E-pHEMT MMIC

AE618 (Preliminary)

RFHIC

Product Features

- Small size
- Higher Gain
- Higher linearity
- SOIC-8 SMD Type package
- Higher productivity
- Lower manufacturing cost
- -73dBc CSO 79 Channels @ +39dBmV/ch
- -68dBc CTB 79 Channels @ +39dBmV/ch
- -64dBc XMD 79 Channels @ +39dBmV/ch
- Low Noise Figure

Application

- Low Noise Amplifier for CATV, Satellite
- Cable Modem
- FTTH (G-PON, GE-PON)
- Optical node

Package : SOIC-8

Description

AE618 is designed as low cost drive amplifiers 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. 50 ohm data is in a separate spec sheet.

Specifications

PARAMETER		UNIT	MIN	TYP	MAX	Condition
Frequency		MHz	50 ~ 1000			
Gain		dB	19	20.8		
Input Return Loss		dB		-11		
Output Return Loss		dB		-11		
Output IP3		dBm	38	41		At 500MHz/10dBm 2tone
1dB Compression Point		dBm	28	30.8		At 500MHz
Noise Figure		dB		2.1	3.5	
CSO	30 ~ 870MHz	dBc		-73	-68	79 channel, +39dBmV/ch
CTB		dBc		-68	-63	79 channel, +39dBmV/ch
XMOD		dBc		-64	-59	79 channel, +39dBmV/ch
DC Current		mA		470		Vdd = 8.0V

NOTE
1. Test conditions unless otherwise noted. Test Freq = 500MHz, T=25℃, Vdd=8V, 75Ω system
2. OIP3 measured with 2 tones at an output power of +10dBm/tone separated by 1MHz, Test Freq = 500MHz

Absolute Minimum and Maximum Ratings

PARAMETER	UNIT	MIN	TYP	MAX
Device Voltage	VDC		+8	+9
Operating Temperature	℃	-40		+85
Storage Temperature	℃	-40		+150

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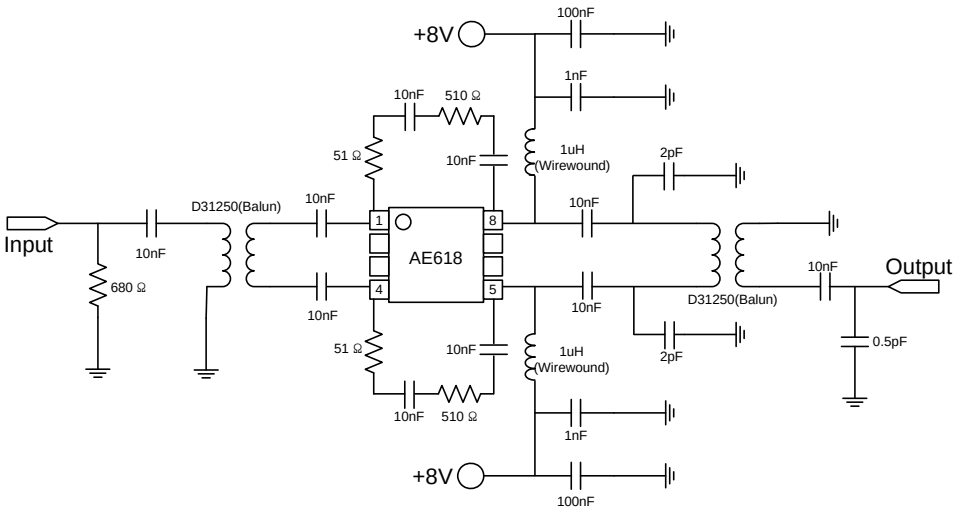
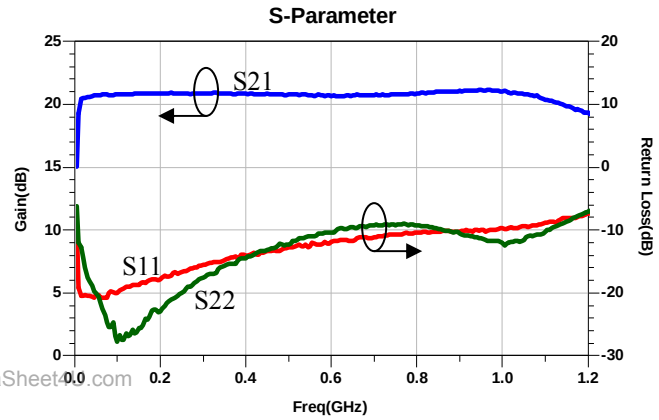
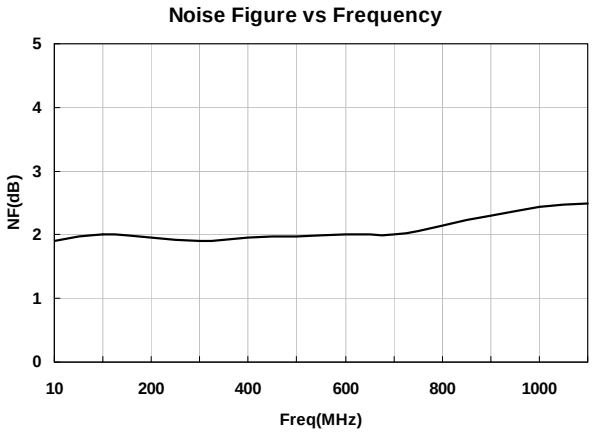
◎ Application Circuit: 50MHz ~ 1000MHz, 75ohm System



◎ Typical RF Performance: VDD=8V, IDS=470mA, T=25℃, 75ohm System

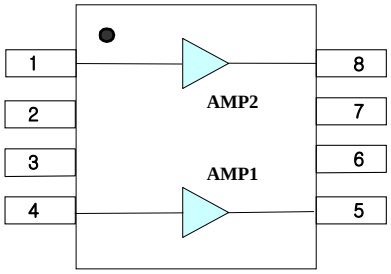




◎ Multi-Tone Test 79CH_FLAT@Output Power +39dBmV/Ch

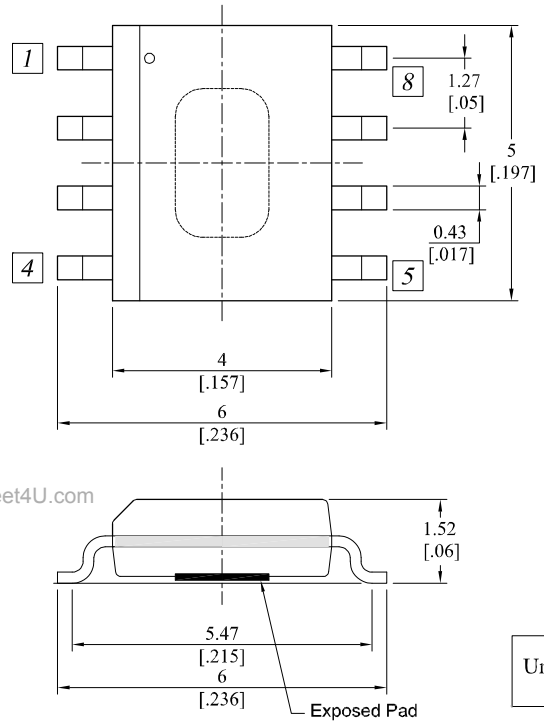
Level: +39dBmV	Tilt: 79CH									
FRQ	XMD(NCTA)	CTB_RAW	CTB_COR	N-FLR	CSU_RAW	CSU_COR	CSU_FRQ	CSL_RAW	CSL_COR	CSL_FRQ
55.25	65.6	69.6	69.8	84.8	83.8	88.1	56	75.6	76.1	54
211.25	66.1	70.6	70.8	85.4	82.3	85.3	212.5	82.5	85.6	209.99
331.25	65.9	68.9	69	84	78.8	80.4	332.49	82.6	87	329.99
445.25	64.9	69.2	69.4	85.2	77.4	78.3	446.49	82.9	87.3	444.49
547.25	64.5	69.9	70.1	82.6	73.4	73.9	548.49	80.6	84.9	546.49
Min	64.5	68.9	69	82.6	73.4	73.9	56	75.6	76.1	54
Max	66.1	70.6	70.8	85.4	83.8	88.1	548.49	82.9	87.3	546.49

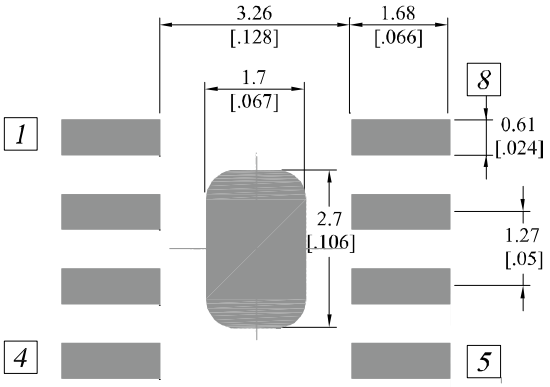
Pin Description



PIN No	Description
1	RF IN(2)
5	RF OUT(1)
4	RF IN(1)
8	RF OUT(2)
2, 3, 6, 7	N.C
Exposed slug	GND

Package Dimensions (Type: SOIC-8)





Unit : mm [inch]	Tolerance : ±0.2 .008