



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

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

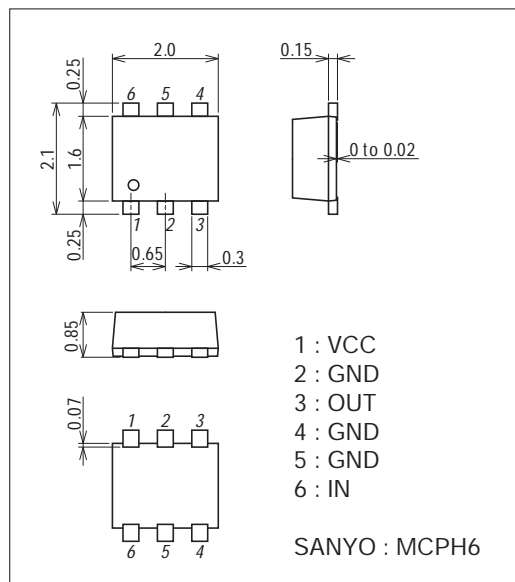
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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)

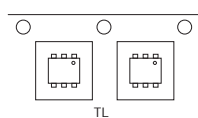
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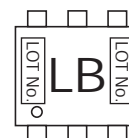
Product & Package Information

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

Type of Taping: TL



Marking



SMA3102

Recommended Operating Conditions at Ta=25°C

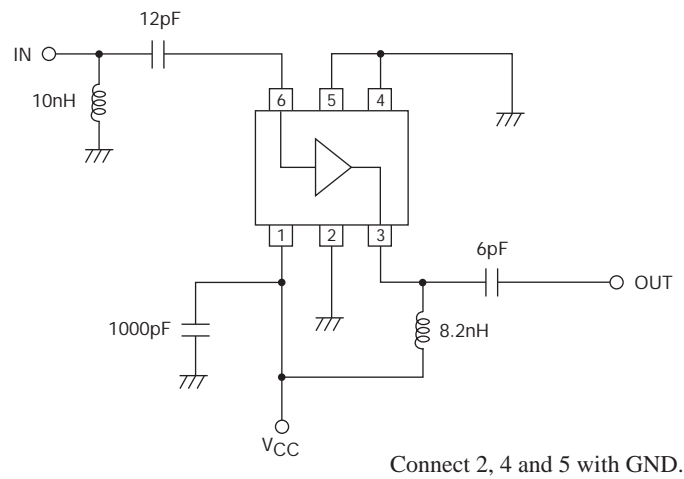
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VCC		1.8	2	2.3	V
Operating Ambient Temperature	Topr		-40	+25	+85	°C

Electrical Characteristics at Ta=25°C, VCC=2.0V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	ICC		7.0	10.0	14.0	mA
Power Gain	Gp	f=1.575GHz	21.5	24.5	27.5	dB
Isolation	ISL	f=1.575GHz	33.0	38.0		dB
Input Return Loss	RLin	f=1.575GHz	8.0	10.0		dB
Output Return Loss	RLout	f=1.575GHz	12.0	16.0		dB
Noise Figure	NF	f=1.575GHz		1.5	1.7	dB
Gain 1dB Compression Input Power	Pin(1dB)	f=1.575GHz	-25.0	-22.0		dBm
Input 3rd Order Intercept Point	IIP3	f1=1.574GHz, f2=1.575GHz		-10.0		dBm

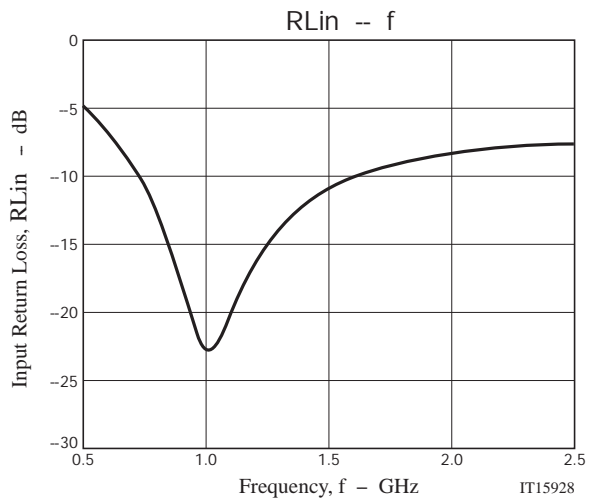
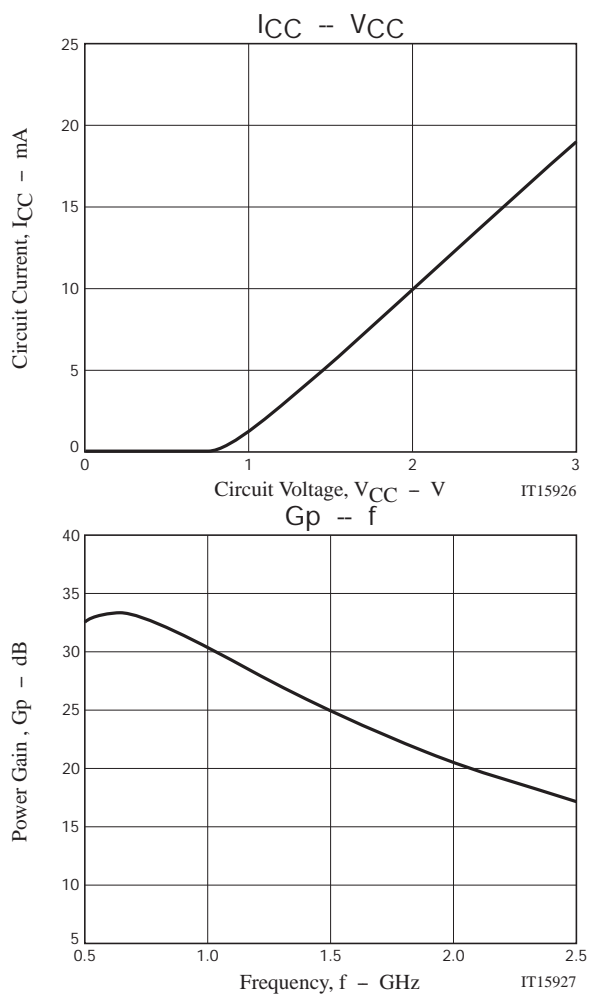
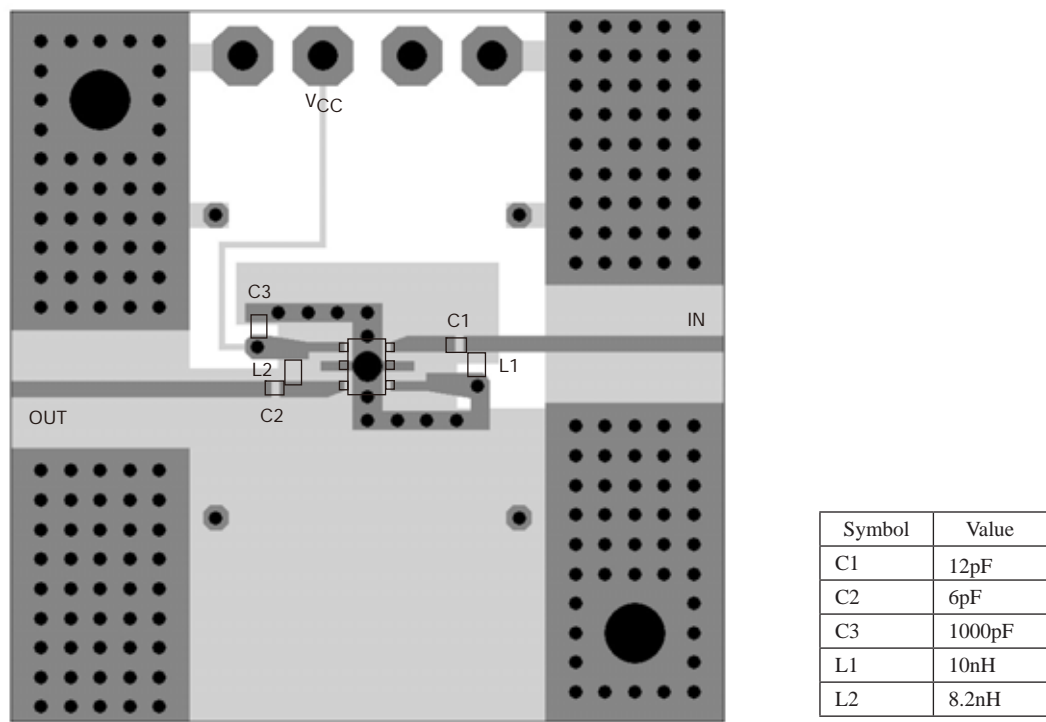
Note) Pay attention to handling since it is liable to be affected by static electricity due to the high frequency process adopted.

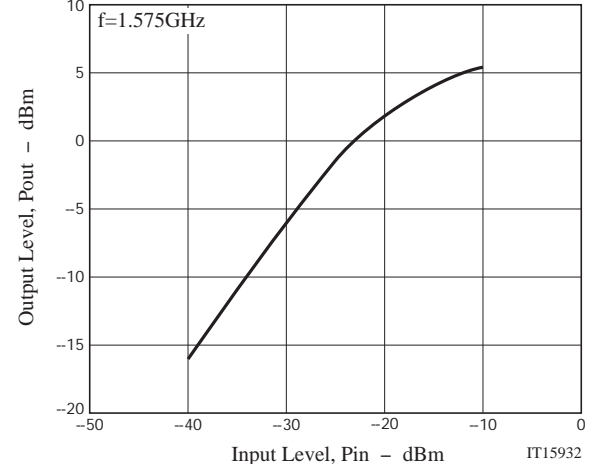
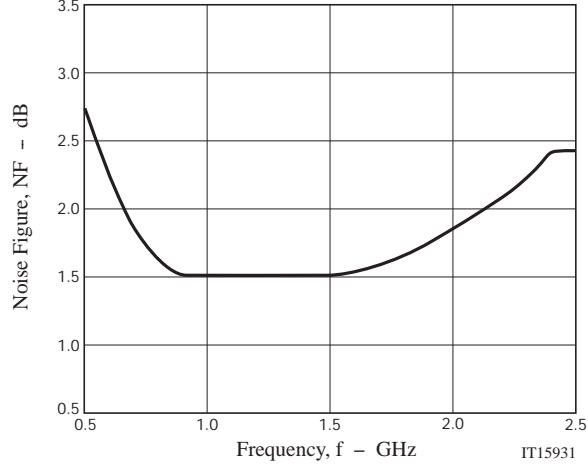
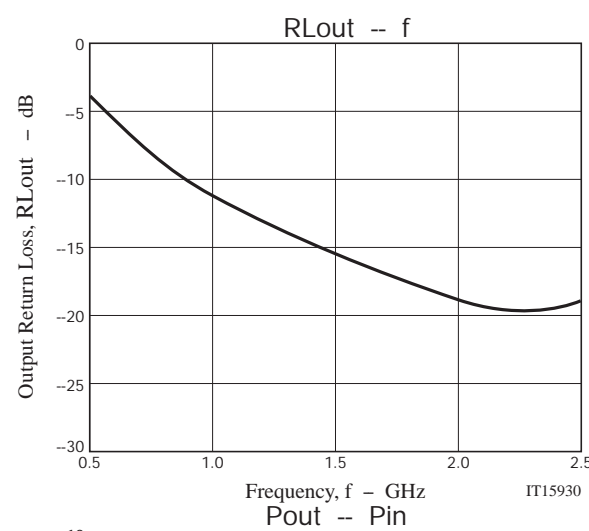
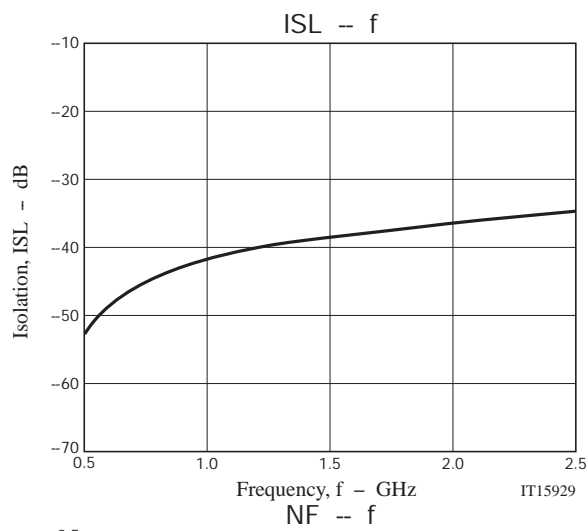
Test Circuit



IT15925

Design of the Evaluation Board





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