



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





SMA3102 — Silicon MMIC Low Noise Amplifier

Features

- High Gain : $G_p=24.5\text{dB typ. @ }1.575\text{GHz}$
- Low Noise : $NF=1.5\text{dB typ. @ }1.575\text{GHz}$
- Low Voltage : $V_{CC}=2.0\text{V typ.}$
- Low Current : $I_{CC}=10\text{mA typ.}$
- Halogen free compliance

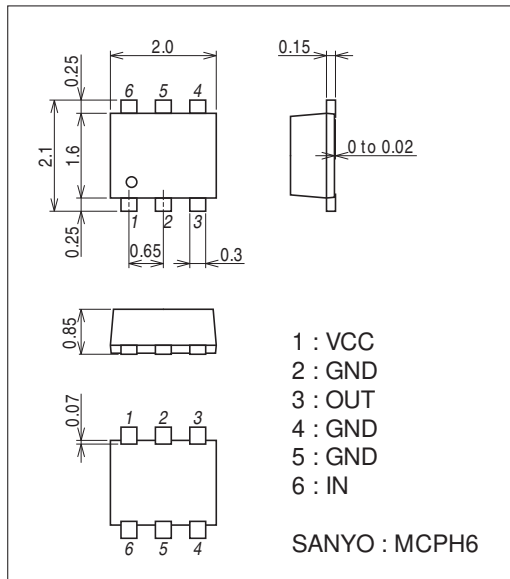
Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply Voltage	V_{CC}		3.5	V
Circuit Current	I_{CC}		40	mA
Allowable Power Dissipation	P_D		280	mW
Operating Temperature	T_{opr}		-40 to +85	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

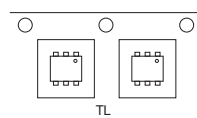
unit : mm (typ)
7022A-018



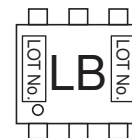
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC82, SC82A, SC88
- Minimum Packing Quantity : 3,000pcs/reel

Type of Taping: TL



Marking



SMA3102

Recommended Operating Conditions at $T_a=25^\circ\text{C}$

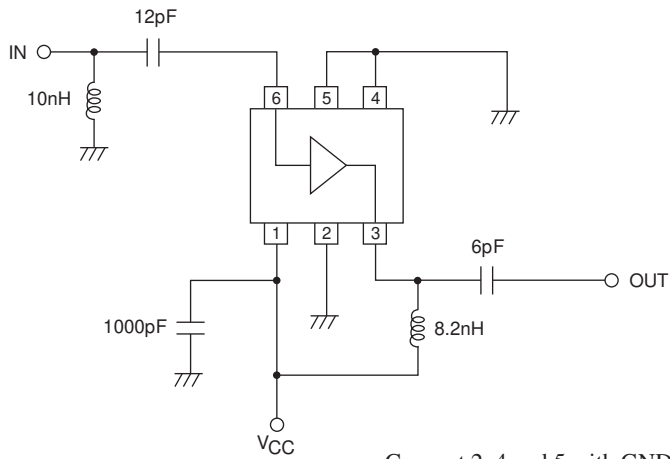
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VCC		1.8	2	2.3	V
Operating Ambient Temperature	Topr		-40	+25	+85	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$, $V_{CC}=2.0\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	ICC		7.0	10.0	14.0	mA
Power Gain	Gp	$f=1.575\text{GHz}$	21.5	24.5	27.5	dB
Isolation	ISL	$f=1.575\text{GHz}$	33.0	38.0		dB
Input Return Loss	RLin	$f=1.575\text{GHz}$	8.0	10.0		dB
Output Return Loss	RLout	$f=1.575\text{GHz}$	12.0	16.0		dB
Noise Figure	NF	$f=1.575\text{GHz}$		1.5	1.7	dB
Gain 1dB Compression Input Power	Pin(1dB)	$f=1.575\text{GHz}$	-25.0	-22.0		dBm
Input 3rd Order Intercept Point	IIP3	$f_1=1.574\text{GHz}$, $f_2=1.575\text{GHz}$		-10.0		dBm

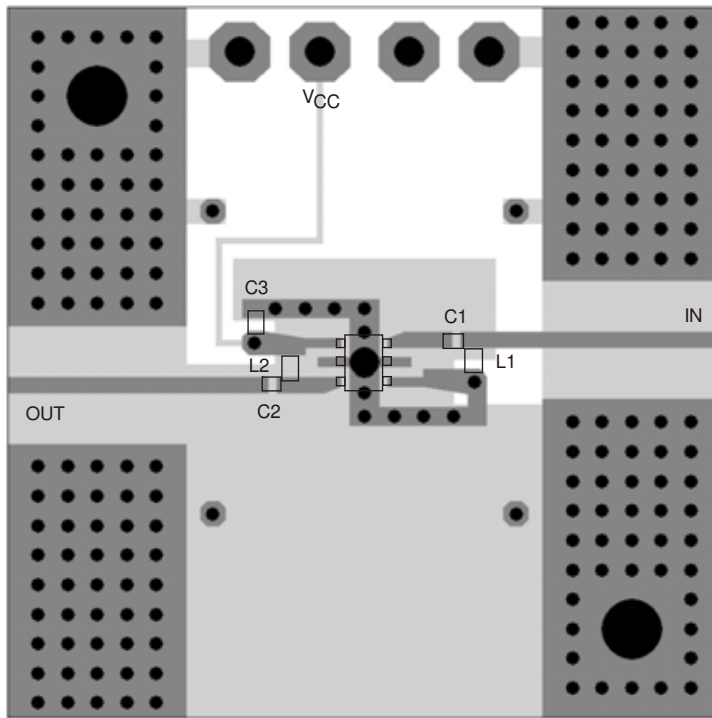
Note) Pay attention to handling since it is liable to be affected by static electricity due to the high frequency process adopted.

Test Circuit

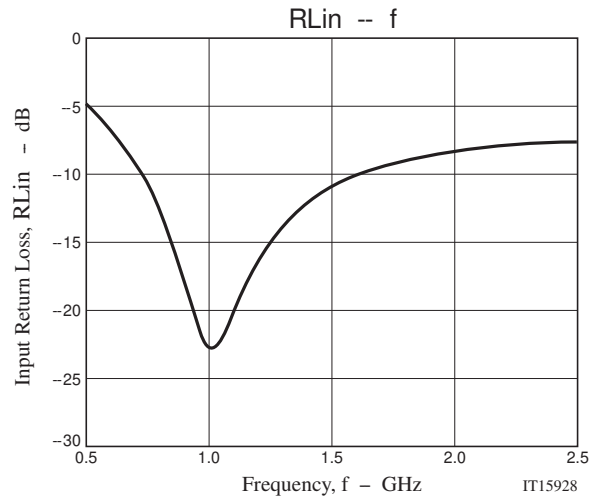
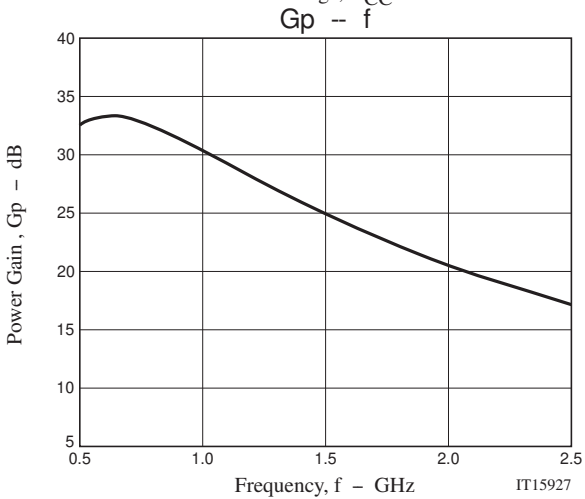
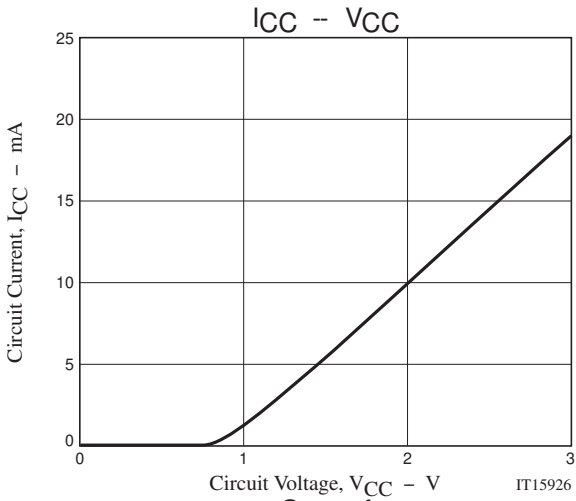


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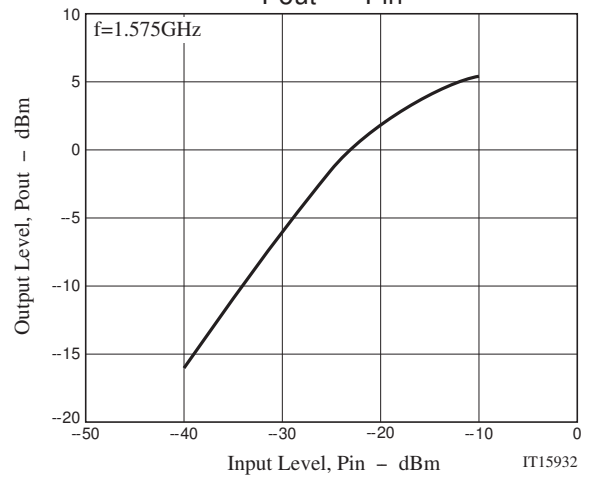
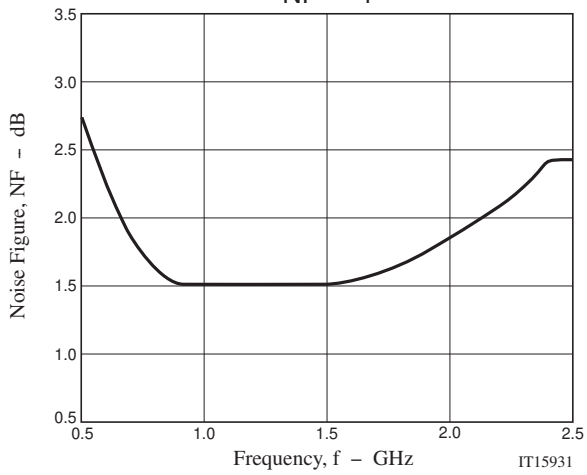
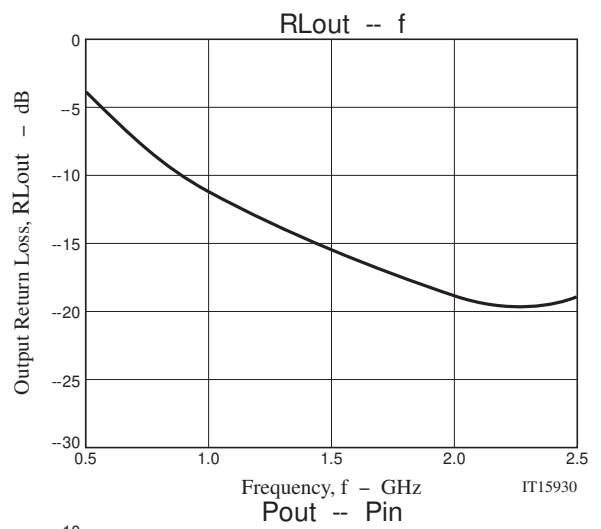
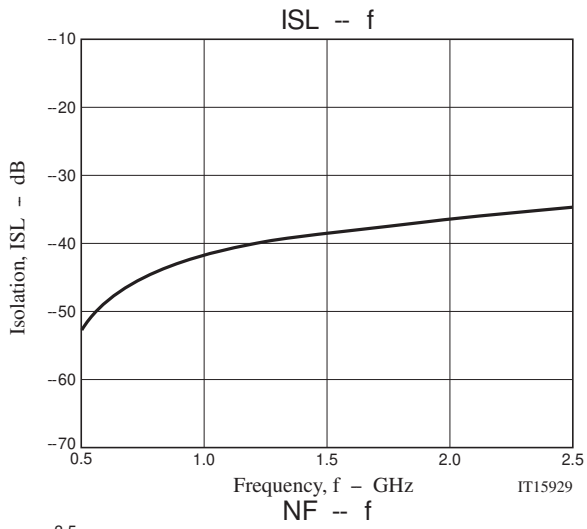
Design of the Evaluation Board



Symbol	Value
C1	12pF
C2	6pF
C3	1000pF
L1	10nH
L2	8.2nH



SMA3102



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