

AN11902

BGU8052 [BTS1001M] applied at 1.3 GHz

Rev. 1.0 — 23 January 2017

Application note

Document information

Info	Content
Keywords	BGU8052, 1300MHz, LNA, BTS
Abstract	This application note shows the performance of the BGU8052 in the frequency range of 1.3GHz.
Contact information	For more information, please visit: http://www.nxp.com



Revision history

Rev	Date	Description
1	20170123	First publication

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1. Introduction

NXP's semiconductors BGU805x series is a family of integrated low noise amplifiers for the 300 MHz to 6000 MHz range. The series consists of the:

- BGU8051 recommended for 300 MHz - 1500 MHz
- BGU8052 recommended for 1500 MHz – 2700 MHz
- BGU8053 recommended for 2500 MHz – 6000 MHz

The BGU805X series is a low noise high linearity amplifier family intended for wireless infrastructure applications like BTS, RRH, small cells, but can also be used in other general low noise applications, e.g. active antennas for automotive.

Being manufactured in NXP's high performance QUBiC RF Gen 8 SiGe:C technology, the BGU805X combines high gain, ultra-low noise and high linearity with the process stability and ruggedness which are the characteristics of SiGe:C technology.

BGU805X series comes in the industry standard 2 x 2 x 0.75 mm 8 terminal plastic thin small outline package HVSON8 (SOT1327). The LNA is ESD protected on all terminals.

Although the BGU8052 is recommended to be used in the 1500MHz to 2700MHz range this Application note shows it can also be used in the 1.3GHz frequency range.

The measurement results that have been carried out for this application are not measured on the standard 1900MHz BGU8052 evaluation boards. This evaluation board is fully described in [AN11416](#). This includes detailed information about the product, schematic, Layout and BOM. It also includes ordering information.

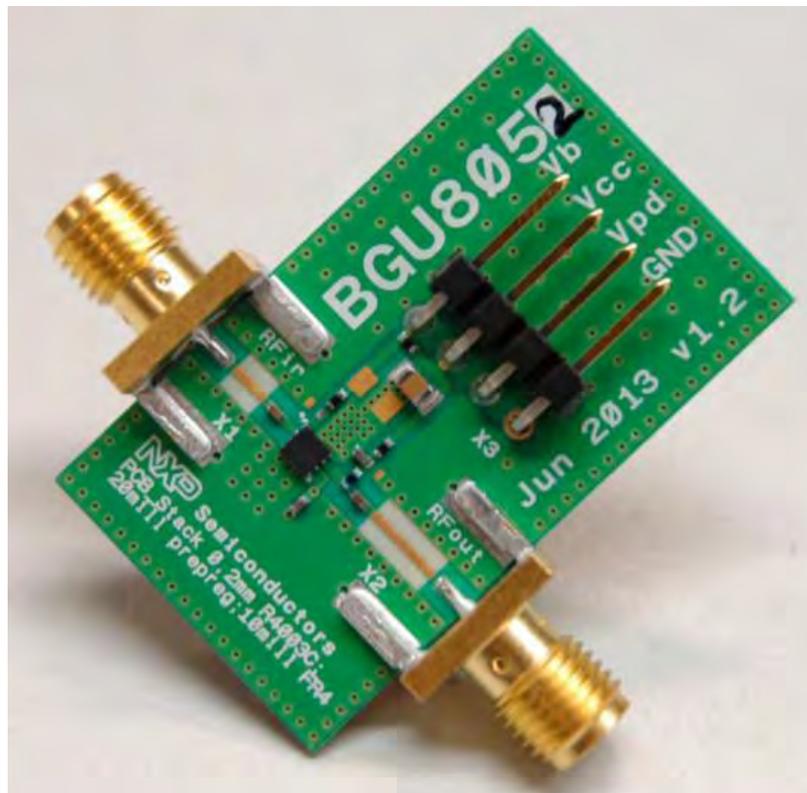


Fig 1. Evaluation board that has been used.

2. Measurement results at 1.3GHz.

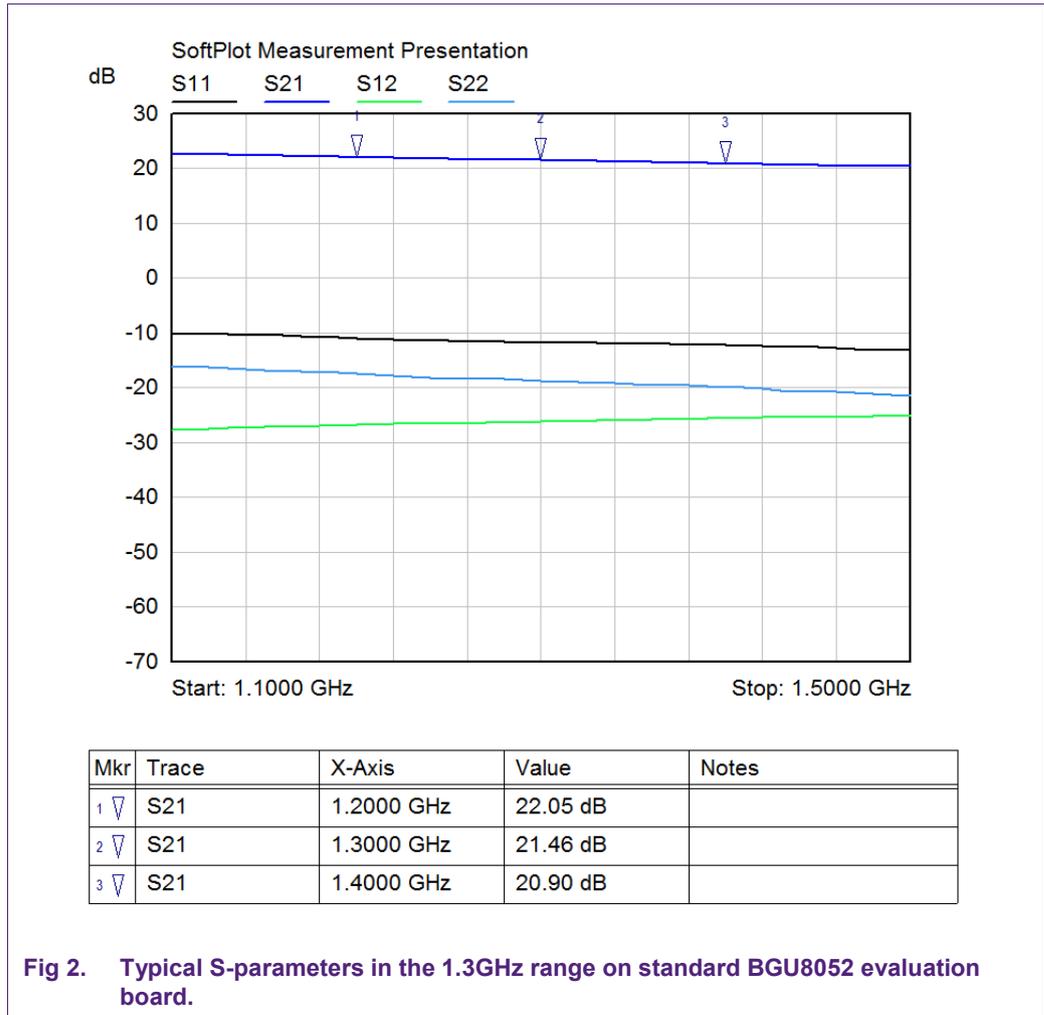
2.1 Typical board performance

The values given in [Table 1](#) are typical values of >5 boards measured.

Table 1. Typical board performance using the standard 1900MHz evaluation board
 $F=1300\text{MHz}; V_{cc}=5\text{V}; T_{amb}=25^{\circ}\text{C}; \text{input and output } 50\Omega; R_{bias}=5.1\text{k}\Omega.$

Symbol	Parameter	Conditions	Typ	Unit
V_{cc}	Supply voltage		5	V
I_{cc}	Supply current		47.4	mA
G_{ass}	Associated gain		21.4	dB
NF	Noise figure		[1] 0.45	dB
$P_{L(1dB)}$	Output power at 1dB gain compression		18.2	dBm
$IP3_o$	Output third-order intercept point	2-tone; tone spacing = 1MHz; $P_i = -15\text{dBm}$ per tone	35.0	dBm
RL_{in}	Input return loss		12.2	dB
RL_{out}	Output return loss		22.0	dB
ISL	Isolation		26.1	dB
$T_{s(pon)}$	Power-on settling time	$P_i = -20\text{dBm}$; SHDN(pin 6) from High to Low	104	ns
$T_{s(poff)}$	Power-off settling time	$P_i = -20\text{dBm}$; SHDN(pin 6) from Low to High	43	ns

[1] Board losses have been de-embedded.



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