

## Product Features

- 50 ~ 3500MHz
- GaAs E-pHEMT MMIC
- 2W Medium Amplifier
- Higher linearity
- Low Noise Figure
- High Max input power
- SOIC-8 SMD Type package
- Higher productivity
- Lower manufacturing cost
- Pb Free / RoHS Standard

## Applications

- Cellular, GSM
- PCS, DCS, W-CDMA
- Wibro, WiMax, WiFi
- Tetra, CATV, Satellite system
- RFID, Femtocell
- Multi-metering



Package Type : SOIC-8

## Description

AE379 is a drive or pre-drive amplifier designed in a low cost SOIC-8 package.

This MMIC is based on Gallium Arsenide Enhancement Mode pHEMT which shows low current and high IP3.

It is designed as driver devices for infrastructure equipment in the 50~3500MHz Wireless technologies such as Cellular, GSM, PCS, W-CDMA, Wibro, WiMax System.

The data in this spec sheet is valid only for 50ohm application.

## Electrical Specifications

PARAMETER	UNIT	Test Frequency	REMARK
		1920 ~ 1980MHz	
Small Signal Gain	dB	11.5	-
Input Return Loss	dB	-13	-
Output Return Loss	dB	-16	-
Output IP3*	dBm	45	-
1dB Compression Point	dBm	33	-
Noise Figure	dB	2.3	-
WCDMA**	dBm	23	@-50dBc ACLR
Efficiency	%	60	@ P1dB
Supply Voltage/DC Current	V/mA	5/390	-

### Note

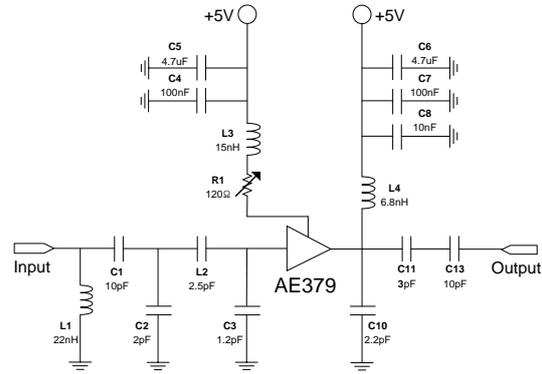
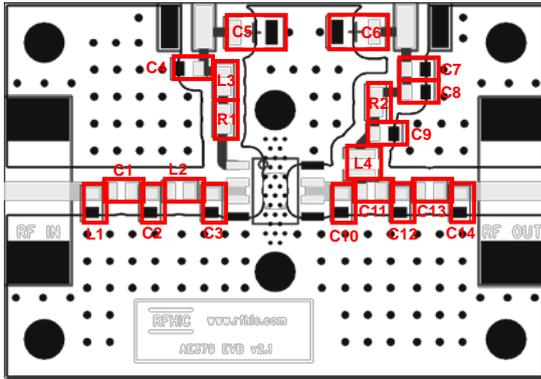
1. OIP3 measured with 2 tones at an output power of +15dBm/tone separated by 1MHz

2. WCDMA 3G 1FA Test Model1 64DPCH, PAR = 10dB@0.01%

## Absolute Maximum Ratings

PARAMETER	UNIT	MIN	TYP	MAX	REMARK
Device Voltage	V	-	5	7	-
Operating Case Temperature	°C	-40	-	85	-
Storage Temperature	°C	-40	-	150	-
ESD Human Body Model	-	-	Class 1C	-	-
Moisture Sensitivity Level	-	-	MSL1	-	-

Application Circuit : 1920 ~ 1980MHz, 50ohm System



EVB BOM			
Description	Reference Designator	Manufacturer	Manufacturer's P/N
CAP, 1.2pF, 1608	C3	Murata	GRM1885C1H1R2CZ01D
CAP, 2pF, 1608	C2	Murata	GRM1885C1H2R0CZ01D
CAP, 2.2pF, 1608	C10	Murata	GRM1885C1H2R2CZ01D
CAP, 2.5pF, 1608	L2	Murata	GRM1885C1H2R5CZ01D
CAP, 3pF, 1608	C11	Murata	GRM1885C1H3R0CZ01D
CAP, 10pF, 1608	C1, C13	Murata	GRM1885C1H100JA01D
CAP, 10nF, 1608	C8	Murata	GRM188R71H103KA01D
CAP, 100nF, 1608	C4, C7	Murata	GRM188R71C104KA01D
CAP, 4.7uF, 3216-18	C5, C6	AVX	TAJA475M016RNJ
IND, 6.8nH, 0805, W/W	L4	Murata	LQW2BHN6N8DB
IND, 15nH, 0603, W/W	L3	Murata	LQW18AN15NG00D
IND, 22nH, 0603	L1	Taiyo Yuden	HK1608 22NJ
RES, 00hm, 1608	R2	ROHM	MCR03 EZPJ000
RES, 120Ohm, 1608	R1	ROHM	MCR03 EZPJ121
DNP	C9, C12, C14	-	-

Typical Performance

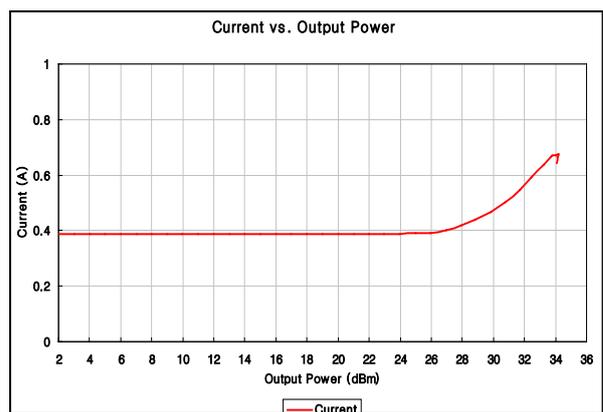
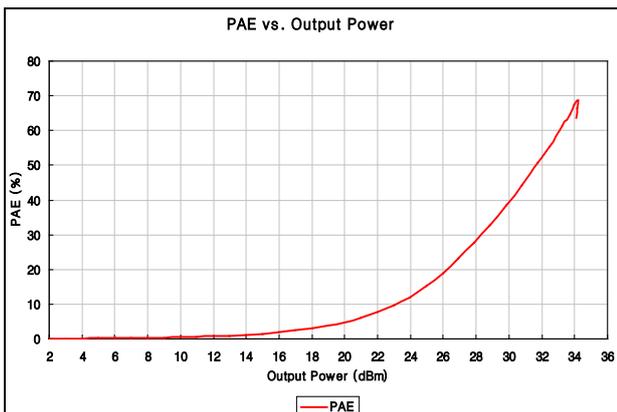
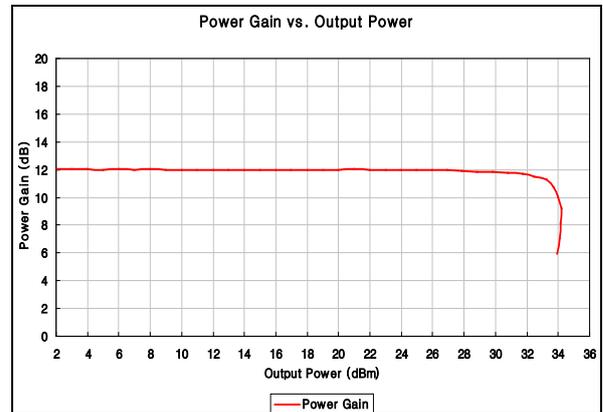
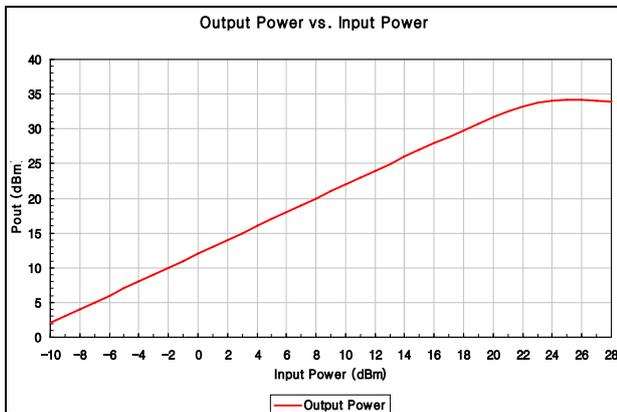
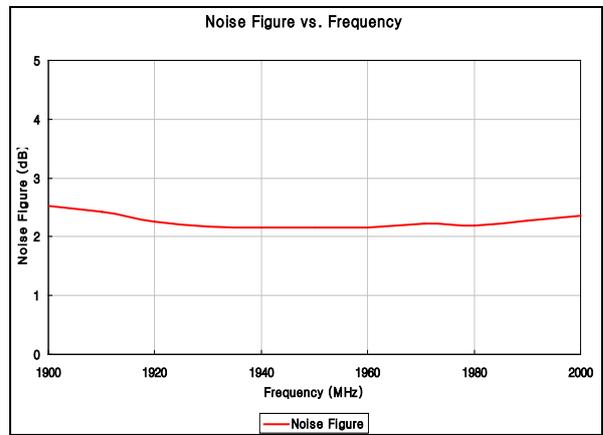
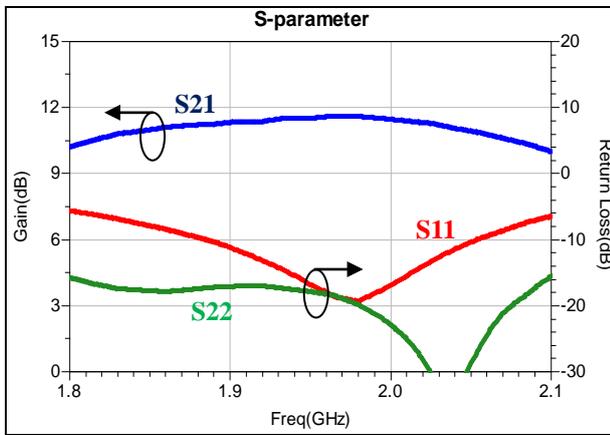
PARAMETER	UNIT	TYPICAL	REMARK
Operational Frequency Range	MHz	1920 ~ 1980	-
Small Signal Gain(S21)	dB	11.5	@ 1950MHz
Input Return Loss(S11)	dB	-13	-
Output Return Loss(S22)	dB	-16	-
Output IP3(OIP3)	dBm	45	@ 1950MHz
1dB Compression Point(P <sub>1</sub> dB) / Efficiency	dBm / %	33 / 60	
Noise Figure(NF)	dB	2.3	-
WCDMA**	dBm	23	-

Note

Test condition : Supply Voltage/DC Current = 5V/390mA, T = 25 °C

- OIP3 measured with 2 tones at an output power of +10dBm/tone separated by 1MHz
- WCDMA 3G 1FA Test Model1 64DPCH, PAR = 10dB@0.01%

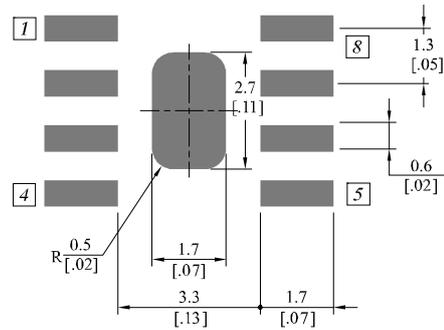
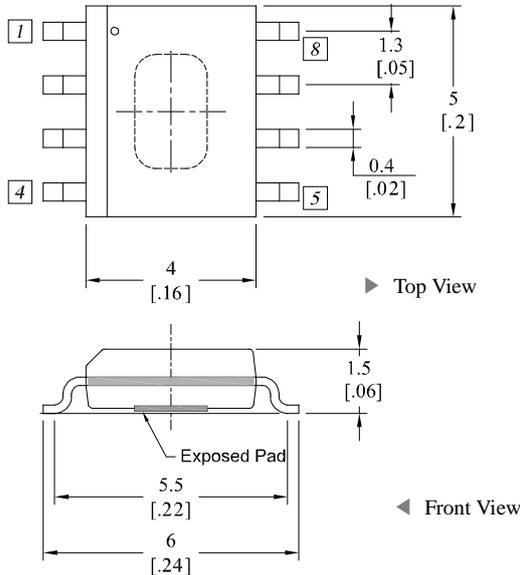
Typical Performance @ Voltage = 5V(390mA), T=25°C, 50ohm System



Package Dimensions (Type: SOIC-8)

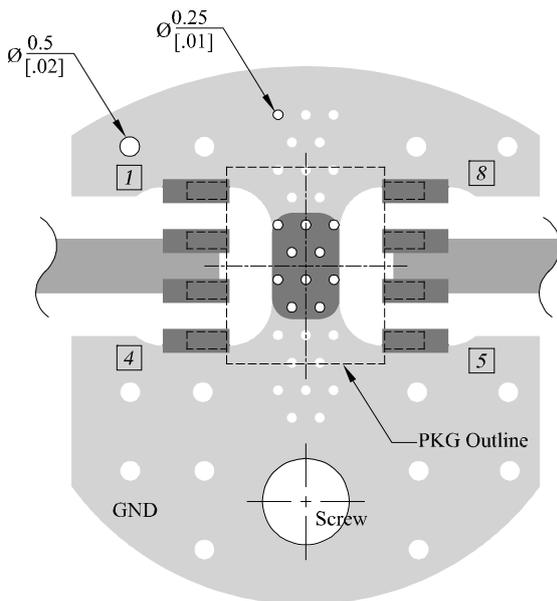
Recommended Pattern

\* Unit: mm[inch] | Tolerance ±0.2[.008]



Pin Description			
Pin No	Function	Pin No	Function
1	Bias Control	5	GND
2	Input	6	Output / Bias
3	Input	7	Output / Bias
4	GND	8	GND

Recommended Mounting Configuration



\* Mounting Configuration Notes

1. Ground / thermal via holes are critical for the proper performance of this device.
2. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
3. Mounting screws can be added near the part to fasten the board to a heatsink. Ensure that the ground / thermal via hole region contacts the heatsink.
4. Do not put solder mask on the backside of the PCB in the region where the board contacts the heatsink.
5. RF trace width depends upon the PCB material and construction.
6. Use 1 oz. Copper minimum.

**Revision History**

Part Number	Release Date	Version	Modification	Data Sheet Status
AE379	2012.10.17	0.3	New datasheet format	-
AE379	2012.4.25	0.2	FIXED : Operating Frequency Range	-
AE379	2010.12.27	0.1	Initial Release	-

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