IA30N3847 PA module

Document Number: IA30N3847
Product Datasheet V1.0

380-470M,30W, 12.5V, 2 stage for Mobile radio

Description

IA30N3847 is a rugged 30W RF LDMOS Amplifier Module for 12.5V mobile radios that operate in the 380 to 470MHz range. The battery can be connected directly to the drain of the modules This module is designed for non-linear modulation, but may also be used for linear modulation by setting the drain quiescent current with the gate voltage and controlling the output power with the input power

Features

- Rugged LDMOS technology
- Pout>30W, Eff>50% @ Vds=12.5V, Vgs=5V, Pin=50mW
- Broadband Frequency Range: 380-470MHz
- Metal shielding structure
- Module Size: 67 x 19.4 x 9.9 mm
- DC block capacitor integrated
- Linear and non linear operation supported

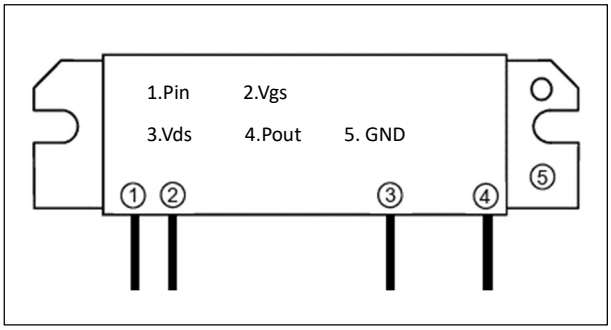


Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain--Source Voltage	V_{DSS}	+65	Vdc
Gate--Source Voltage	V_{GS}	-10 to +10	Vdc
Operating Voltage	V_{DD}	+24	Vdc
Storage Temperature Range	Tstg	-65 to +150	°C
Case Operating Temperature	T_C	+150	°C
Operating Junction Temperature	T_J	+225	°C

Table 2. ELECTRICAL CHARACTERISTICS (Tcase=+25°C, ZG=ZL=50ohm , unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
f	Frequency Range	-	380	-	470	MHz
P_{out}	Output Power	V_{DD}=12.5V, V_{GG}=5V, P_{in}=50mW	30	-	-	W
T	Total Efficiency		50	-	-	%
2f0	2nd Harmonic		-	-	-26	dBc
3f0	3rd Harmonic		-	-	-50	dBc
in	Input VSWR		-	-	3:1	-
I_{DD}	Leakage Current	V_{DD}=17V, V_{GG}=0V, P_{in}=0W	-	-	3	mA
-	Load VSWR Tolerance	V_{DD}=15.2V, P_{in}=50mW, P_{out}=30W (V_{GG} adj.), Load VSWR=20:1(All phase)	No degradation or destroy			-
-	Stability	V_{DD}=10/12.5/15.2V, P_{in}=25/50/70mW, P_{out}≦40W (V_{GG} control), Load VSWR=3:1(All phase)	No parasitic oscillation more than -60dBc			-

Figure 1： Network analyzer Output S11/S21

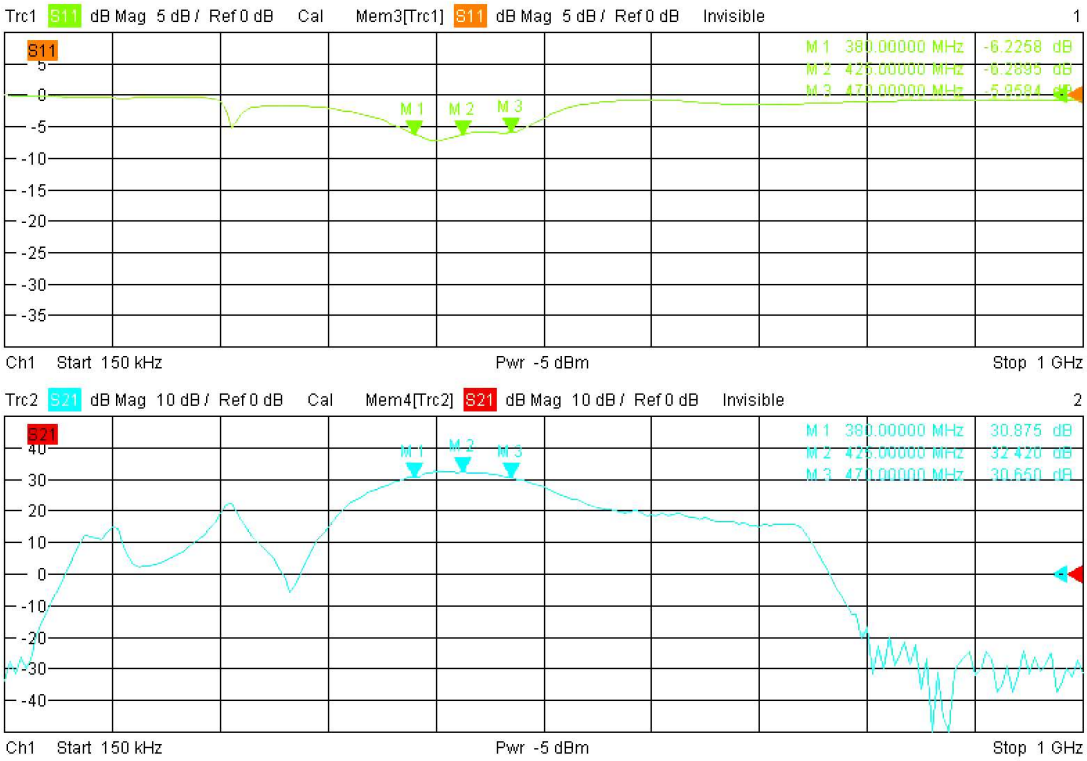
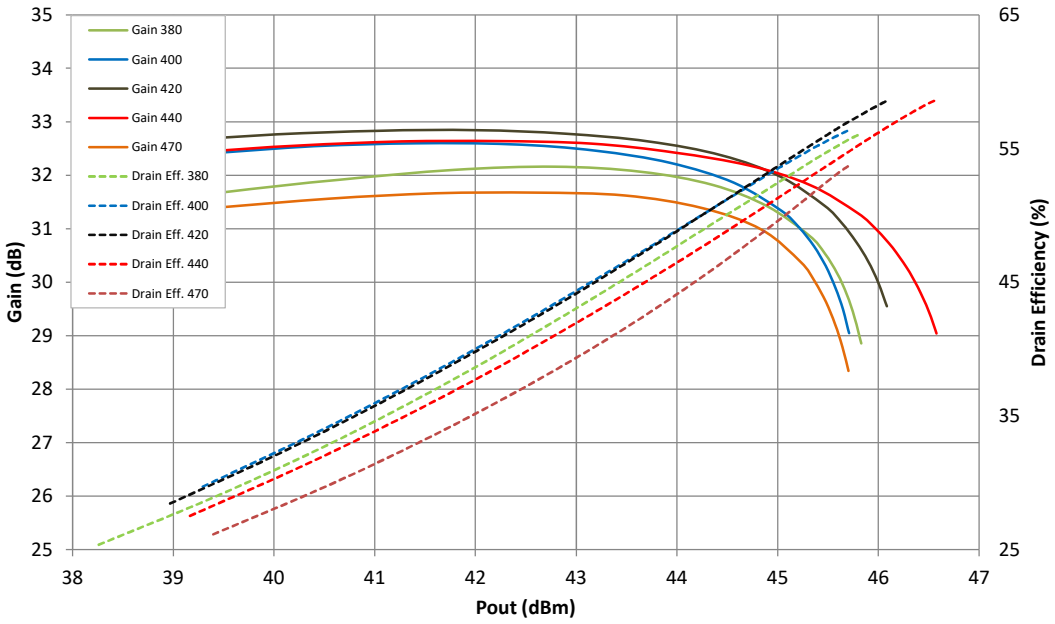
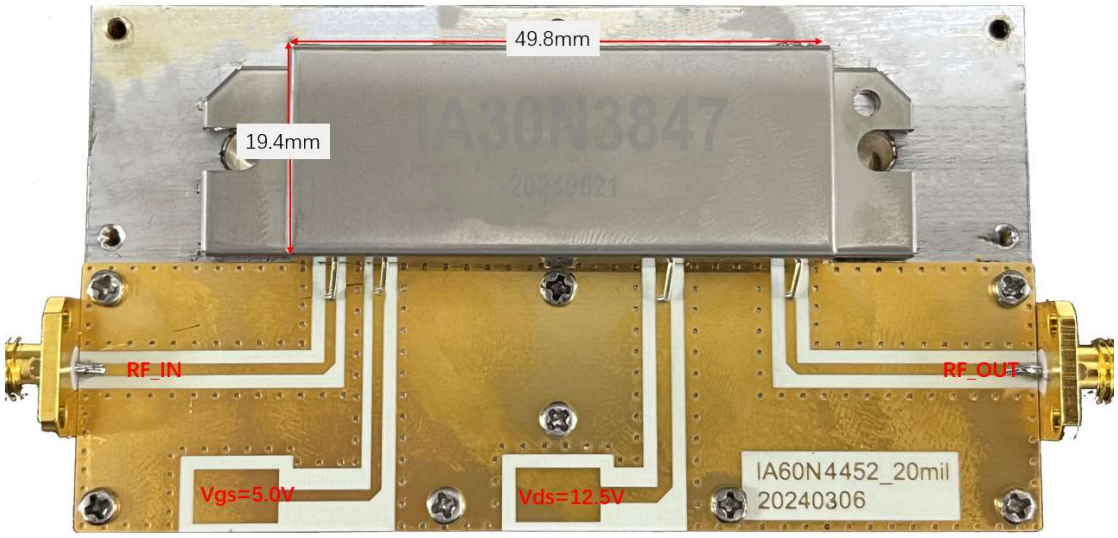


Figure 2： CW Power gain，Efficiency as function of output Power



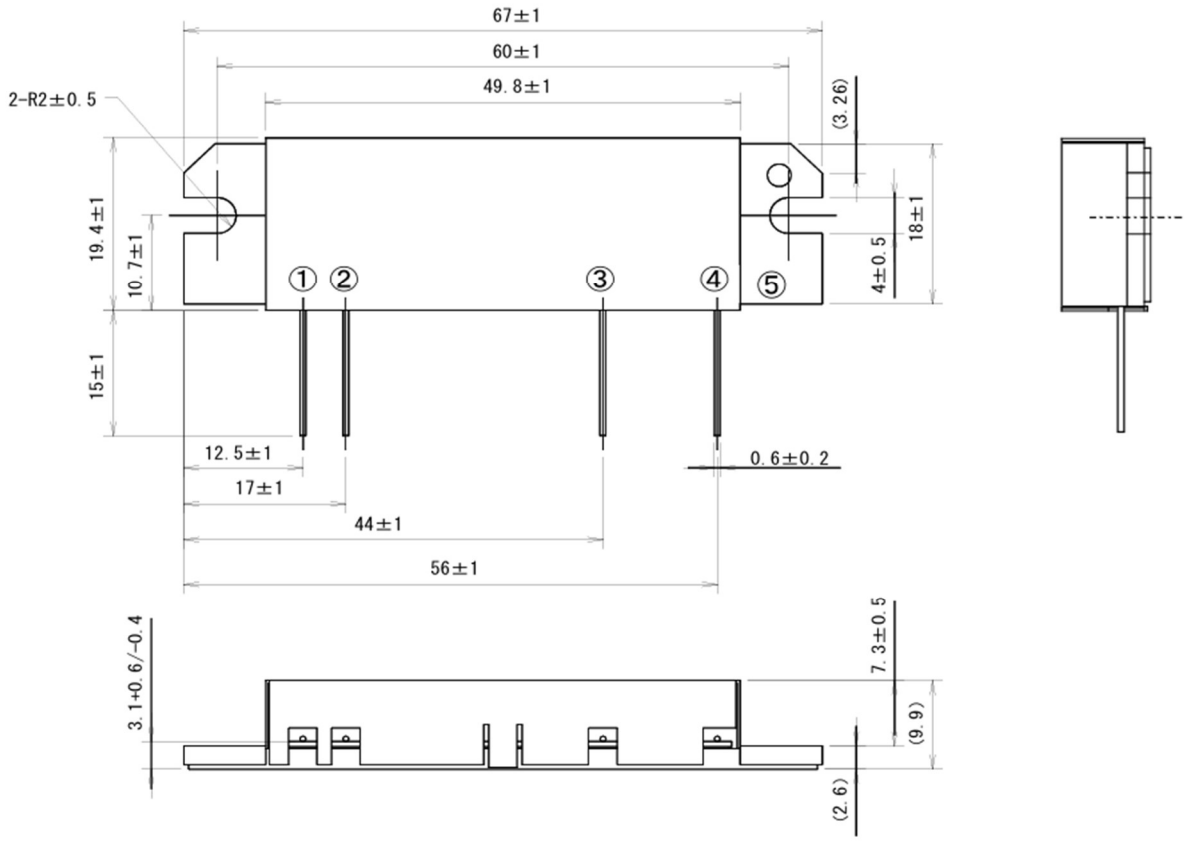
V_{DS}= 12.5V, V_{gs}= 5.0V, I_{dq}=700mA					
Freq (MHz)	P1(dBm)	P1 Gain（dB）	P3dB(dBm)	P3dB(W)	EFF (%)
380	45.09	31.2	45.79	37.9	56.0
390	45.05	31.7	45.82	38.2	58.2
400	44.79	31.6	45.62	36.5	56.1
410	45.06	31.9	45.91	39.0	58.9
420	45.12	31.9	46.02	40.0	58.3
430	45.39	31.9	46.34	43.1	59.7
440	45.47	31.7	46.45	44.2	58.2
450	45.64	31.5	46.59	45.6	58.2
460	45.58	31.2	46.38	43.5	56.8
470	45.03	30.7	45.65	36.8	53.5

Figure 3： Test circuit



Package Outline

Flanged package; 2 mounting holes; 4 Pins, Unit:mm



OUTLINE VERSION	REFERENCE			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
PKG-					06/17/2024

Revision history

Table 5. Document revision history

Date	Revision	Datasheet Status
2024/6/21	Rev 1.0	Product Datasheet Creation

Application data based on HJ-24-11

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