



STB7102, STB7103, STB7104

0.1/2.5 GHz Si MMIC BUFFER AMPLIFIERS

PRELIMINARY DATA

FEATURES

STB710X FAMILY

- OPERATING FREQUENCY 100-2500MHz
- EXCELLENT ISOLATION
- LOW CURRENT CONSUMPTION
- ULTRA MINIATURE SOT323-6L PACKAGE (1.15 x 1.8 x 0.8 mm)

STB7102

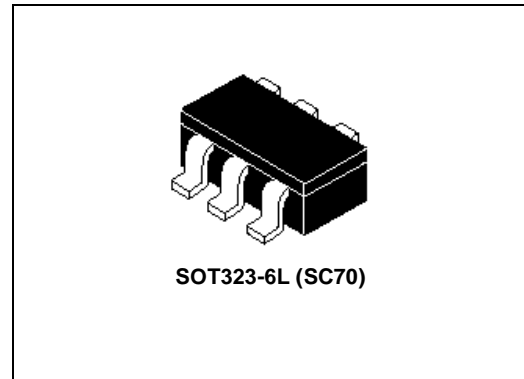
- HIGH ISOLATION (45 dB @ 950 MHz)

STB7103

- HIGH LINEARITY (P1 dB OUTPUT = +1.5 dBm)

STB7104

- LOW CURRENT CONSUMPTION (2.8 mA)



ORDERING INFORMATION

P/N	ORDER CODE	MARKING
STB7102	STB7102TR	102
STB7103	TBD	103
STB7104	TBD	104

DESCRIPTION

The STB7102, STB7103 and STB7104 designed for Mobile Phone applications (0.1/2.5GHz), are an high isolation Si MMIC Buffer Amplifiers. Manufactured in the third generation of ST proprietary bipolar process, they offers an excellent isolation and a good linearity using a low current consumption. These low current amplifiers operate on 3.0 V. The STB710x family is housed in an ultra miniature package SOT323-6L surface mount package. SOT323-6L dimensions are 1.15mmx1.8mm with 0.8 mm thickness.

APPLICATION

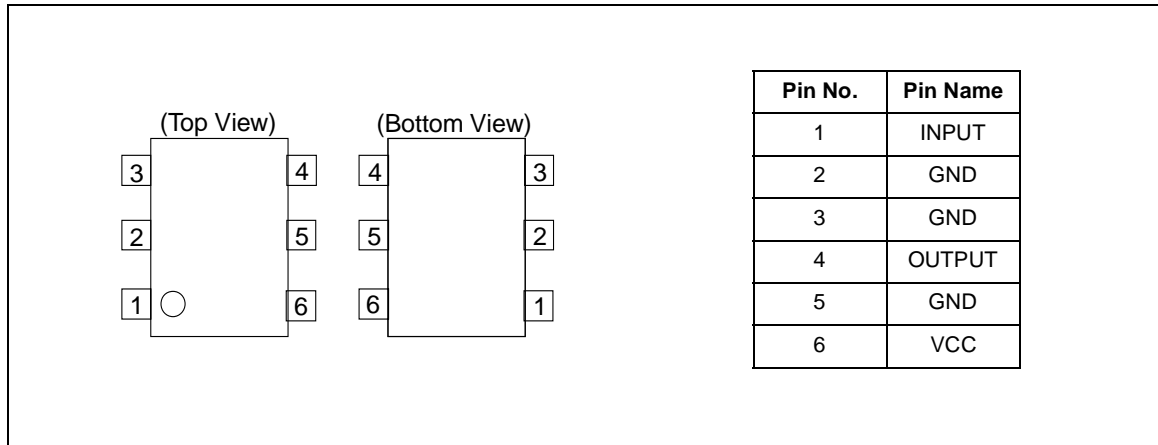
UHF BUFFER AMPLIFIER for Mobile Phone Application (0.1/2.5GHz)

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Value	Unit
V _{cc}	Supply voltage		3.3	V
T _{stg}	Storage temperature		-40 to +100	°C
T _a	Operating ambient temperature		-30 to +85	°C

STB7102, STB7103, STB7104

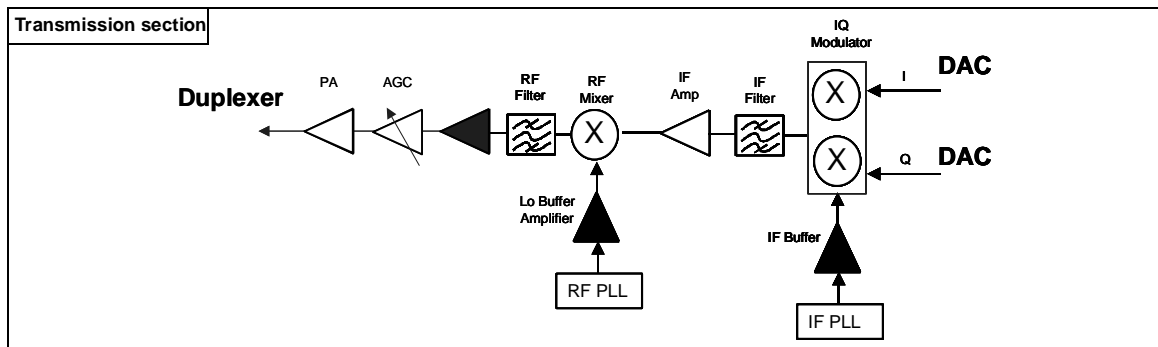
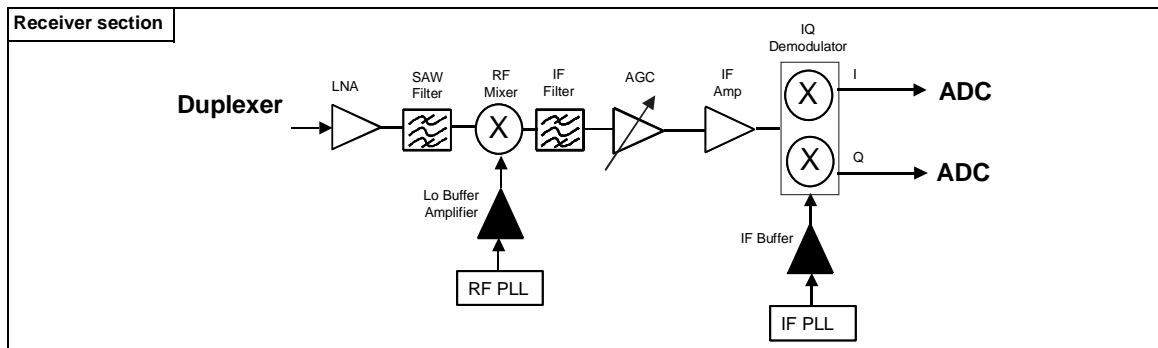
PIN CONNECTION



PRODUCT LINE-UP

Part Number	Icc (mA)	950 MHz output port matching frequency		
		Gp at 1dB (dB)	ISL (dB)	P1dBout (dBm)
STB7102	4.3	15.5	45	0
STB7103	4.1	17.5	45	1.5
STB7104	2.8	17	45	-0.25

Example of a digital cellular phone (Receiver and Transmission section)



These ICs can be added to your system around ▲ parts, when you need more isolation or gain. The application showed above is only an example therefore it can depend on your kit evaluation.

ELECTRICAL CHARACTERISTICS

($T_a = +25\text{ °C}$, $V_{CC} = 3V$, $Z_s = Z_L = 50\Omega$, unless otherwise specified)

Symbol	Parameters	Test Conditions	STB7102 ⁽¹⁾			STB7103 ⁽²⁾			STB7104 ⁽²⁾			Unit
			Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{CC}	Circuit Current	$f = 950\text{ MHz}$	3.3	4.3	5.3	3.3	4.1	4.9	2.2	2.8	3.4	mA
P1dB	Output Power at 1dB Compression Point	$f = 950\text{ MHz}$		0			1.5			-0.25		dBm
G_P	Gain at 1dB Compression Point	$f = 950\text{ MHz}$		15.5			17.5			17		dB
NF	Noise Figure	$f = 950\text{ MHz}$		3			2.85			3.3		dB
ISL	Isolation	$f = 950\text{ MHz}$		45			45			45		dB
RL_{in}	Input Return Loss	$f = 950\text{ MHz}$		8			10			7		dB
RL_{out}	Output Return Loss	$f = 950\text{ MHz}$		20			7			7		dB

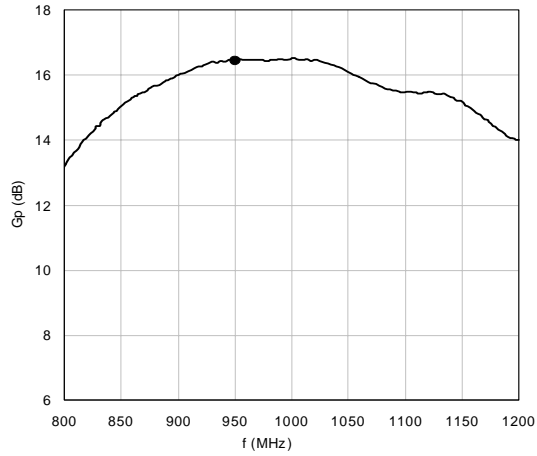
⁽¹⁾ STB7102 data are measured in TEST CIRCUIT showed in page 5

⁽²⁾ STB7103 and STB7104 data are measured in TEST CIRCUIT showed in page 8

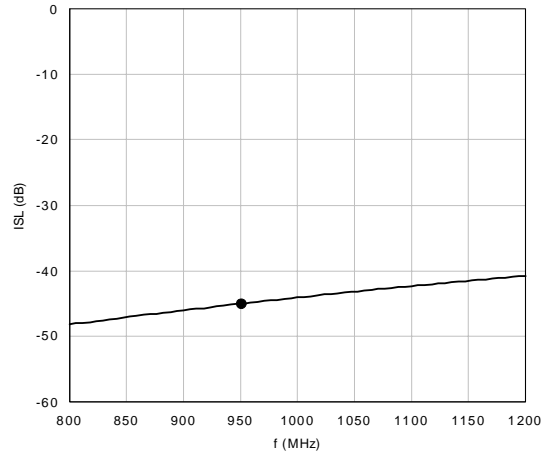
STB7102, STB7103, STB7104

TYPICAL PERFORMANCE (STB7102)

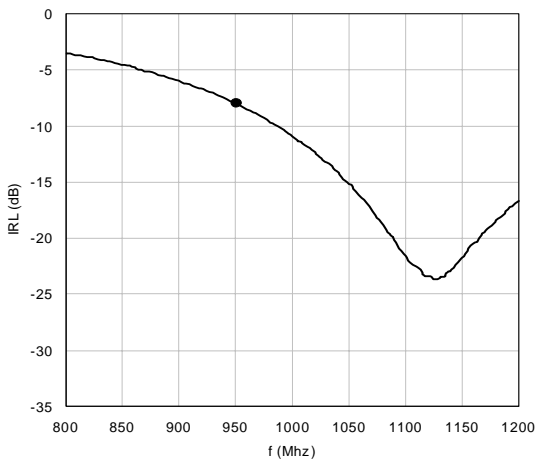
Power Gain vs. Frequency



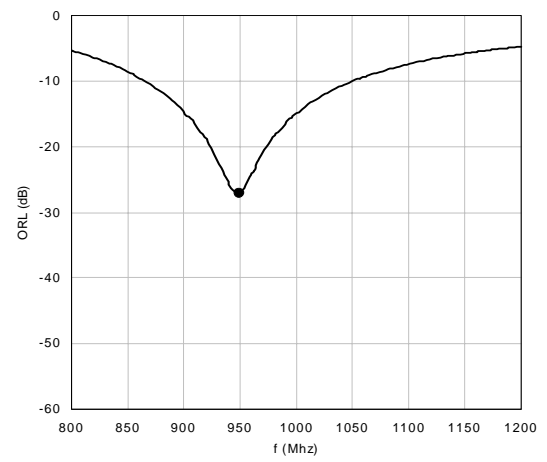
Reverse Isolation vs. Frequency



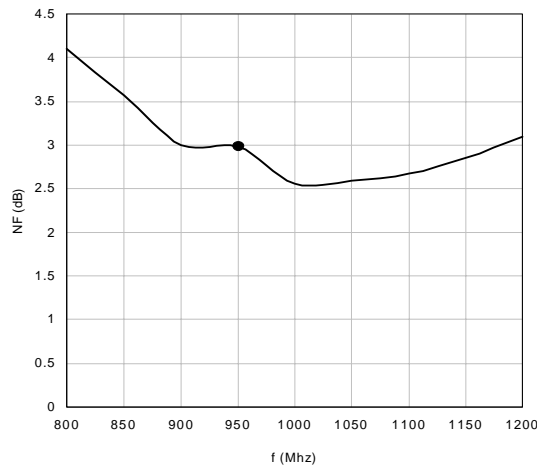
Input Return Loss vs. Frequency



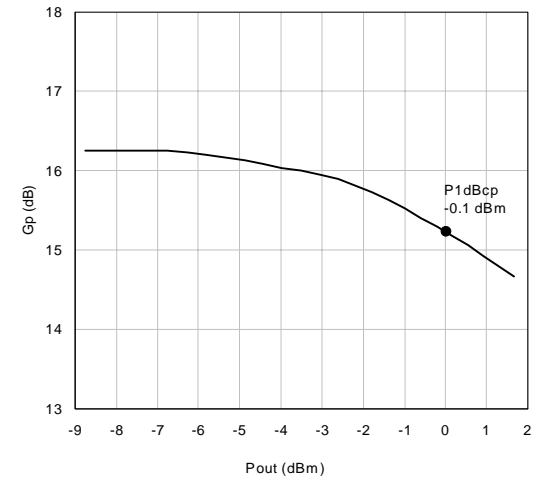
Output Return Loss vs. Frequency



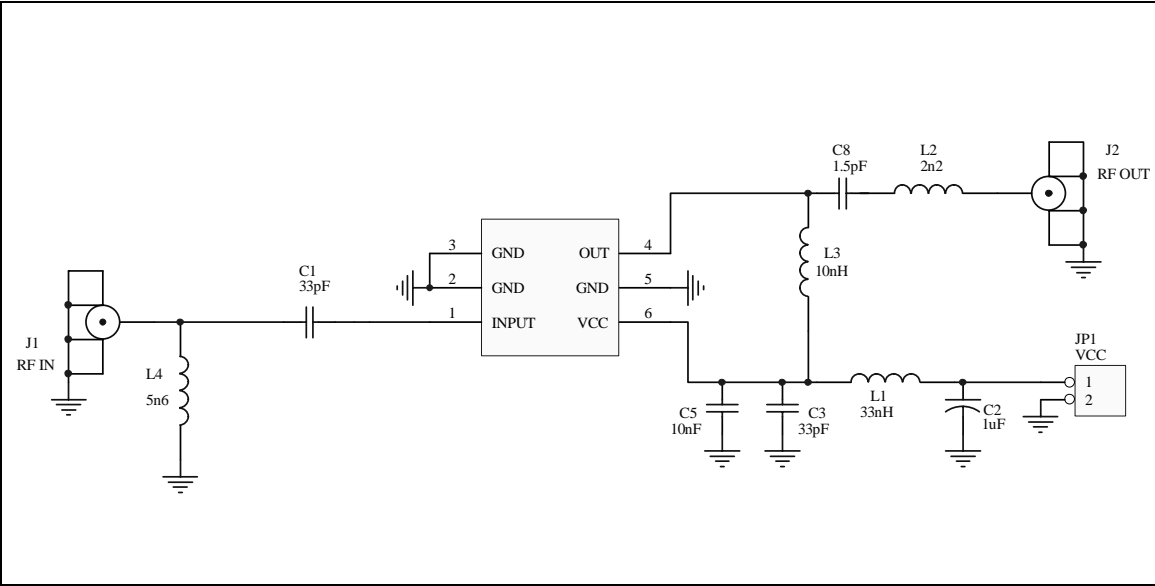
Noise Figure vs. Frequency



Output Power @ 1dB compression point



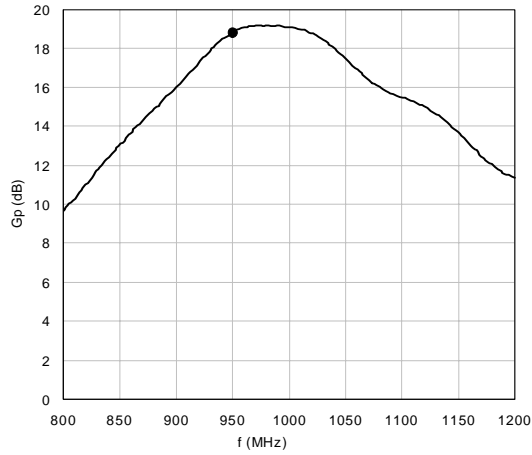
STB7102 TEST CIRCUIT



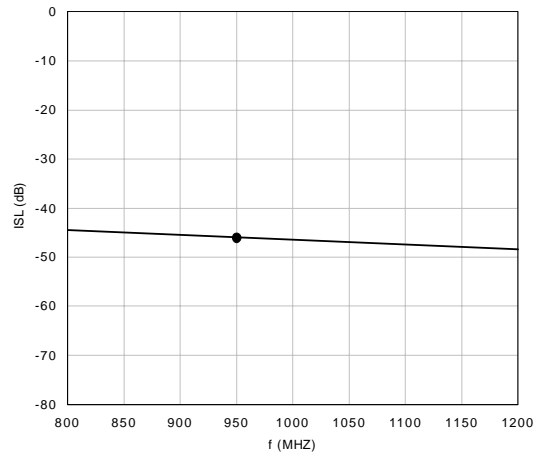
STB7102, STB7103, STB7104

TYPICAL PERFORMANCE (STB7103)

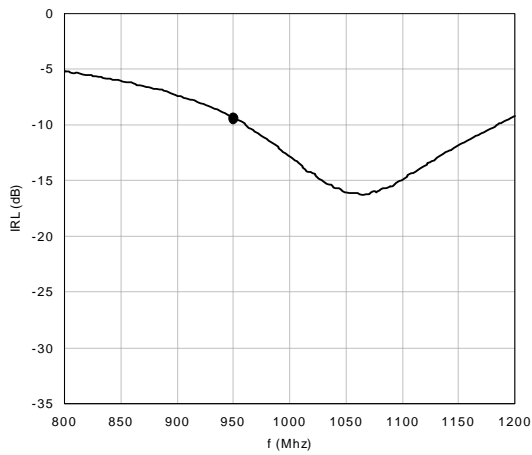
Power Gain vs. Frequency



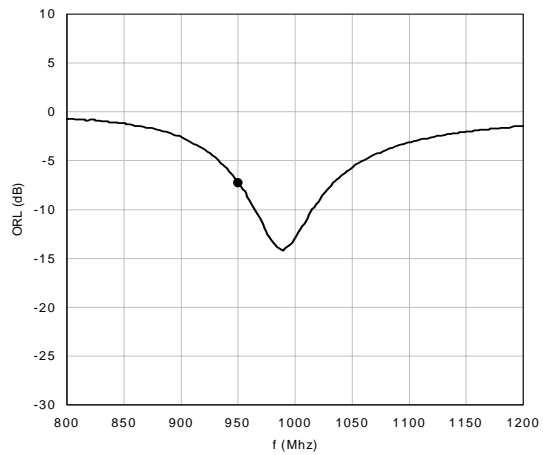
Reverse Isolation vs. Frequency



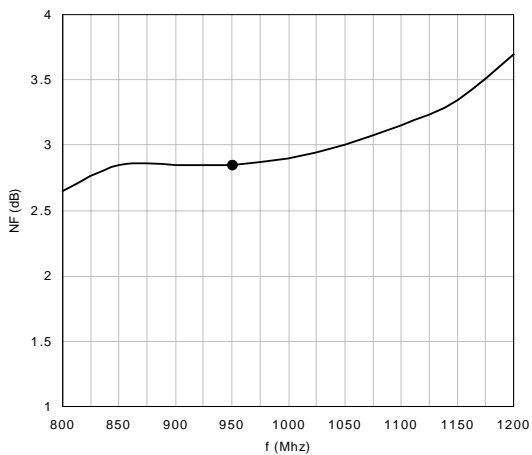
Input Return Loss vs. Frequency



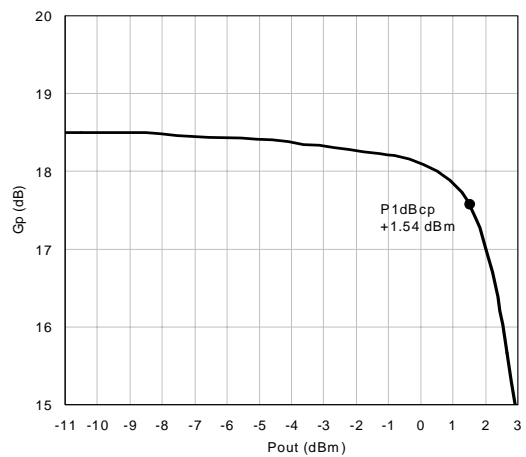
Output Return Loss vs. Frequency



Noise Figure vs. Frequency

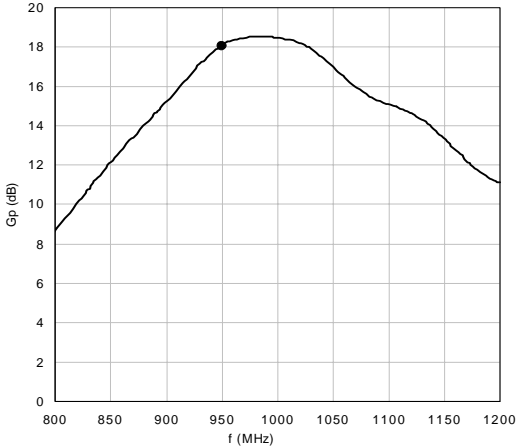


Output Power @ 1dB compression point

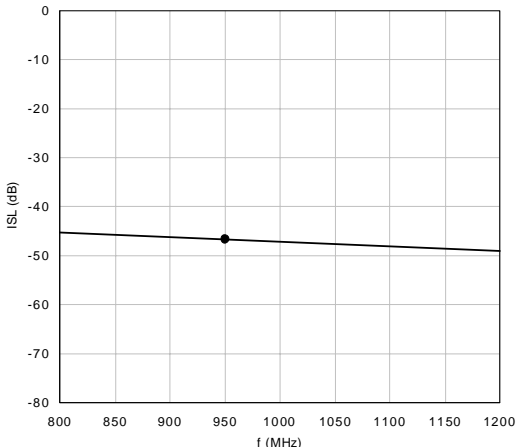


TYPICAL PERFORMANCE (STB7104)

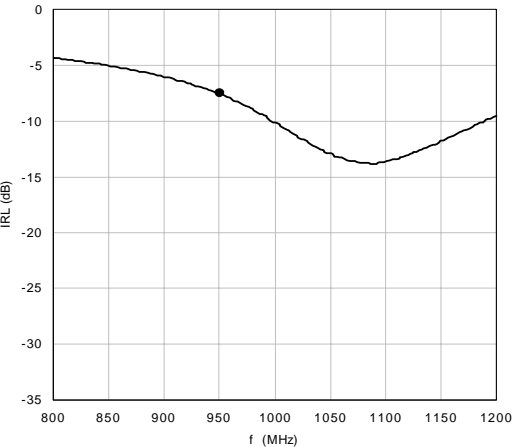
Power Gain vs. Frequency



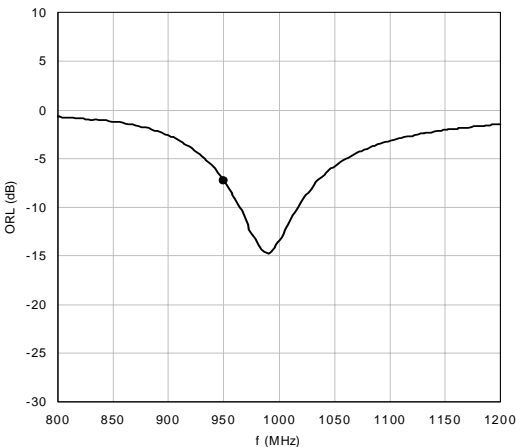
Reverse Isolation vs. Frequency



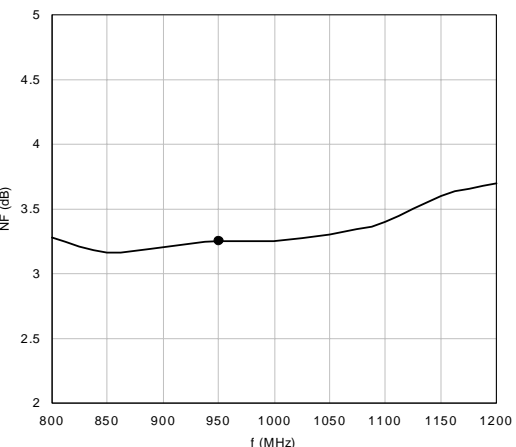
Input Return Loss vs. Frequency



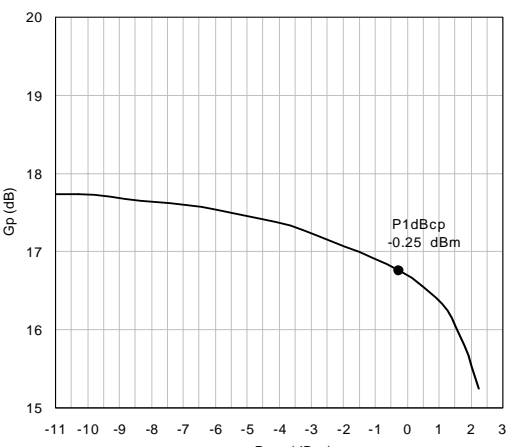
Output Return Loss vs. Frequency



Noise Figure vs. Frequency

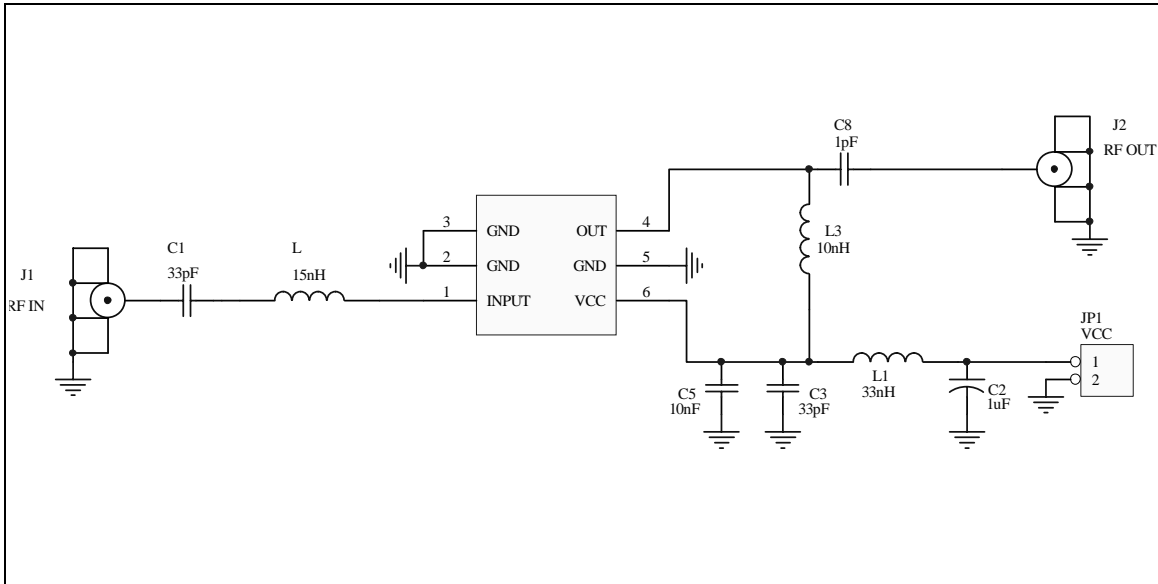


Output Power @ 1dB compression point



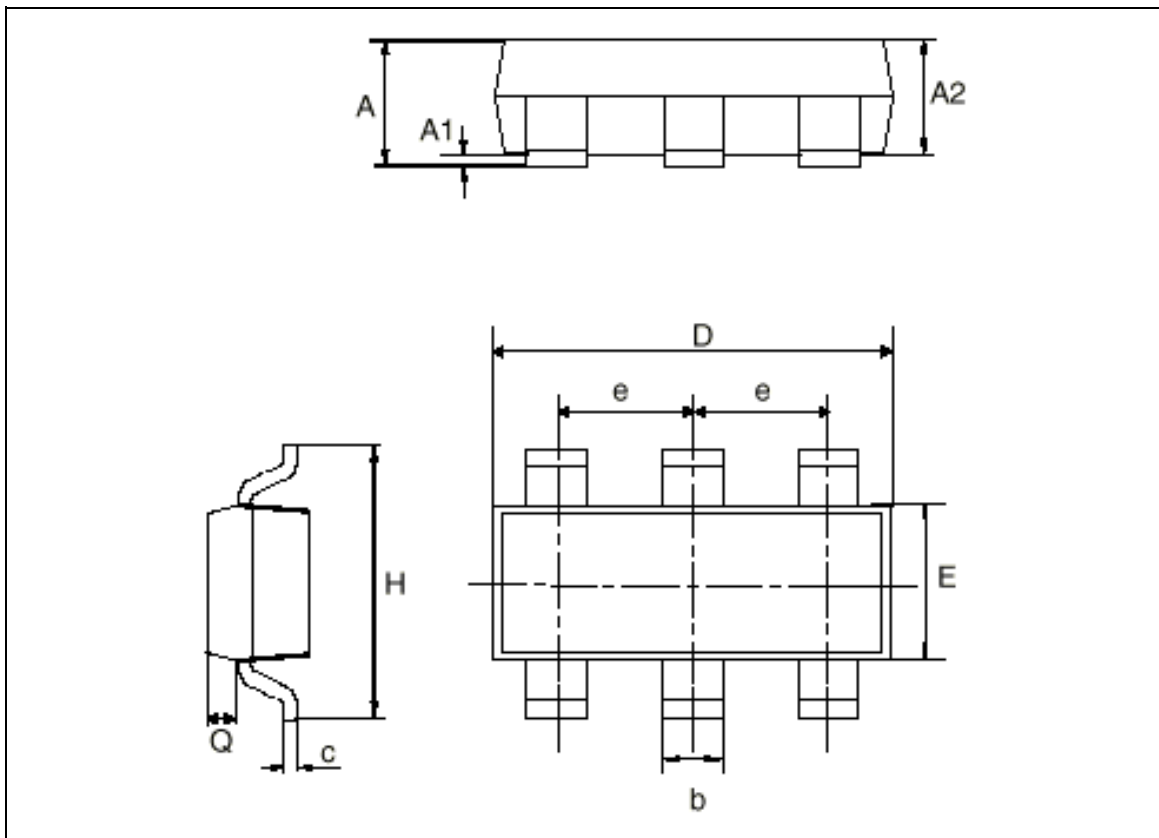
STB7102, STB7103, STB7104

STB7103 / STB7104 TEST CIRCUIT



SOT323-6L MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	0.8		1.1	0.031		0.043
A1	0		0.1	0		0.004
A2	0.8		1	0.0031		0.039
b	0.15		0.3	0.006		0.012
c	0.1		0.18	0.004		0.007
D	1.8		2.2	0.071		0.088
E	1.15		1.35	0.045		0.59
e		0.65			0.025	
H	1.8		2.4	0.071		0.094
Q	0.1		0.4	0.004		0.016



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is registered trademark of STMicroelectronics
© 2002 STMicroelectronics - All Rights Reserved

All other names are the property of their respective owners.

STMicroelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan -
Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.
<http://www.st.com>