

E-pHEMT

AE616

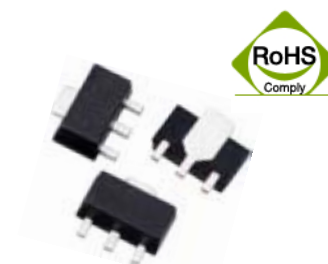
RFHIC

Product Features

- 500 ~ 4000MHz
- GaAs E-pHEMT
- 37dBm Output IP3
- 20dB Gain at 900MHz
- 24dBm P1 dB
- Single +5V Supply
- Pb Free / RoHS Standard

Application

- Cellular, PCS, W-CDMA Systems
- High Linearity Drive Amplifier



Package Type: SOT-89

Description

AE616 is a drive or pre-drive amplifier designed with GaAs E-pHEMT in a low cost SOT-89 package.

This E-pHEMT amplifier is designed as driver devices for infrastructure equipment in the 500~4000MHz Wireless technologies such as cellular, GSM, PCS, CDMA, W-CDMA, Wibro, Wimax.

Specifications

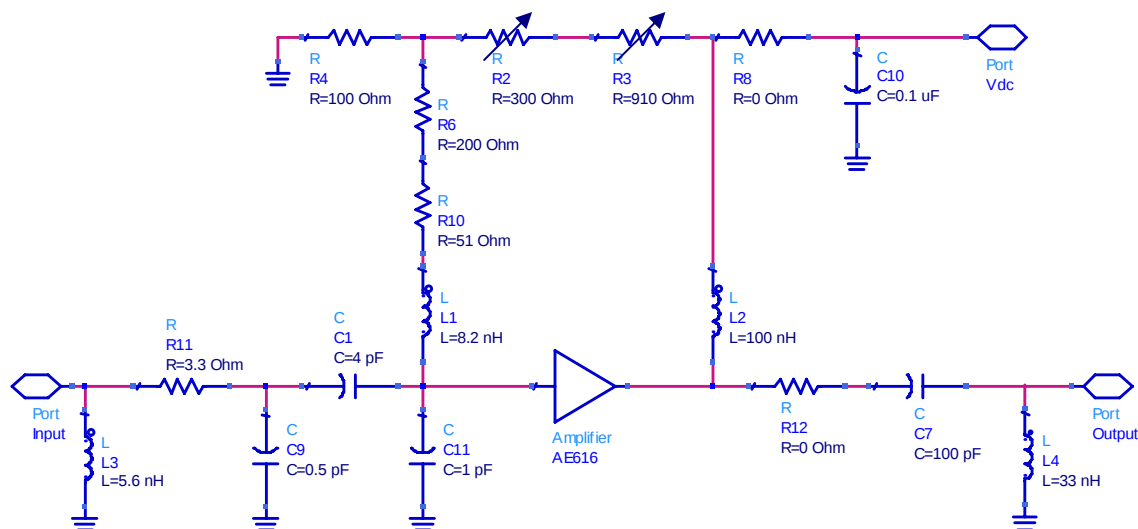
PARAMETER	Units	Min	Typ	Max
Frequency Range	MHz		500-4000	
Gain (S_{21})	dB		20	
Input Return Loss (S_{11})	dB	10	12	
Output Return Loss (S_{22})	dB	10	12	
Output 3 rd Order Intercept Point (OIP3)	dBm	35	37	
Output 1dB compression Point (P_{1dB})	dBm	22	24	
Noise Figure	dB		2.7	3.4
DC Operating Current	mA	70	85	100
Operating Gate Voltage($V_{ds}=5V, I_{ds}=85mA$)	V		0.4	
Threshold voltage	V	0.1	0.25	0.4

Test Condition

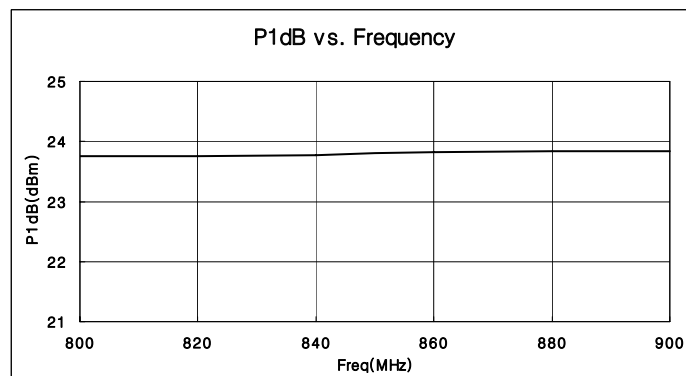
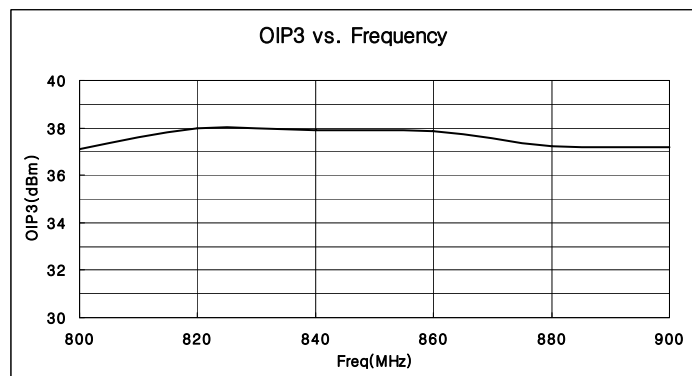
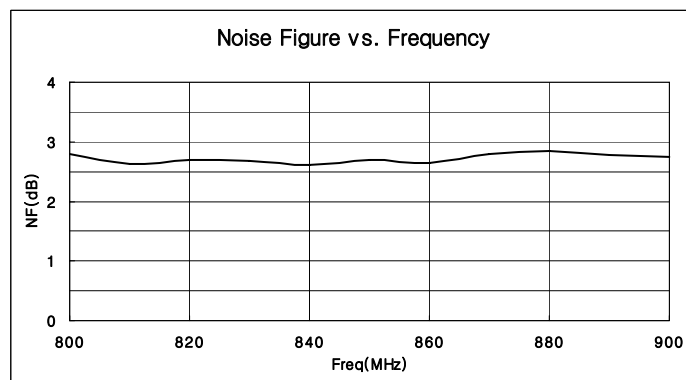
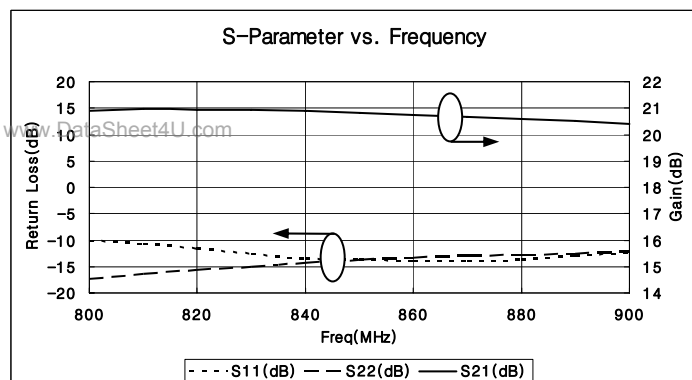
- ① 880MHz, $V_{ds}=5V$, $I_{ds}=85mA$ at 25 °C
- ② OIP3 is measured with two tones, at an output power of +10dBm/tone separated by 1MHz..

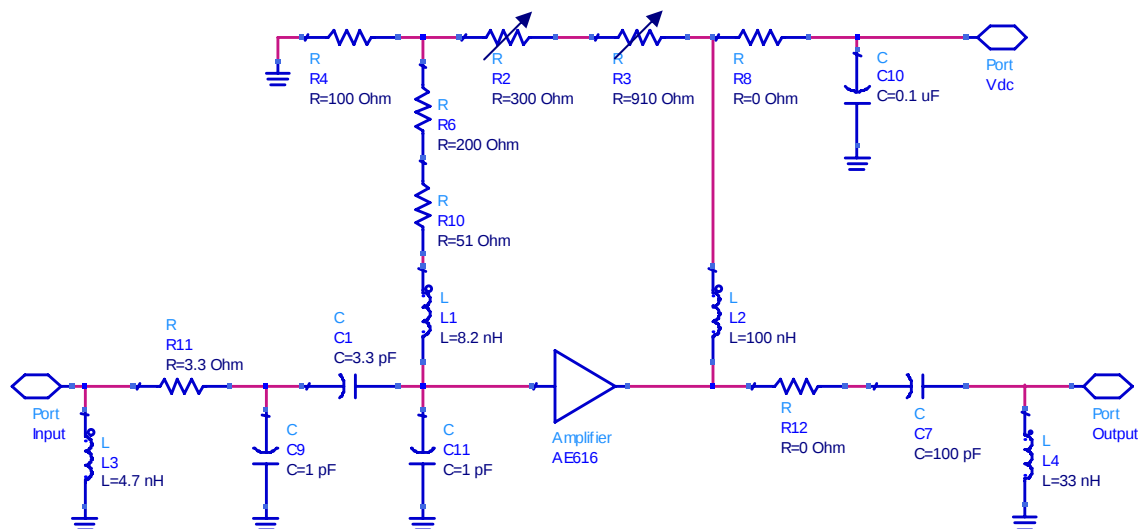
Absolute Maximum Ratings

PARAMETER	Rating	Remark
Operating Case Temperature (°C)	-40 ~ 85	
Storage Temperature (°C)	-50 ~ 125	
Drain-Source Voltage	+7V	
Drain Current	250mA	
Gate-Source Voltage	-5V ~ 1V	
Channel Temperature	150°C	
RF Input Power	25dBm	

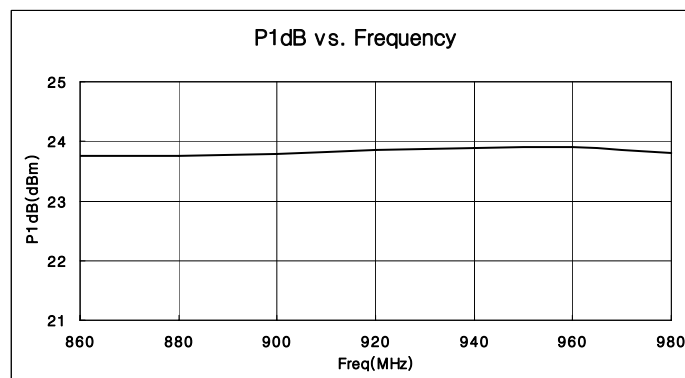
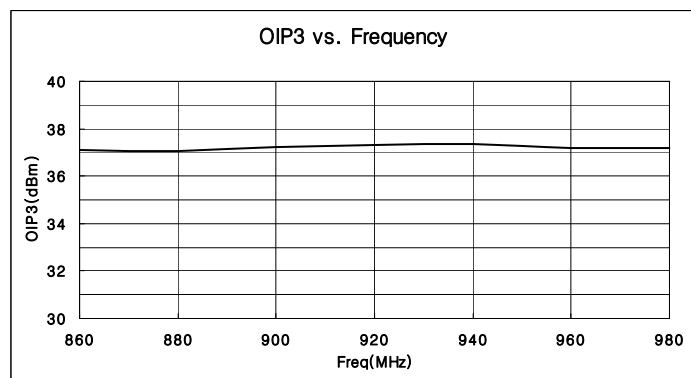
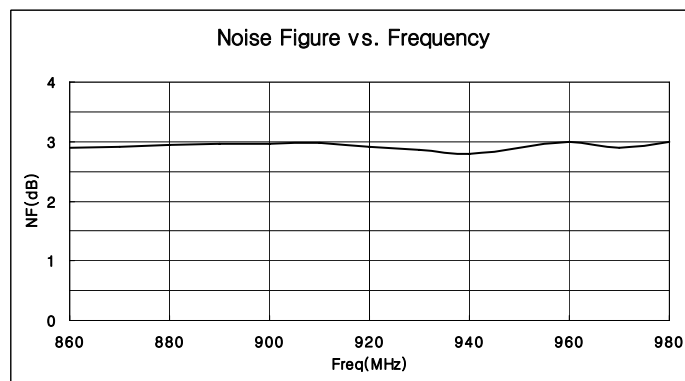
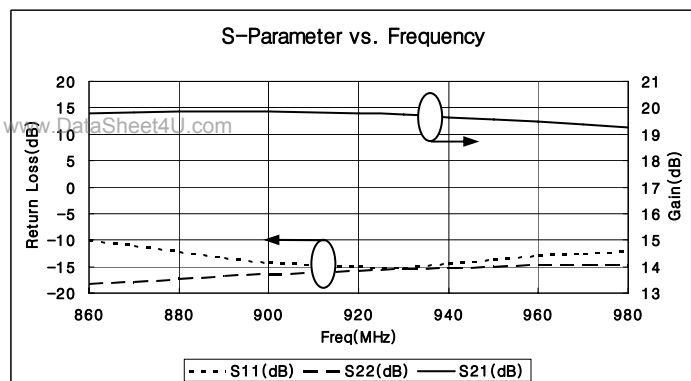
E-pHEMT**AE616****RFHIC****Application Circuit : 824~896MHz****Cellular, CDMA (824~896MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)**

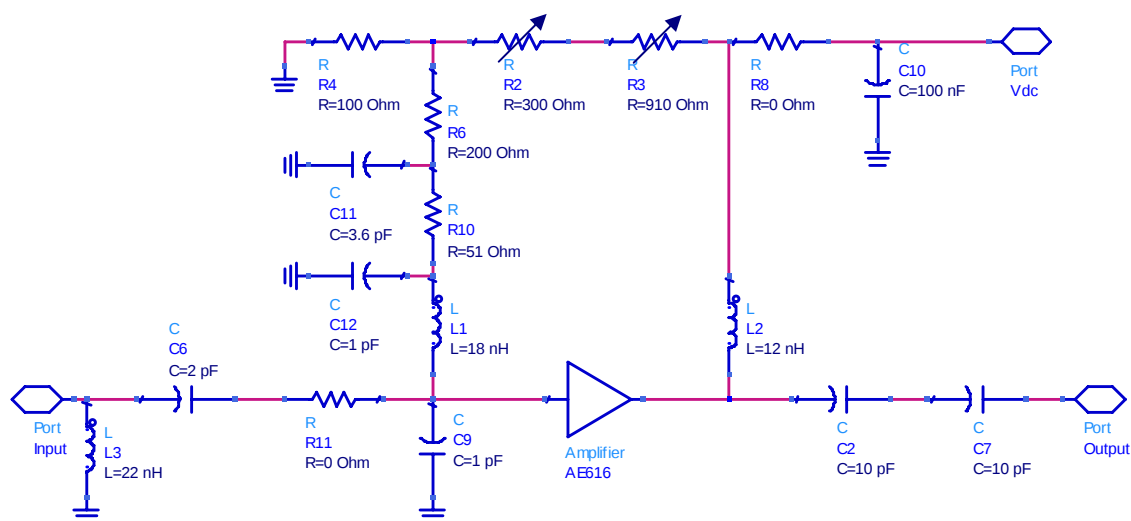
Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		20dB		824~896	NF		2.7dB	3.1dB	824~896
OIP3	35dBm	37dBm		824~896	P1dB	22dBm	24dBm		824~896
CDMA 1FA		18dBm		880					



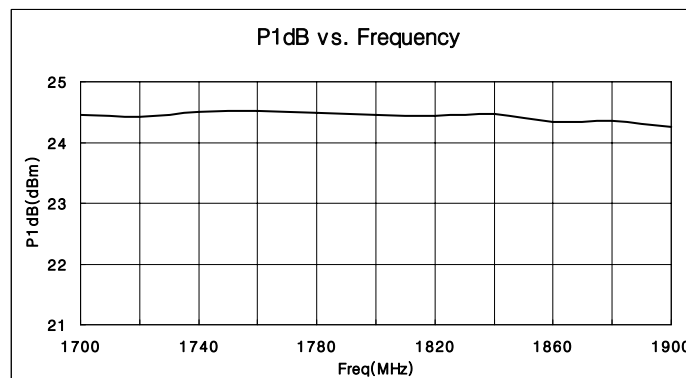
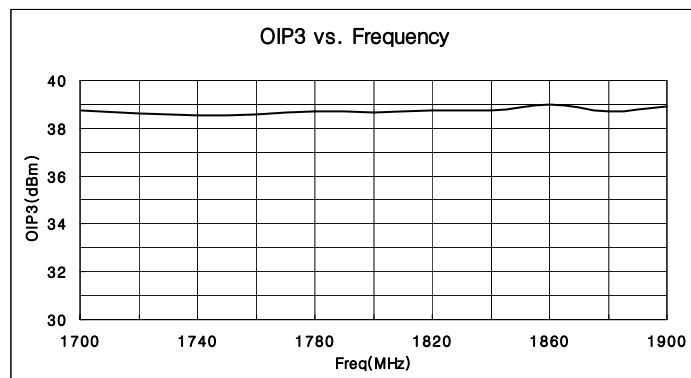
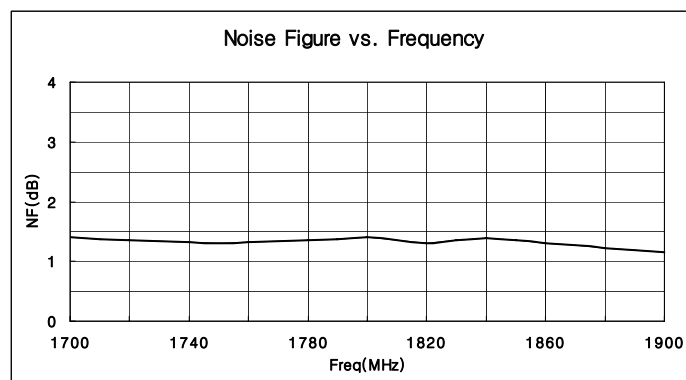
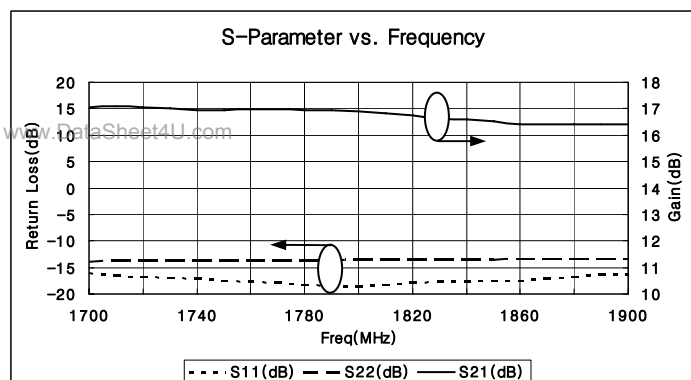
E-pHEMT**AE616****RFHIC****Application Circuit : 880~960MHz****GSM, TDMA (880~960MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)**

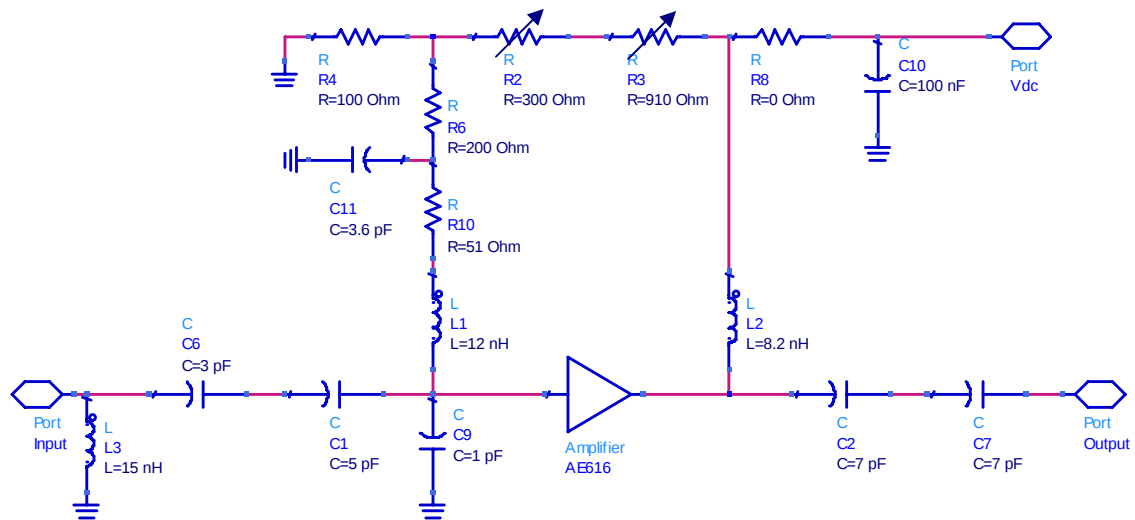
Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		19dB		880~960	NF		2.9dB	3.4dB	880~960
OIP3	35dBm	37dBm		880~960	P1dB	22dBm	24dBm		880~960



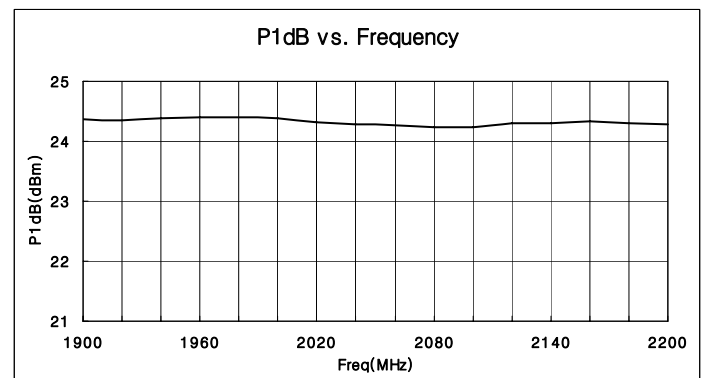
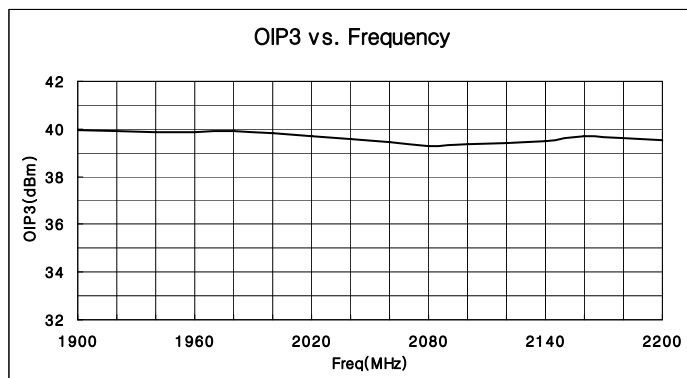
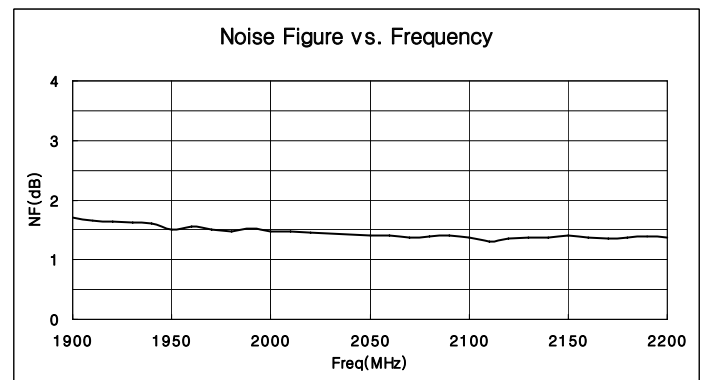
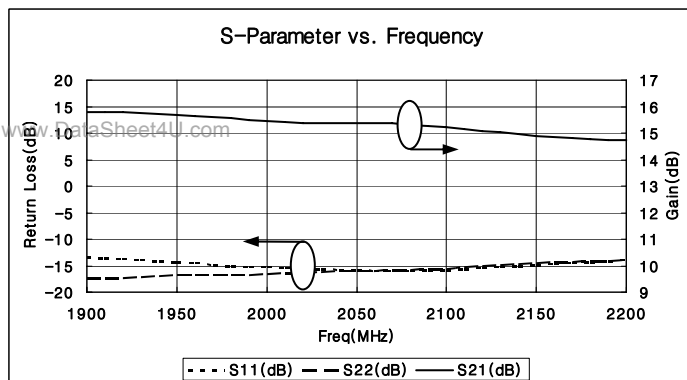
Application Circuit : 1700~1900MHz**PCS, DCS, CDMA (1700~1900MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)**

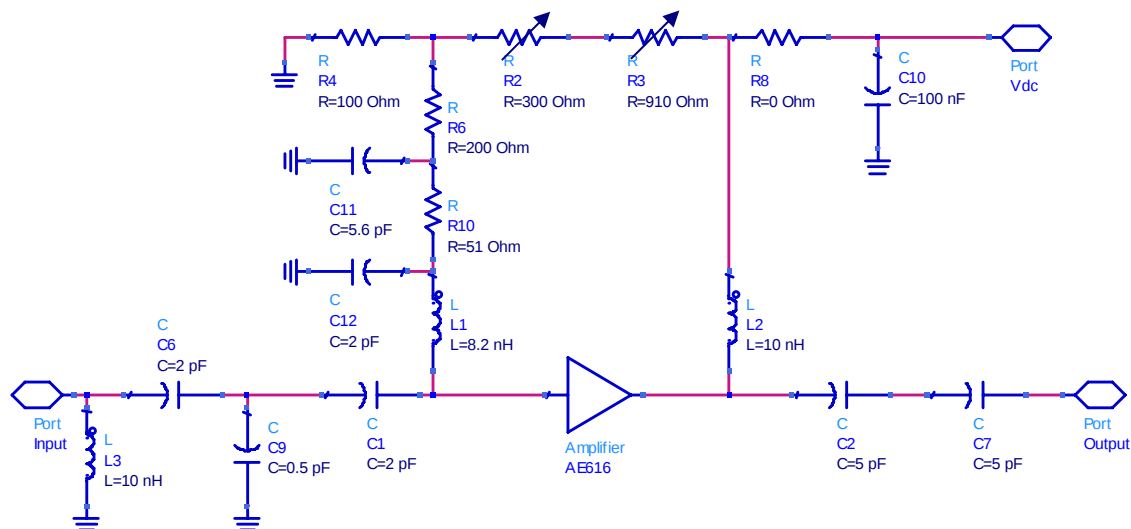
Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		16dB		1700~1900	NF		1.3dB	2dB	1700~1900
OIP3	36dBm	38dBm		1700~1900	P1dB	22dBm	24dBm		1700~1900
CDMA 1FA		20dBm		1850					



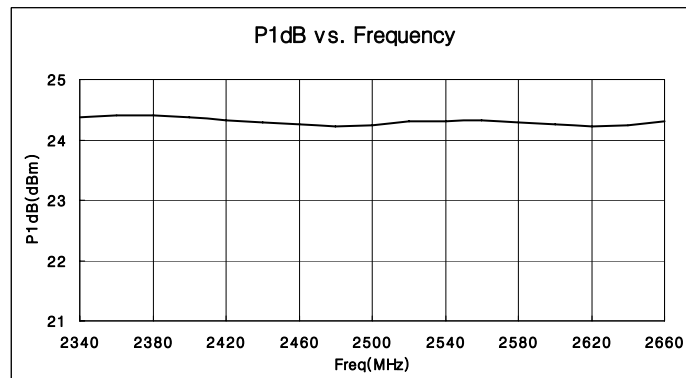
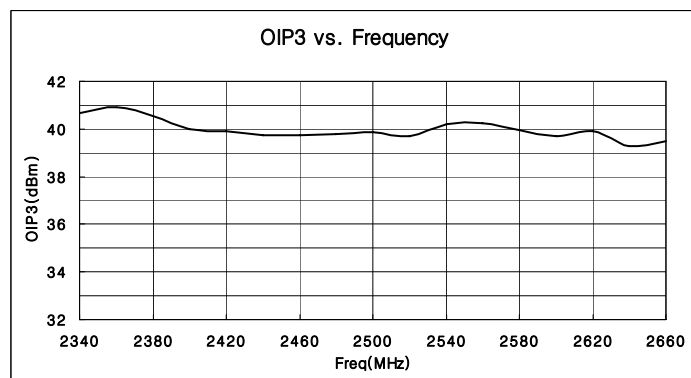
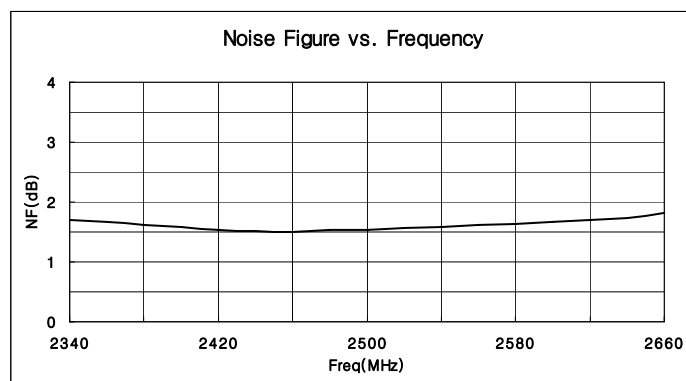
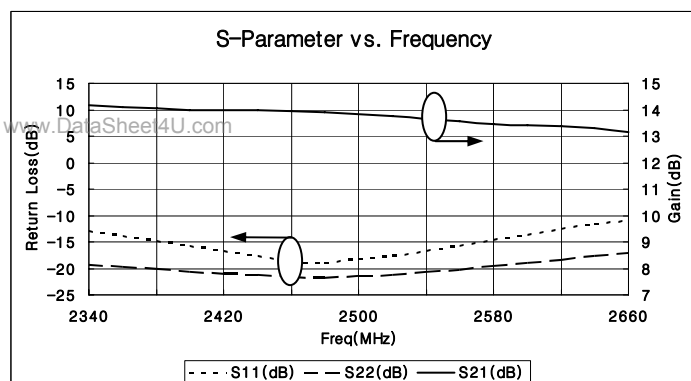
Application Circuit : 1900~2200MHz**IMT, UMTS, WCDMA (1900~2200MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)**

Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		14.5dB		1900~2200	NF		1.5dB	2dB	1900~2200
OIP3	37dBm	39dBm		1900~2200	P1dB	22dBm	24dBm		1900~2200
WCDMA 4FA		13dBm		2140					

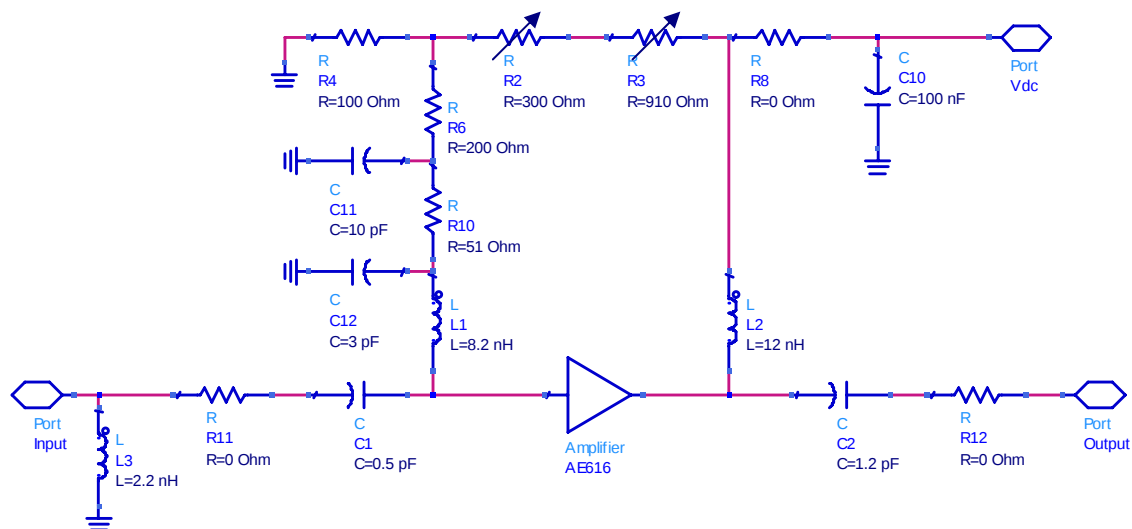


Application Circuit : 2350~2650MHz**Wibro, OFDM (2350~2650MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)**

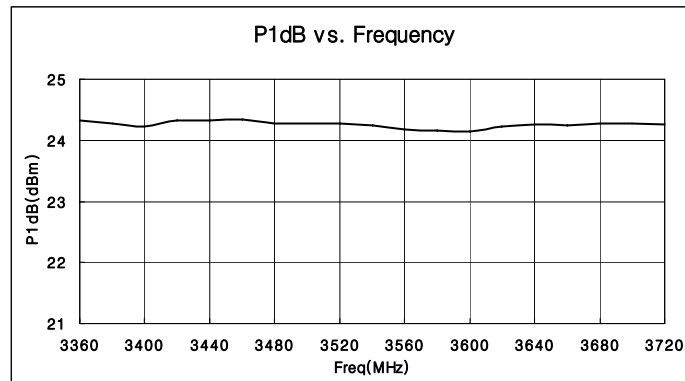
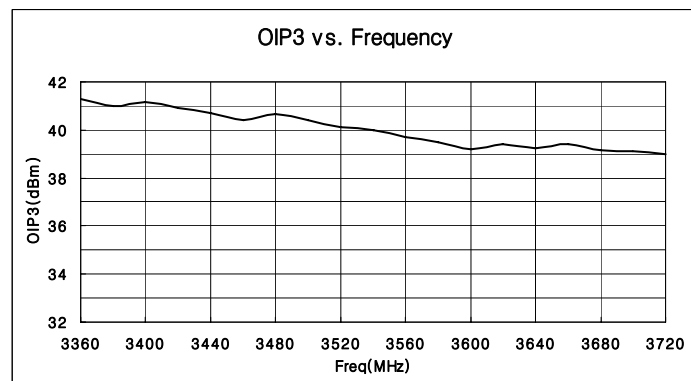
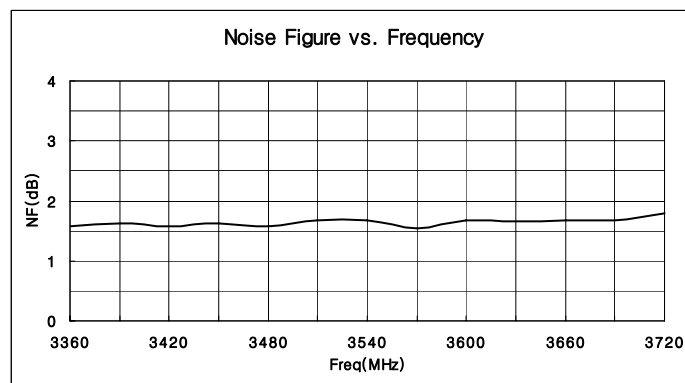
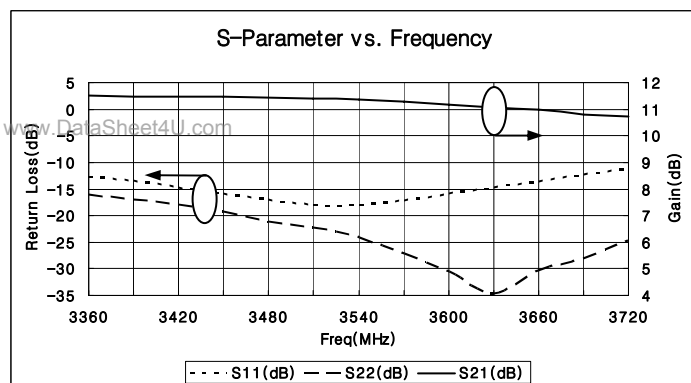
Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		13dB		2350~2650	NF		1.6dB	2dB	2350~2650
OIP3	37dBm	39dBm		2350~2650	P1dB	22dBm	24dBm		2350~2650

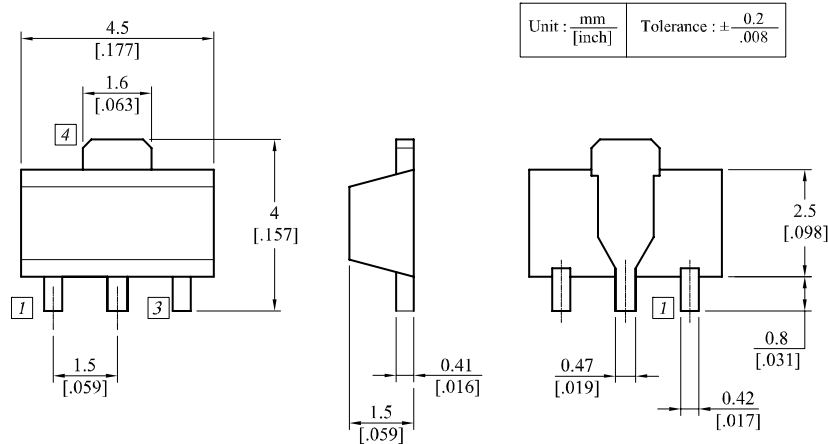
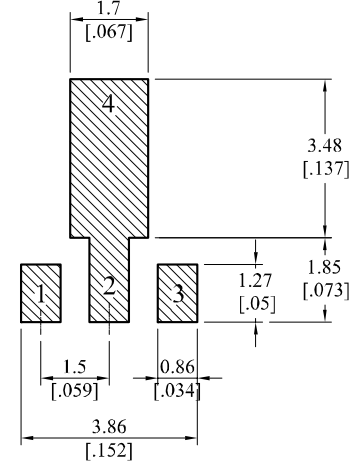


Application Circuit : 3400~3600MHz

Wimax (3400~3600MHz) Performance Data ($V_d=5V$, $T_c=25^\circ C$)

Items	Data			Remarks MHz	Items	Data			Remarks MHz
	Min	Typ	Max			Min	Typ	Max	
Gain		11dB		3400~3600	NF		1.7dB	2dB	3400~3600
OIP3	38dBm	40dBm		3400~3600	P1dB	22dBm	24dBm		3400~3600

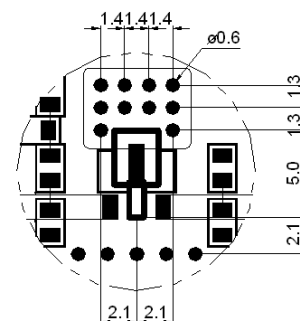
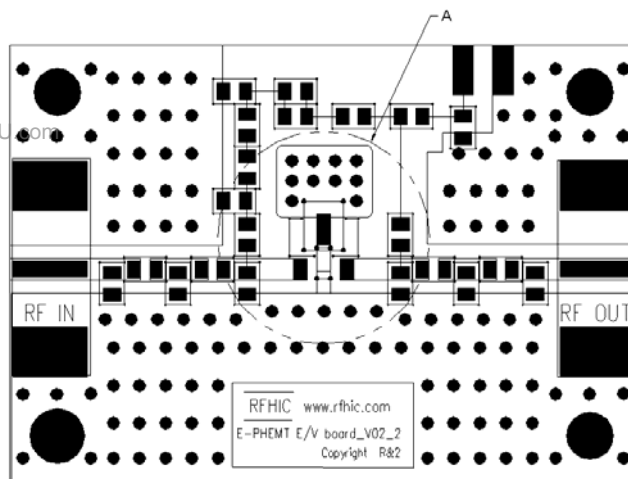


E-pHEMT**AE616****RFHIC****Package Dimensions (Type: SOT-89)****Recommended Pattern**

Pin No	Function
1	Input, Vg
2	Ground
3	Output, Vd
4	Ground

! ESD sensitive

Observe precautions for handling, testing and packaging.

PCB Evaluation Board Layout Pattern*DETAIL A*PCB material (FR4), PCB thickness (0.8t), Via hole ($\phi 0.6$)

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