



## Product Description

GRF2373 can serve as a low current, high gain LNA or linear driver tunable over 100 to 3800 MHz. It exhibits outstanding gain and NF with a typical bias condition of 3.3 volts and 15 mA.  $I_{ccq}$ .

The device is operated from a supply voltage ( $V_{CC}$ ) of 1.8 to 5.0 V with a selectable  $I_{ccq}$  range of 10 to 25 mA for optimal efficiency and linearity.

Consult with the GRF applications engineering team for custom tuning/evaluation board data and device s-parameters.

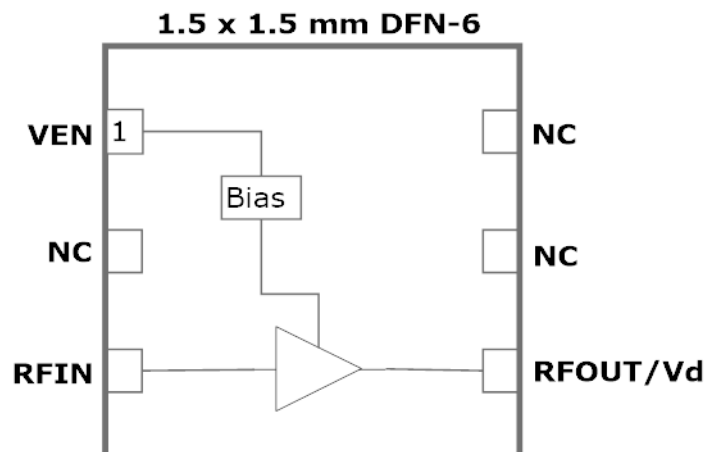
## Features

Reference: 3.3V/15mA/1900 MHz

- EVB NF: 1.3 dB
- Gain: 18.5 dB
- OP1dB: 13.5 dBm
- OIP3: 25.0
- Flexible Bias Voltage and Current
- Process: InGaP HBT

## Applications

- Drones
- Small Cells and Cellular Repeaters
- Distributed Antenna Systems
- Set Top Boxes
- General Purpose Amplification
- VHF/UHF/900/2400 ISM



## Absolute Ratings:

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V <sub>CC</sub>	0	5.5	V
RF Input Power: (Load VSWR < 2:1; V <sub>CC</sub> : 5.0 volts)	P <sub>IN MAX</sub>		22	dBm
Operating Temperature (Package Heat Sink)	T <sub>AMB</sub>	-40	105	°C
Maximum Junction Temperature (MTF > 10 <sup>6</sup> Hours)	T <sub>MAX</sub>		150	°C
Maximum Dissipated Power	P <sub>DISS MAX</sub>		100	mW
<b>Electrostatic Discharge:</b>				
Charged Device Model: (TBD)	CDM	1500		V
Human Body Model: (TBD)	HBM	250		V
<b>Storage:</b>				
Storage Temperature	T <sub>STG</sub>	-65	150	°C
Moisture Sensitivity Level	MSL		TBD	--



**Caution!** ESD Sensitive Device

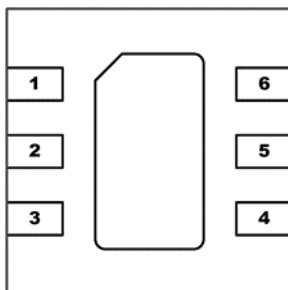


Exceeding Absolute Maximum Rating conditions may cause permanent damage to the device.

**Note:** For package dimensions and manufacturing information, see the [Guerrilla-RF.com](http://Guerrilla-RF.com) website for the following document located on the GRF2373 landing page (coming soon): **Manufacturing Note—MN-001 Product Tape and Reel, Solderability and Package Outline Specification.**

[Link to manufacturing note](#)

### Pin Out (Top View)



### Pin Assignments:

Pin	Name	Description	Note
1	V <sub>ENABLE</sub>	Enable Voltage Input	V <sub>ENABLE</sub> and series resistor set I <sub>DDQ</sub> . V <sub>ENABLE</sub> < =0.2 volts disables device. On -die pull-down resistor will turn the part off if this node is allowed to float.
2	NC	No Connect or Ground	No internal connection to die
3	RF_In	LNA RF input	An external DC blocking cap must be used
4	RF_Out	LNA RF output	V <sub>CC</sub> must be applied through a choke to this pin
5	NC	No Connect or Ground	No internal connection to die
6	NC	No Connect or Ground	No internal connection to die
PKG BASE	GND	Ground	Provides DC and RF ground for LNA, as well as thermal heat sink. Recommend multiple 8 mil vias beneath the package for optimal RF and thermal performance. Refer to evaluation board top layer graphic on schematic page.



Preliminary

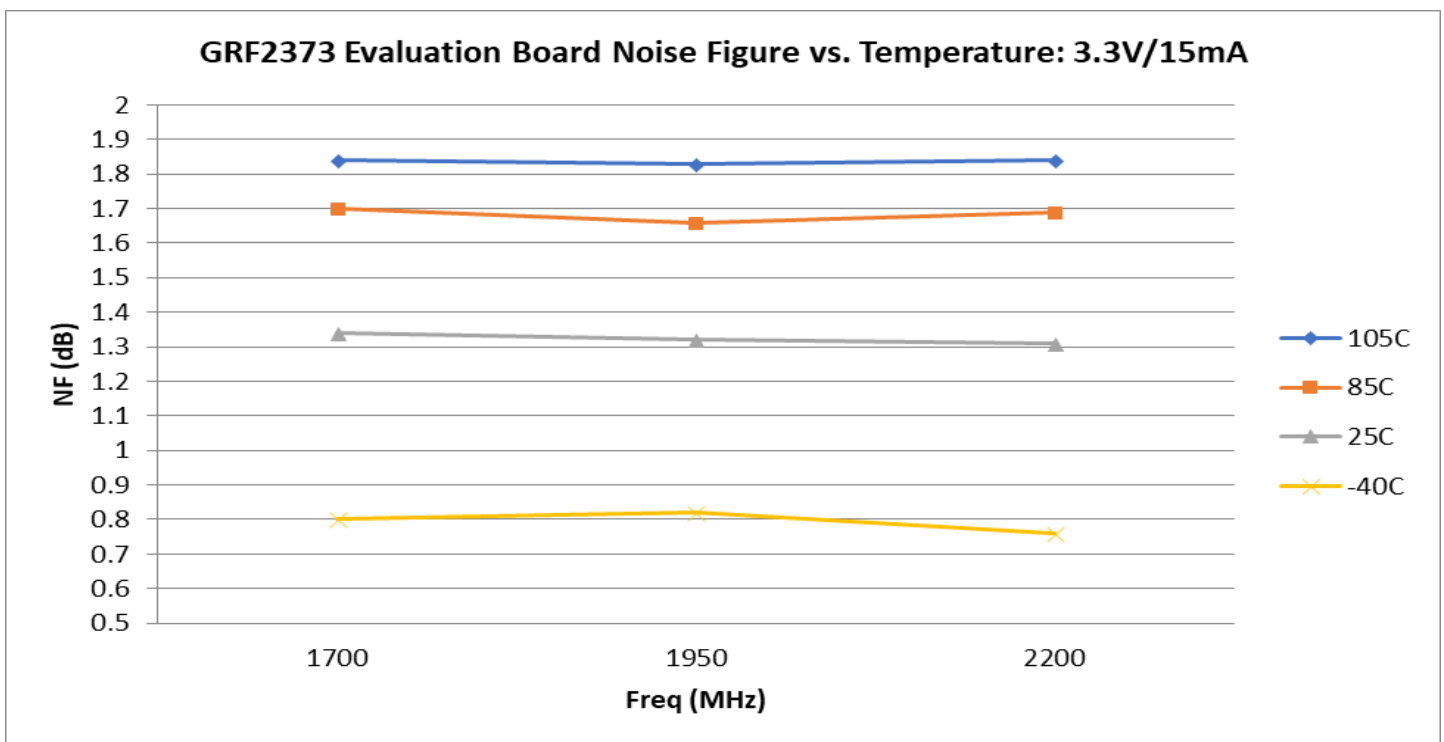
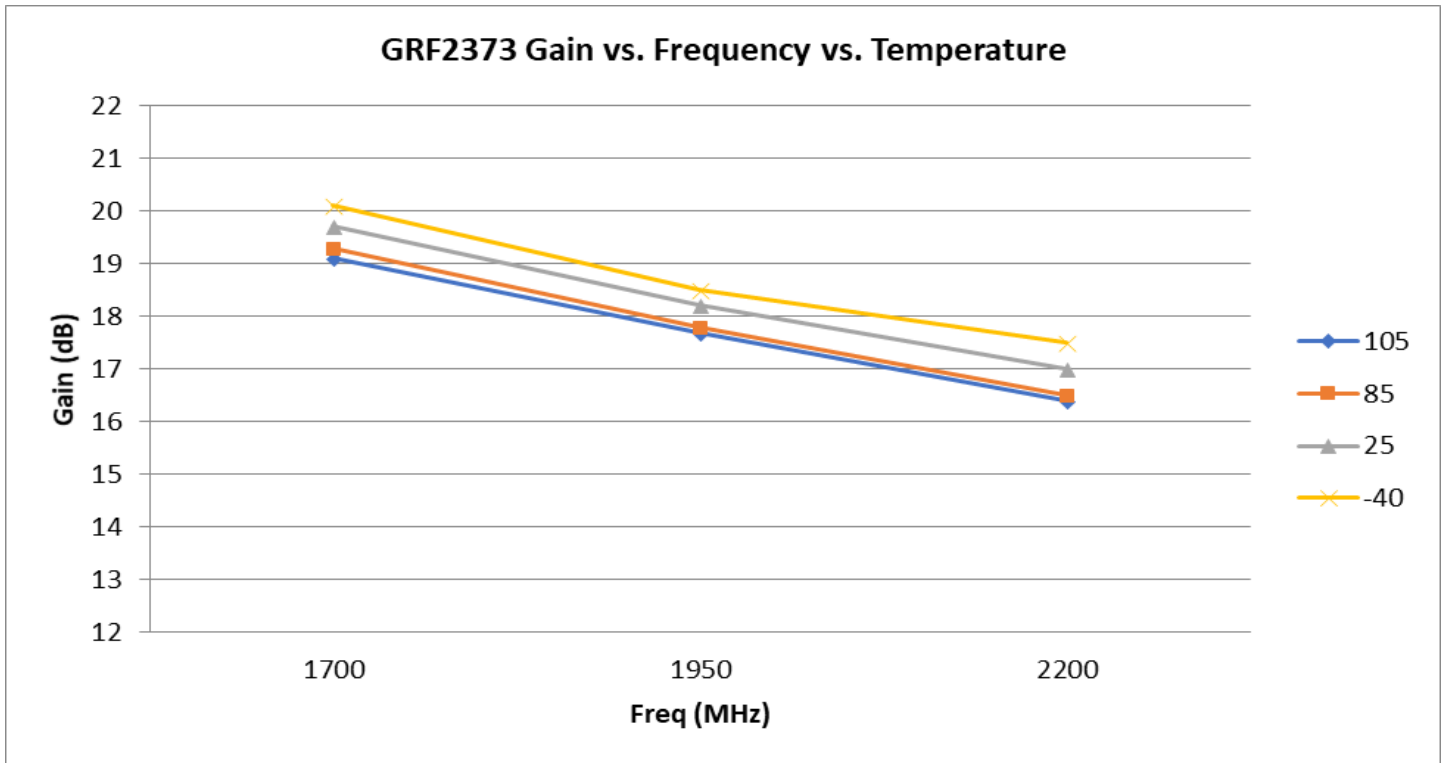
# GRF2373

Low-current LNA/Driver  
0.1–3.8 GHz

## Nominal Operating Parameters:

Parameter	Symbol	Specification			Unit	Condition
		Min.	Typ.	Max.		
Test Frequency	$F_{TEST}$		1900		MHz	$V_{CC} = 3.3\text{ V}$ , $T_A = 25^\circ\text{C}$
Gain	$S_{21}$		18.5		dB	
Evaluation Board Noise Figure	NF		1.3		dB	
Output 3rd Order Intercept	OIP3		25.0		dBm	-5.0 dBm $P_{OUT}$ per tone at 2 MHz Spacing (1899 and 1901 MHz)
Output 1dB Compression Point	OP1dB		13.5		dBm	
Switching Rise Time	$T_{RISE}$		200		ns	
Switching Fall Time	$T_{FALL}$		100		ns	
Supply Current	$I_{CC}$		15		mA	
Enable Current	$I_{ENABLE}$		3.0		mA	
<b>Disabled Mode</b>						
Leakage Current	$I_{LEAKAGE}$		< 1.0		uA	$V_{CC}: 3.3\text{V}$ ; $V_{ENABLE}: 0.0\text{V}$
<b>Thermal Data</b>						
Thermal Resistance: (Estimated)	$\Theta_{JC}$		700		$^\circ\text{C}/\text{W}$	On standard Evaluation Board
Junction Temperature @ +85 C Reference (Package heat sink)	$T_{JUNCTION}$		120		$^\circ\text{C}$	$V_{CC}: 3.3\text{ V}$ ; $I_{CCQ}: 15\text{ mA}$ ; No RF; $P_{BISS}: 50\text{ mW}$

## GRF2373 Evaluation Board Data (3.3V/15mA)



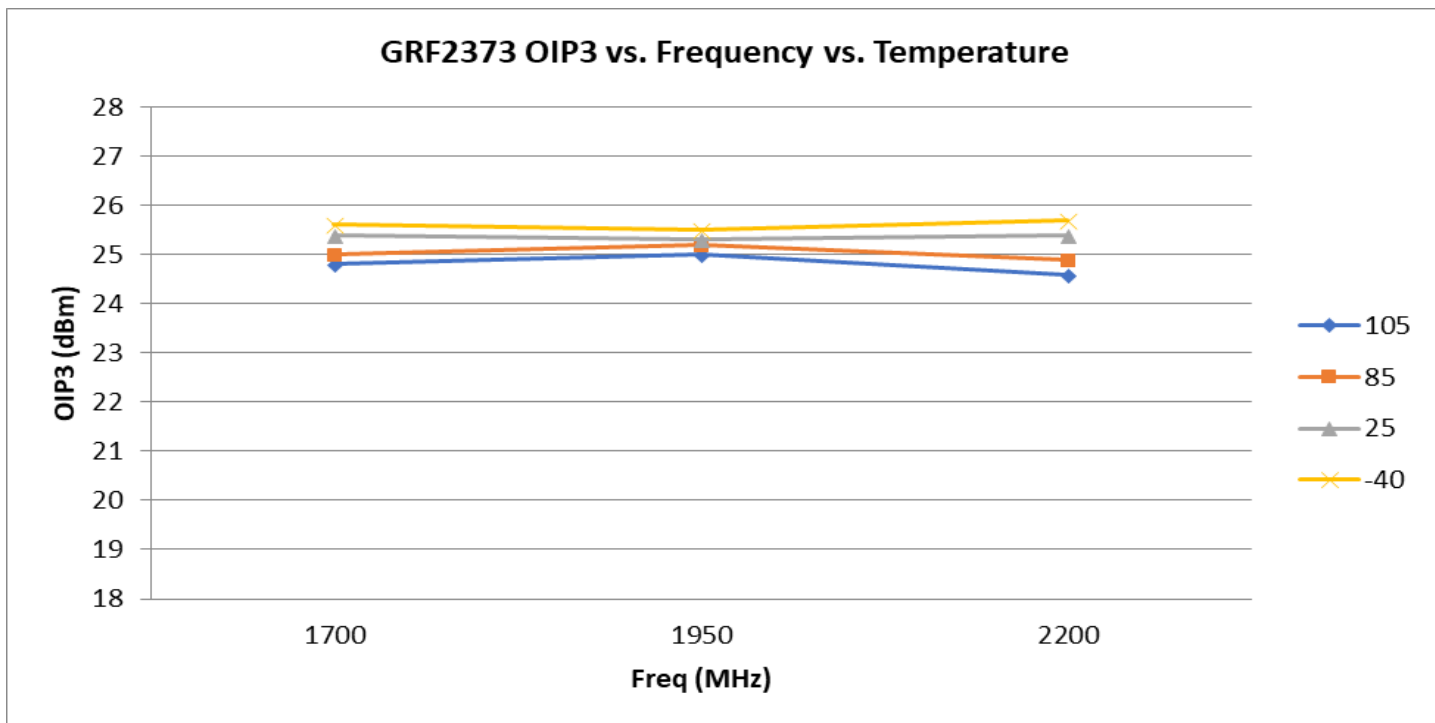
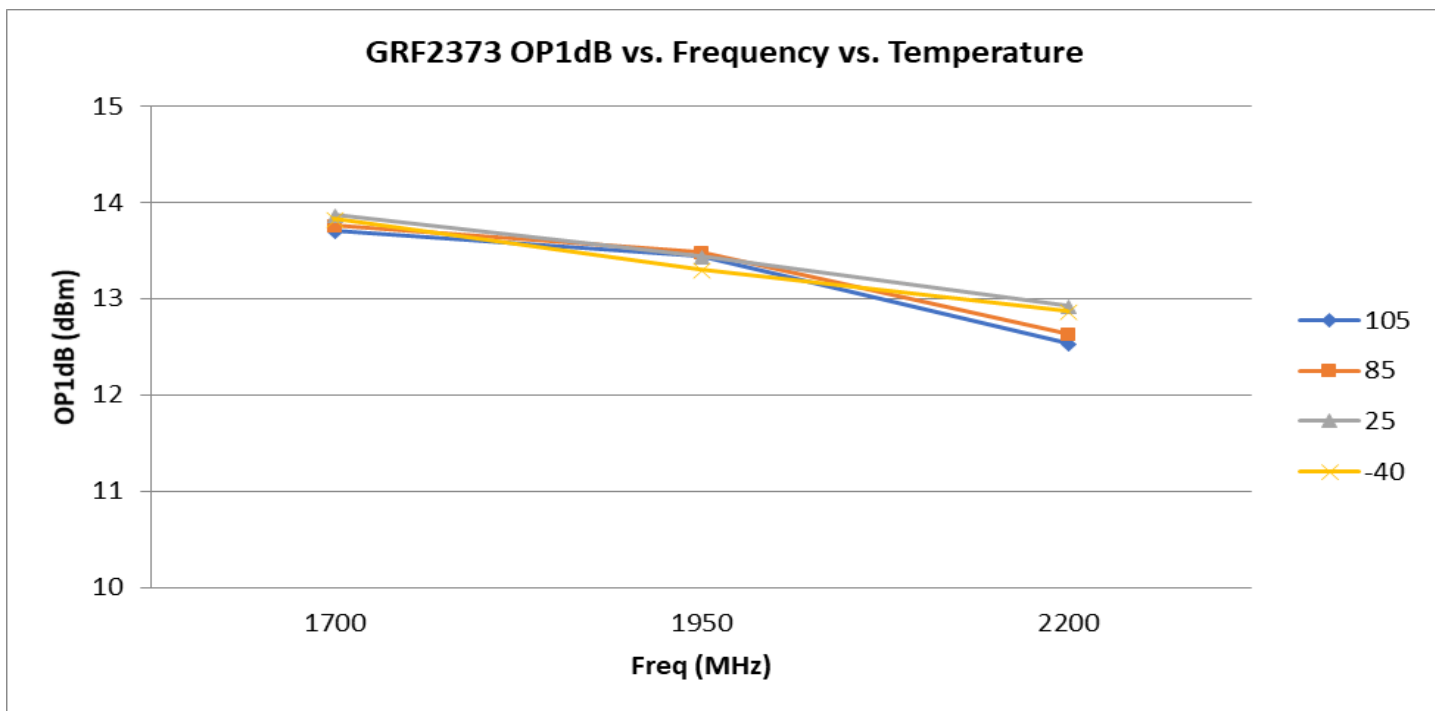


Preliminary

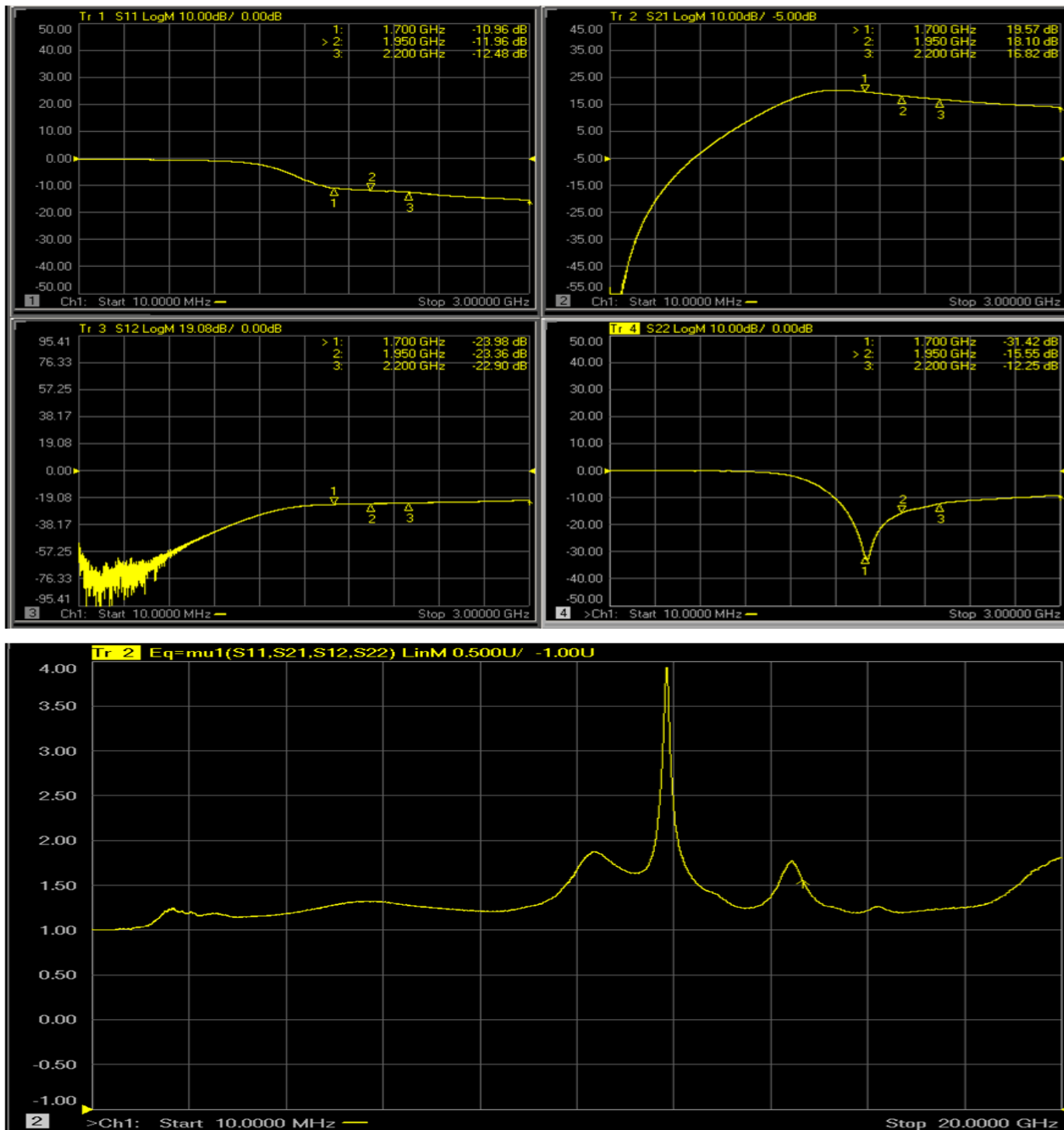
# GRF2373

Low-current LNA/Driver  
0.1–3.8 GHz

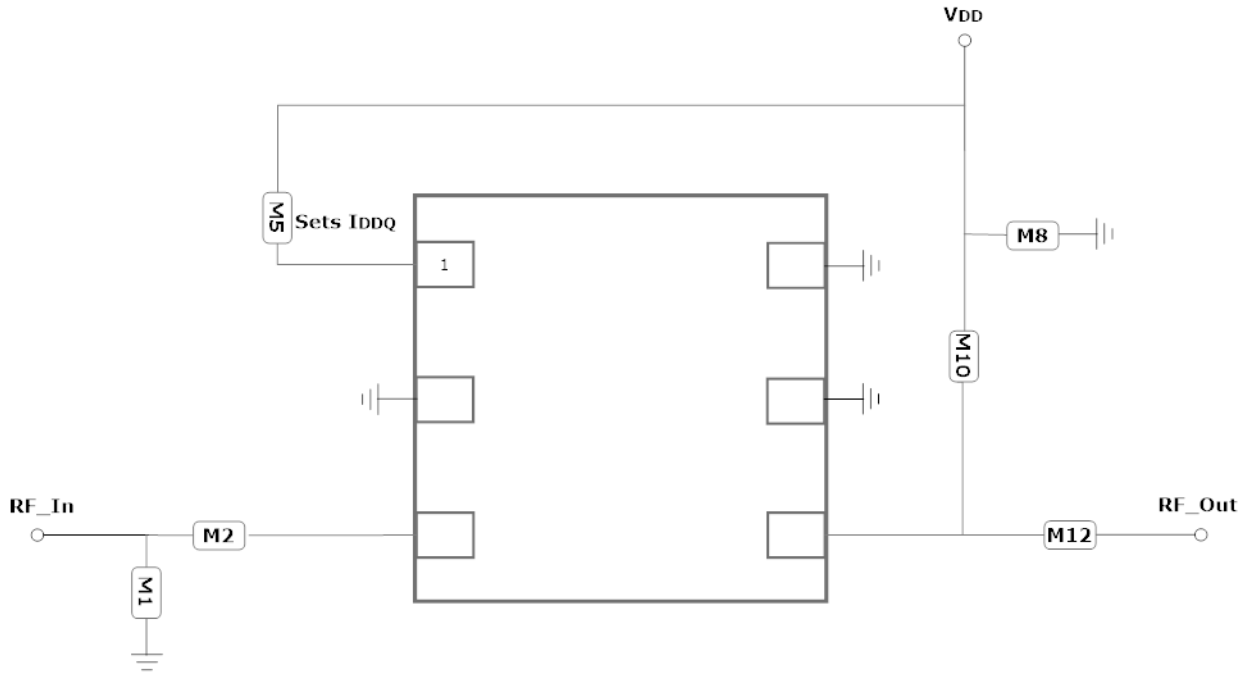
## GRF2373 Evaluation Board Data (3.3V/15mA)



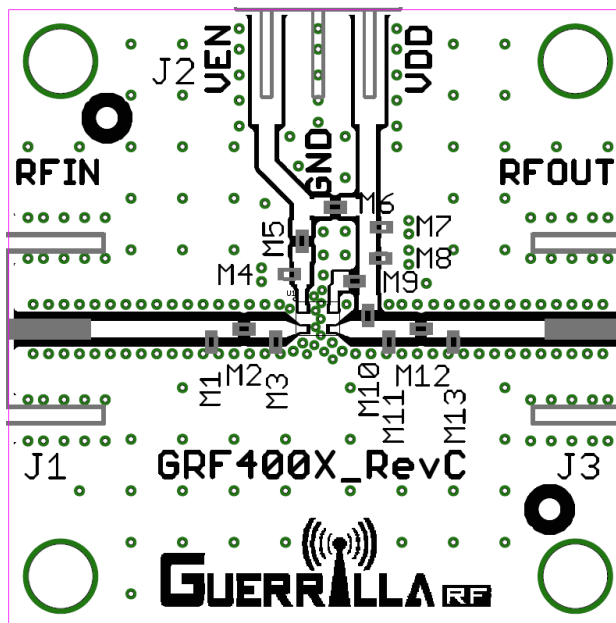
## GRF2373 Evaluation Board S-Pars and Stability Mu Factor: (1.7 to 2.2 GHz Match)



Note: Mu factor  $\geq 1.0$  implies unconditional stability.



GRF2373 Application Schematic



GRF2373 Evaluation Board Assembly Diagram





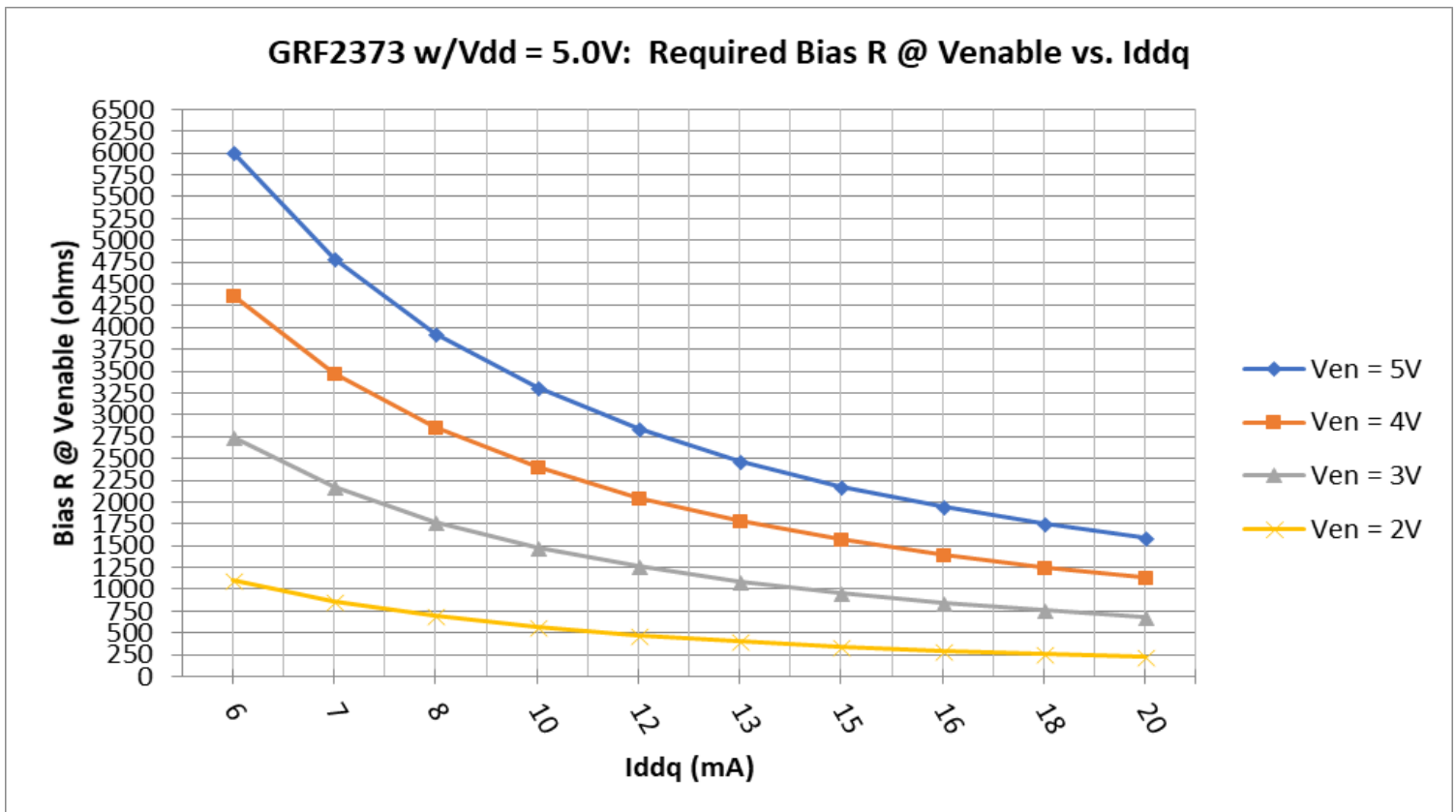
Preliminary

# GRF2373

Low-current LNA/Driver  
0.1–3.8 GHz

GRF2373 Standard Evaluation Board BOM: (1.7 to 2.2 GHz Tune; Vdd = Venable = 3.3V; Iddq: 15 mA)

Component	Type	Manufacturer	Family	Value	Package Size	Substitution
M1	Inductor	Murata	LQG	5.1 nH	0402	Ok
M2	Capacitor	Murata	GJM	3.0 pF	0402	Ok
M5 (Sets Iddq)	Resistor	Various	5%	—	0402	Ok
M8	Capacitor	Murata	GRM	0.1 uF	0402	Ok
M10	Inductor	Murata	LQG	3.0 nH	0402	Ok
M12	Capacitor	Murata	GJM/GRM	1.5 pF	0402	Ok
Evaluation Board	GRF400X_RevC	—	—	—	—	—





Preliminary

# GRF2373

Low-current LNA/Driver  
0.1–3.8 GHz

Data Sheet Release Status:	Notes
Advance	S-parameter and NF data based on EM simulations for the fully packaged device using foundry supplied transistor s-parameters. Linearity estimates based on device size, bias condition and experience with related devices.
Preliminary	All data based on evaluation board measurements in the Guerrilla RF Applications Lab.
Released	All data based on device qualification data. Typically, this data is nearly identical to the data found in the preliminary version. Max and min values for key RF parameters are included.

Information in this datasheet is specific to the Guerrilla RF, Inc. ("Guerrilla RF") product identified.

This datasheet, including the information contained in it, is provided by Guerrilla RF as a service to its customers and may be used for informational purposes only by the customer. Guerrilla RF assumes no responsibility for errors or omissions on this datasheet or the information contained herein. Information provided is believed to be accurate and reliable, however, no responsibility is assumed by Guerrilla RF for its use, nor for any infringement of patents, or other rights of third parties, resulting from its use. Guerrilla RF assumes no liability for any datasheet, datasheet information, materials, products, product information, or other information provided hereunder, including the sale, distribution, reproduction or use of Guerrilla RF products, information or materials.

No license, whether express, implied, by estoppel, by implication or otherwise is granted by this datasheet for any intellectual property of Guerrilla RF, or any third party, including without limitation, patents, patent rights, copyrights, trademarks and trade secrets. All rights are reserved by Guerrilla RF.

All information herein, products, product information, datasheets, and datasheet information are subject to change and availability without notice. Guerrilla RF reserves the right to change component circuitry, recommended application circuitry and specifications at any time without prior notice. Guerrilla RF may further change its datasheet, product information, documentation, products, services, specifications or product descriptions at any time, without notice. Guerrilla RF makes no commitment to update any materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

GUERRILLA RF INFORMATION, PRODUCTS, PRODUCT INFORMATION, DATASHEETS AND DATASHEET INFORMATION ARE PROVIDED "AS IS" AND WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. GUERRILLA RF DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. GUERRILLA RF SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO ANY SPECIAL, INDIRECT, INCIDENTAL, STATUTORY, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION, WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Customers are solely responsible for their use of Guerrilla RF products in the Customer's products and applications or in ways which deviate from Guerrilla RF's published specifications, either intentionally or as a result of design defects, errors, or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Guerrilla RF assumes no liability or responsibility for applications assistance, customer product design, or damage to any equipment resulting from the use of Guerrilla RF products outside of stated published specifications or parameters.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)