Mobile Radio Mini Amplifier RFC042

RFHIC

Product Features

- GaAs MMIC
- Very Low Distortion
- Guaranteed Broadband Power Gain
- Heat Sink 99.9% Copper, Ag or Gold Plate
- Excellent Thermal Conductivity
- Single Supply Voltage @ 24V
- Low DC Power Consuption
- No External Circuit needed

Applications

- Drive Amplifier



Package Type : DP-27

Description

The RFC042 is specifically designed for up to 800MHz in frequency as amplifiers in BTS.
This hybrid dynamic range amplifier module operates with a single voltage supply of 24V(DC).
The RFC042 is equipped with over-voltage suppressor.

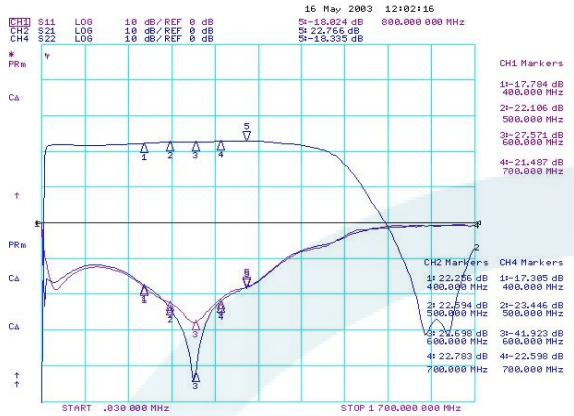
Electrical Specifications @ V_{CC} = 24V; Tc = 45°C;Z_S = Z_L = 50Ω

PARAMETER			UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency			MHz	400	-	800	-
Small Signal Gain			dB	21	23	-	-
Gain Variation vs Frequency			dBpp	-	-	±0.5	-
Input/Output Return Loss			dB	-	-15	-10	-
IMD3		f_c: 400.5MHz	dBc	54	58	-	Po = +23dBm (1MHz Tone spacing, CW 2-Tone)
		f_c: 600.5MHz		56	60	-	
		f_c: 799.5MHz		56	60	-	
ACPR	1FA	Δ 750KHz	dBm	29	-	-	Po = 23dBm Avg. PAR 7dB.
		Δ 1.98MHz		44	-	-	
	3FA	Δ 750KHz		29	-	-	Po = 23dBm Avg. PAR 7dB.
		Δ 1.98MHz		44	-	-	
	8FA	Δ 750KHz		29	-	-	Po = 20dBm Avg. PAR 7dB.
		Δ 1.98MHz		44	-	-	
Noise Figure			dB	-	4.0	7.0	-
Supply Voltage			V		+24	+25	Vcc(=Vds)
Quiescent Current consumption			mA	-	400	430	-

Absolute Maximum Ratings

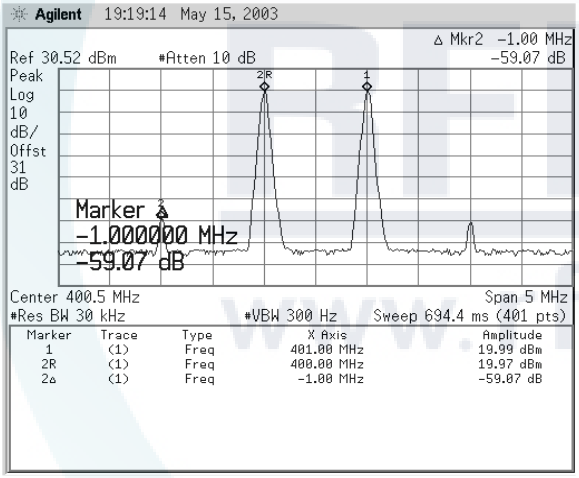
PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Input RF Power	dBm	-	-	12	-
Supply Voltage	V	-	-	28	-
Load Mismatch Value	-	3 : 1 @ all load phase			
Operating Case Temperature	°C	-20	-	100	Tc
Storage Temperature	°C	-40	-	100	Tstg

S-Parameters

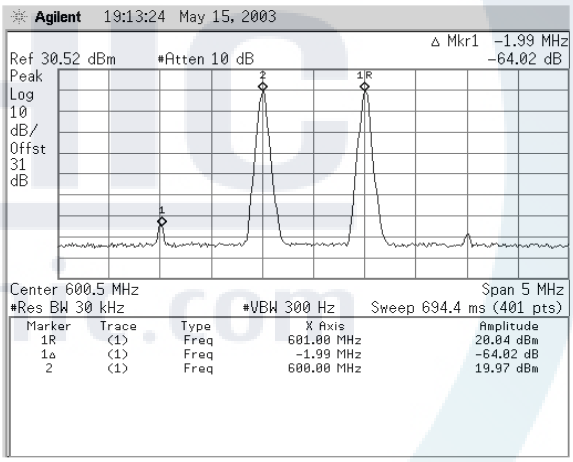


IMD3

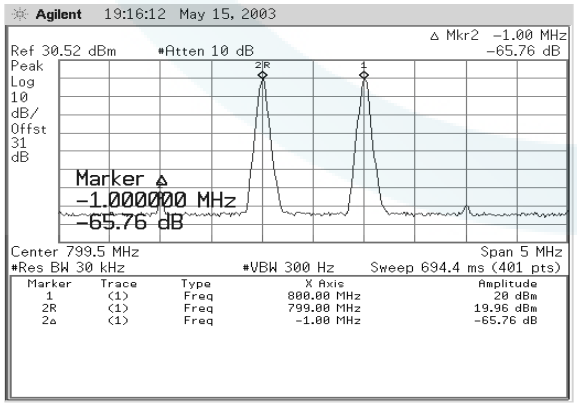
1) f_c = 400.5MHz



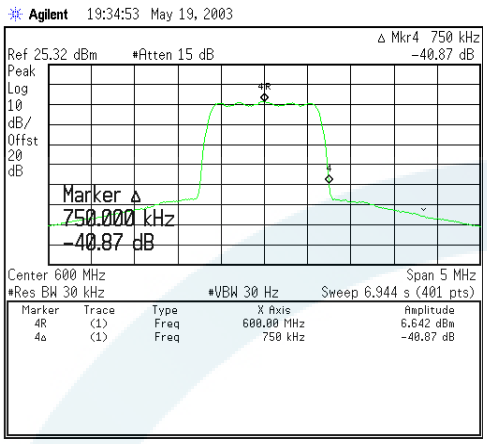
2) f_c = 600.5MHz

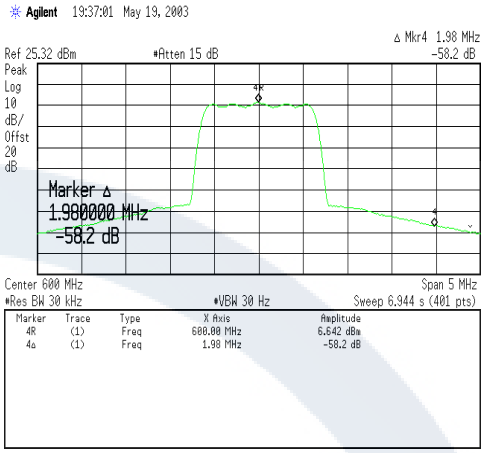


3) f_c = 799.5MHz

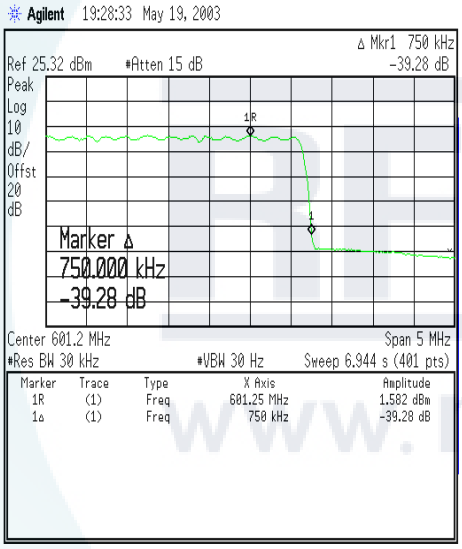


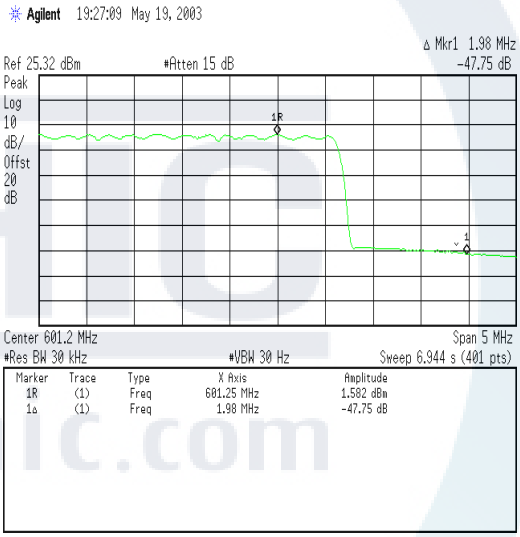
CDMA 1FA Test (Po = 23dBm Avg.)



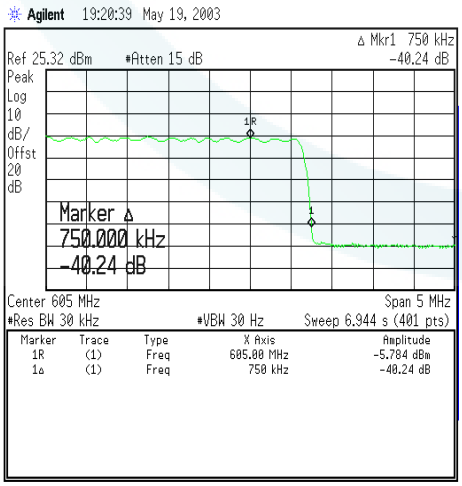


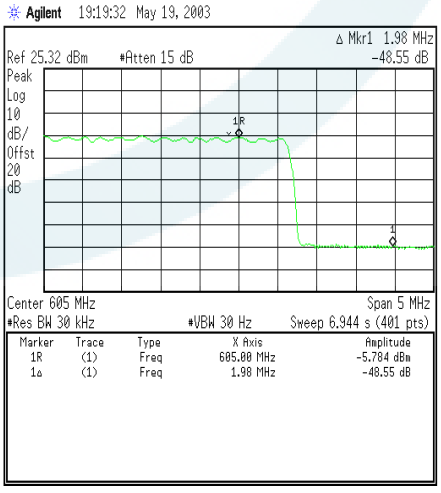
CDMA 3FA Test (Po = 23dBm Avg.)



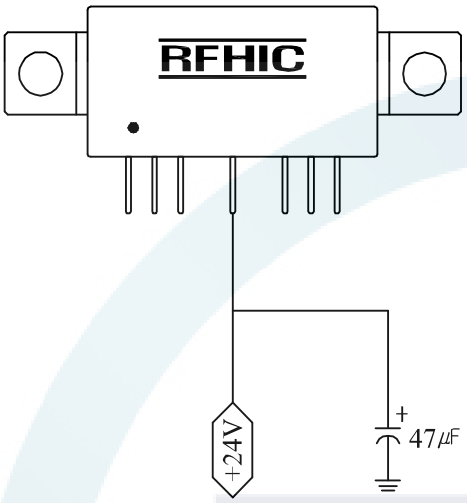


CDMA 8FA Test (Po = 20dBm Avg.)





Note for Correct Use



1. On the power input port (Pin#5), 47uF/35V capacitor GND is recommended.
2. The heat sink of CATV Hybrids is to be mounted in direct contact with the metal case of the equipment. Heat conducting grease should be applied to the module/equipment interface and the unit tightly secured.
3. Put the power off before adjusting in/output matching of the system.
4. The unit must have a common ground with the equipment and the analyzer.
5. Pay close attention to the input voltage not to overpower the hybrid.
6. The space between bottom of socket and the tip of the lead is recommended to have space of 2mm+ to protect the pin.
7. Do not open the plastic cover to change the matching inside the hybrid. Once opened, RFHIC will not be responsible for the hybrid.

ESD Protection

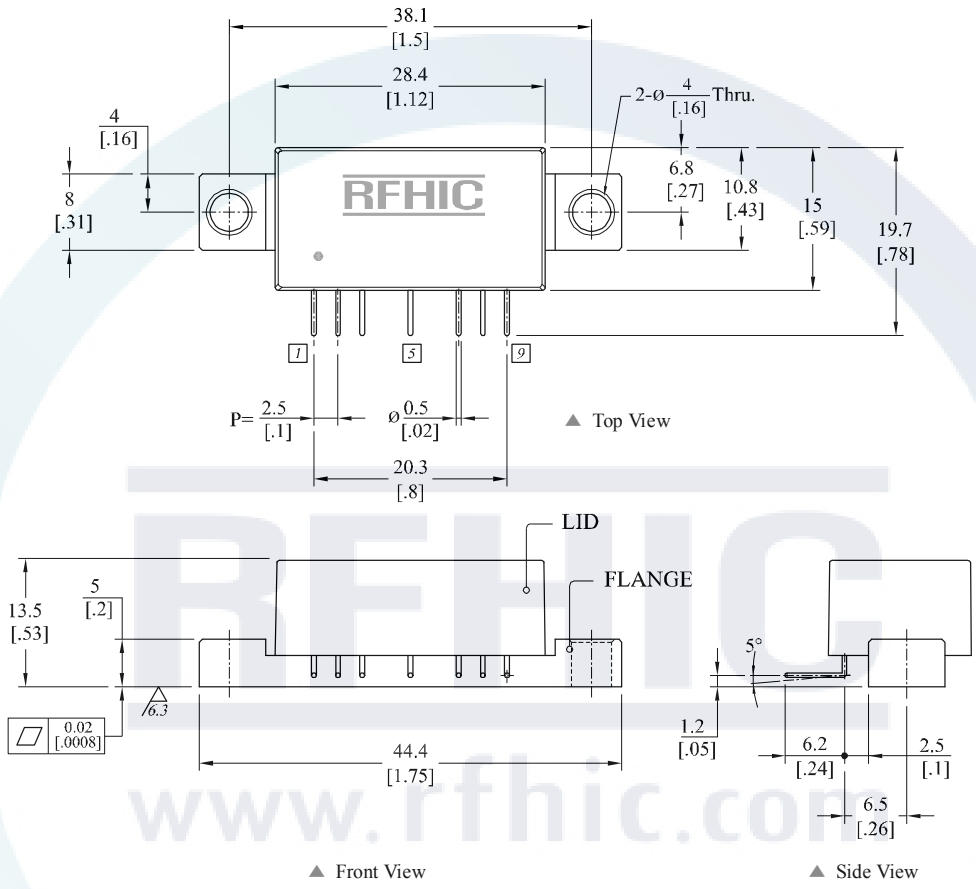
Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices. Some of the precautions recommended are;

- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.

  Keep static materials, such as plastic envelopes and plastic trays etc. away from the workbench.

Package Dimensions (Type: DP-27)

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



Pin Description					
Pin No	**Function**	**Pin No**	**Function**	**Pin No**	**Function**
1	RF Input	4	-	7	GND
2	GND	5	Vcc	8	GND
3	GND	6	-	9	RF Output

*** 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
RFC042	2015.3.20	6.1	Absolute Maximum Ratings	-
RFC042	2012.11.6	6.0	Electrical Specifications, Graph name modification	-
RFC042	2012.9.5	5.9	-	-

RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages.
RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use.

Sales, inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US Sales Team at 919-677-8780. For all other inquiries, please contact the International Sales Team at 82-31-8069-3036.