	1550 ~ 1600	1480 ~ 1530	6.5	7	24	-95	5 / 170
RFUR19-50	70	1750 ~ 1770	1680 ~ 1700	5.5	8	26	-95	5 / 170
RFUR19-56	70	1840 ~ 1860	1770 ~ 1790	6.5	7	26	-95	5 / 170
RFUR20-50A	70	1920 ~ 1960	1850 ~ 1890	6.5	7.5	25	-95	5 / 170
RFUR20-50B	160	1960 ~ 1980	1800 ~ 1820	6.5	6	23	-95	5 / 170
RFUR20-56A	70	2110 ~ 2150	2040 ~ 2080	6.5	6	23	-95	5 / 170
RFUR39-50	360	921 ~ 960	561 ~ 600	6.5	6	23	-95	5 / 170
RFUR89-60	824 ~ 849	1750 ~ 1780	926 ~ 931	6	7	25	-95	5 / 170
RFUR20-56B	160	2150 ~ 2170	1990 ~ 2010	6	7	24	-95	5 / 170

### > Frequency Down Converter

Part Number	Input Freq. (MHz)	Output Freq. (MHz)	LO Freq. (MHz)	Conv.Gain (dB)	N.F (dB)	OIP3 (dBm)	Phase Noise @ 10KHz (dBc)	Voltage / Current (V) / (mA)
RFDR08-51	824 ~ 849	70	754 ~ 779	9	10	28	-95	5 / 170
RFDR08-55	869 ~ 894	70	939 ~ 964	9	10	28	-95	5 / 170
RFDR09-51	890 ~ 915	70	820 ~ 845	9	6.5	28	-95	5 / 170
RFDR09-55	935 ~ 960	70	1005 ~ 1030	9	6.5	28	-95	5 / 170
RFDR14-58	1480 ~ 1520	70	1410 ~ 1450	7	10	24	-95	5 / 170
RFDR16-53	1550 ~ 1600	70	1480 ~ 1530	5.5	8	24	-95	5 / 170
RFDR19-51	1750 ~ 1770	70	1680 ~ 1700	5.5	6.5	26	-95	5 / 170
RFDR19-55	1840 ~ 1860	70	1770 ~ 1790	6	6.5	26	-95	5 / 170
RFDR20-51A	1920 ~ 1960	70	1850 ~ 1890	4.5	11	25	-95	5 / 170
RFDR20-51B	1960 ~ 1980	160	1800 ~ 1820	4.5	11	25	-95	5 / 170
RFDR20-55A	2110 ~ 2150	70	2040 ~ 2080	0	12	19	-95	5 / 170
RFDR20-55B	2150 ~ 2170	160	1990 ~ 2010	0	12	19	-95	5 / 170
RFDR93-51	920 ~ 960	360	561 ~ 600	6	7	25	-95	5 / 170
RFDR98-61	1750 ~ 1780	824 ~ 849	926 ~ 931	6	10	24	-95	5 / 170

### » Hybrid Up-Down Converter with PLL & ROM

- No Additional Parts
- No Additional Matching
- No Additional Testing
- No Additional ROM
- **Custom Design Available** (Frequency)



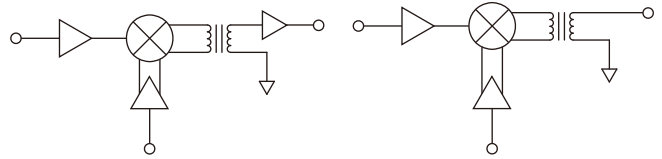
HY-5A 29.6 x 19.3 x 6.6 mm

Part Number	Input Freq. (MHz)	Output Freq. (MHz)	LO Freq. (MHz)	Conv.Gain (dB)	N.F (dB)	OIP3 (dBm)	Phase Noise @ 10KHz (dBc)	Voltage / Current (V) / (mA)
URF696	185	881	696	5.5	9.5	24	-95	5 / 170
URF726	110	836	726	5.5	9.5	24	-95	5 / 170
URF1890	250	2140	1890	6	9.5	23	-95	5 / 170
URF2010	60	1950	2010	5.5	9.5	21	-95	5 / 170
DRF726	836	110	726	9	9.5	30	-95	5 / 170
DRF2010	1950	60	2010	2	9.5	22	-95	5 / 170

# RF Hybrid Component

## > Mixer

- Integrated Monolithic GaAs MESFET Active Mixer Packages Module
- Very Low Noise Figure & Low Distortion
- External Matchings are required to MO4Q and MO9Q
- **Custom Design Available** (Frequency)
- No Additional Matching for other models (except QFN3 pkg)



## > Active Up Mixer

Part Number	IF Freq. (MHz)	RF Freq. (MHz)	Conv. Gain (dB)	OIP3 (dBm)	N.F (dB)	Vd / Id (V) / (mA)	Package
MO4Q	30 ~ 200	150 ~ 3800	6@2100MHz	24@2100MHz	8.5	5 / 130	QFN3
MU0941	50 ~ 200	700 ~ 900	10	26	8.5	5 / 130	HY-1
MU1541	50 ~ 200	1400 ~ 1600	4	23	8.5	5 / 125	
MU1841	50 ~ 200	1700 ~ 1900	6	22	8.5	5 / 125	
MU2141	50 ~ 200	1900 ~ 2200	5	25	8.5	5 / 125	
MU2341	50 ~ 200	2200 ~ 2500	5	24	8.5	5 / 125	
MU2741	50 ~ 200	2500 ~ 2700	2	22	9	5 / 125	
MU3541	50 ~ 200	3400 ~ 3600	3	20	9.5	5 / 125	

◀ Test Condition : @ IF 70MHz

## > Active Down Mixer

Part Number	RF Freq. (MHz)	IF Freq. (MHz)	Conv. Gain (dB)	IIP3 (dBm)	N.F (dB)	Vd / Id (V) / (mA)	Package
MO9Q	150 ~ 3800	30 ~ 200	9@2100MHz	17@2100MHz	8.5	5 / 145	QFN3
MD0993	700 ~ 900	50 ~ 200	12	16	8.5	5 / 145	HY-3
MD1893	1700 ~ 1900	50 ~ 200	10	16	8.5	5 / 145	HY-3
MD2193	1900 ~ 2200	50 ~ 200	10	17	8.5	5 / 145	HY-3
MD2393	2200 ~ 2500	50 ~ 200	9	17	8.5	5 / 145	HY-3
MD2793	2500 ~ 2700	50 ~ 200	2	20	9	5 / 145	HY-3
MD3593	3400 ~ 3600	50 ~ 200	0	20	9.5	5 / 135	HY-3
MDH2191	2100 ~ 2200	70	25	13	9.5	5 / 245	HY2-1

◀ Test Condition : @ IF 70MHz

## > Passive Mixer (Preliminary)

- The MP Series is high linearity Quad MOSFET Mixer.

Part Number	RF Freq. (MHz)	IF Freq. (MHz)	Conv. Loss (dB)	IIP3 (dBm)	Input 1dB (dBm)	LO INPUT Power (dBm)	Package
MP091	820 ~ 920	70 (Typ.)	7	32	21	17	HY-3
MP201	1800 ~ 2000	260 (Typ.)	7	30	22	17	HY-3

## Power Amplifier

- Fully matched, Flange Type, Drop-in Amplifier
- Isolator included in selected models
- GaAs or GaN device based
- 100% Tested      • Reliability proven



DP-36  
29 x 31 x 10 mm

### Power Amplifier (M series)

Part Number	Frequency (MHz)	Gain (dB)	P1dB (dBm)	CDMA (dBm)	OIP3 (dBm)	Vd (V)	Id (A)	Package
RFM0424-10	380 ~ 450	16	38	-	49	9	1.2	DP-36
RFM0836-10	824 ~ 849	16	38	32	50	9	1.2	
RFM0882-10	869 ~ 894	16	38	32	50	9	1.2	
RFM0902-10	890 ~ 915	16	38	32	50	9	1.2	
RFM0947-10	935 ~ 960	16	38	32	50	9	1.2	
RFM1747-10	1710 ~ 1785	13	38	32	50	9	1.2	
RFM1765-10	1750 ~ 1780	13	38	32	50	9	1.2	
RFM1842-10	1805 ~ 1880	12.5	38	32	50	9	1.2	
RFM1855-10	1840 ~ 1870	12.5	38	32	50	9	1.2	
RFM1880-10	1850 ~ 1910	12.5	38	32	50	9	1.2	
RFM1950-10	1920 ~ 1980	12	38	29	50	9	1.2	
RFM2140-10	2100 ~ 2170	11.5	38	28	50	9	1.2	
RFM2324-09	2300 ~ 2400	10	37	-	50	9	1.2	
RFM2424-09	2400 ~ 2500	10	37	-	50	9	1.2	
RFM2624-09	2500 ~ 2600	9	37	-	50	9	1.2	
RFM2724-08	2600 ~ 2700	9	37	-	50	9	1.2	

◀ Operating BW : 30 ~ 100MHz

◀ Test Condition : 27 dBm / tone , CDMA 1FA

◀ Shut down function provided

### Power Amplifier (A series)

Part Number	Frequency (MHz)	Gain (dB)	P1dB (dBm)	CDMA (dBm)	OIP3 (dBm)	Vd (V)	Id (A)	Package
RFA0836-04	824 ~ 894	29	35	29	48	9	1	DP-36
RFA0882-04	824 ~ 894	29	35	29	48	9	1	
RFA0902-04	890 ~ 960	29	35	29	48	9	1	
RFA0947-04	890 ~ 960	29	35	29	48	9	1	
RFA1747-03	1710 ~ 1785	26	34	29	48	9	1	
RFA1765-03	1750 ~ 1780	26	34	29	48	9	1	
RFA1842-03	1805 ~ 1880	26	34	29	48	9	1	
RFA1855-03	1840 ~ 1870	26	34	29	48	9	1	
RFA1930-03	1920 ~ 1980	25	34	27	48	9	1	
RFA1950-03	1920 ~ 1980	25	34	27	48	9	1	
RFA1970-03	1920 ~ 1980	25	34	27	48	9	1	
RFA2120-03	2110 ~ 2170	24	34	27	48	9	1	
RFA2140-03	2110 ~ 2170	24	34	27	48	9	1	
RFA2160-03	2110 ~ 2170	24	34	27	48	9	1	

◀ Operating BW : 30 ~ 100MHz

◀ Test Condition : 23 dBm / tone , CDMA 1FA

◀ Shut down function provided

### Power Amplifier (T series)

DP-56  
45 x 32 x 10 mm



Part Number	Frequency (MHz)	Gain (dB)	P1dB (dBm)	CDMA (dBm)	OIP3 (dBm)	Vd (V)	Id (A)	Package
RFT1950-08	1920 ~ 1980	27	38	30	51	9	1.6	DP-56
RFT2140-08	2110 ~ 2170	26	38	30	51	9	1.6	
RFT2350-08	2300 ~ 2400	25	37	-	51	9	1.6	
RFT2550-07	2500 ~ 2600	24	37	-	51	9	1.6	
RFT2650-07	2600 ~ 2700	23	37	-	51	9	1.6	
RFT3500-07	3500	18	36	-	50	9	1.6	

◀ Operating BW : 30 ~ 100MHz

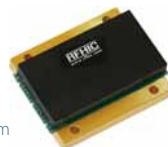
◀ Test Condition : 27 dBm / tone , CDMA 1FA

◀ Shut down function provided

## » Power Amplifier

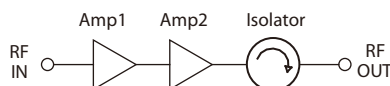
### > Power Amplifier (N series)

DP-66  
50 x 27 x 12 mm



Part Number	Frequency (MHz)	Gain (dB)	P1dB (dBm)	WCDMA OFDM (dBm)	OIP3 (dBm)	Voltage (V)	Current (A)	Package
RFN2140-08	2100 ~ 2200	27	39	29	49	27	0.6	DP-66
RFN2350-08	2300 ~ 2400	26	39	29	49	27	0.6	
RFN2550-08	2500 ~ 2600	24	39	29	49	27	0.6	
RFN3500-08	3400 ~ 3500	19	38	29	49	27	0.6	

### > Power Amplifier (W series)



DP-56  
45 x 32 x 10 mm



Part Number	Frequency (MHz)	Gain (dB)	P1dB (dBm)	WCDMA / CDMA (dBm)	OIP3 (dBm)	Voltage (V)	Current (A)	Package
RFW0836-10	824 ~ 849	30	38	32	51	10	1.5	DP-56
RFW0882-10	869 ~ 894	30	38	32	51	10	1.5	
RFW0902-10	890 ~ 915	30	38	32	51	10	1.5	
RFW0947-10	935 ~ 960	30	38	32	51	10	1.5	
RFW1747-10	1710 ~ 1785	26	37	31	51	10	1.5	
RFW1842-10	1805 ~ 1880	25.5	37	31	51	10	1.5	
RFW1880-10	1850 ~ 1910	25	37	31	51	10	1.5	
RFW1960-10	1930 ~ 1990	25	37	31	51	10	1.5	
RFW1950-10	1920 ~ 1980	25	37	29	51	10	1.5	
RFW2140-10	2110 ~ 2170	24.5	36	29	51	10	1.5	

◀ Test Condition : 27 dBm / tone , CDMA 1FA

◀ Shut down function provided

## » GaN Pallet High Power Amplifier

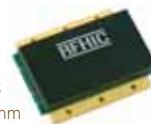


Part Number	Frequency (MHz)	Gain (dB)	P3dB (dBm)	Pout (dBm)	Vd / Ids (V) / (A)	Mode (Type)	Size (mm)
RGP0936-120	800 ~ 1000	16	50	46	28 / 5.5	CDMA 7FA	100x70x19
RGP2036-120	1800 ~ 2000	14.5	50	46	28 / 5.5	WCDMA 2FA	
RGP2536-110	2300 ~ 2700	13	50	40	28 / 3	OFDM 1FA	
RGP3536-90	3400 ~ 3700	10	50	39	28 / 3	OFDM 1FA	

: Under Development

## » GaN Pallet Wideband Amplifier

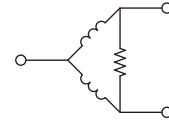
DP-75  
70 x 51 x 16 mm



Part Number	Frequency (MHz)	Gain (dB)	Return Loss (dB)	P3dB (dBm)	OIP3 (dBm)	Voltage (V)	Current (A)	Package
RFW7735H20-28	450 ~ 770	33	-15 / -15	43	48	28	1.9	DP-75
RFW1G35H20-28	20 ~ 1000	33	-10 / -5	41	47	28	1.8	
RFW5035H40-28	20 ~ 500	35	-8 / -2	45	51	28	3.1	
RFW8835H40-28	450 ~ 880	33	-13 / -8	45	51	28	3.1	
RFW1G33H40-28	20 ~ 1000	32	-6 / -2	44	48	28	3.1	
RFW2500H10-28	20 ~ 2500	13	-	36	41	28	0.9	

» **2 Way Power Divider**

• The 2 way power divider has low loss, high isolation and good matching

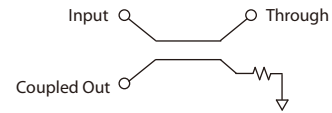


SOIC-8

SOT23-6L

Part Number	Frequency (MHz)	Insertion Loss (dB)	Input Return Loss (dB)	Output Return Loss (dB)	Isolation (Deg.)	Handling Power (W)	Package (Ω)
PD09C2	720 ~ 960	0.3	35	35	27	2	SOIC-8
PD18C2	1700 ~ 1900	0.3	25	25	25	2	
PD20C2	1900 ~ 2200	0.3	35	27	27	2	
PD23C2	2200 ~ 2400	0.3	22	27	27	2	
PD26C2	2500 ~ 2700	0.3	25	22	35	2	
PD36C2	3400 ~ 3700	0.3	27	32	32	2	
PD09T2	720 ~ 960	0.3	22	23	35	1	SOT23-6L
PD18T2	1700 ~ 1900	0.3	17	19	28	1	
PD20T2	1900 ~ 2200	0.3	19	23	31	1	
PD23T2	2200 ~ 2400	0.3	13	18	19	1	
PD26T2	2500 ~ 2700	0.4	16	16	19	1	
PD36T2	3400 ~ 3700	0.4	20	23	17	1	

» **Directional Coupler**

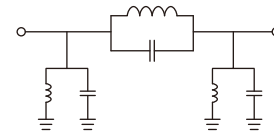


SOIC-8

Part Number	Frequency (MHz)	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Coupling (dB)	Package
CP090	720 ~ 960	0.3	20	35	14	SOIC-8
CP180	1700 ~ 1900	0.3	20	23	14	
CP210	1900 ~ 2200	0.3	21	21	14	
CP230	2400 ~ 2500	0.3	24	18	14	
CP260	2500 ~ 2700	0.3	25	17	15	
CP360	3400 ~ 3700	0.3	21	15	15	

» **MCM Passive Filter**

• The MCM filter has good return loss and suitable for high power applications



SOT-89

Part Number	Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Handling Power (W)	2f0 Rejection (dB)	Impedance (Ω)	Package
LPF509	960	0.5	30	3	-30	50	SOT-89
LPF518	1800	0.5	30	3	-40	50	
LPF524	2400	0.5	25	3	-40	50	
BWF870	270 ~ 470	0.9	13	2	-35	75	BGA Type
	470	1.9	12	2	-20	75	
	470	1	10	2	-20	75	
LPF708	870	0.5	11	5	-40	75	SOT-89
LPF722	2200	0.5	12	5	-25	75	SOT-89

» **Band Switch Filter (75Ω)**

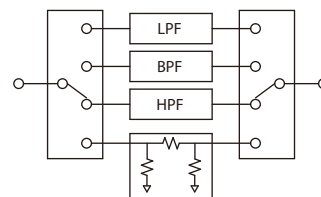
**Product Features**

- MCM Sub-Module
- High Dynamic Range
- Digital Control
- Low Insertion Loss
- Low Current
- Chip On Board
- Low Cost

**Applications**

- Tuner
- Digital TV
- DVD
- Trunk Amp.
- Camcorder
- Broadband System Set Top Box

**Functional Diagram**



CL-38  
14 x 11 x 3 mm

Part Number	Frequency (MHz)	Output Freq. (MHz)	Insertion Loss (dB)	OIP3 (dBm)	RF Input Power (W)	Digital On/Off (V)	Current (mA)	Package
SF8700	45~870	45~270	-1.0 ~ -30	65	10	3~5 / 0	0	CL-38