Ordering number : ENA1749

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

SMA3109 — Silicon MMIC Wideband Amplifier

Features

- High Gain : Gp=23dB typ. @1GHz
- Wideband response : fu=3.6GHz
- Low current : I_{CC}=16mA typ.
- High output power : Po(1dB)=4dBm
- Port impedance : input/output 50Ω

Specifications

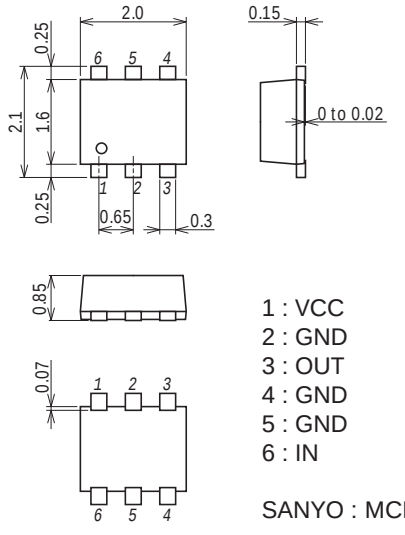
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply Voltage	V_{CC}		5	V
Circuit Current	I_{CC}		25	mA
Allowable Power Dissipation	P_D		280	mW
Operating Temperature	Topr		−40 to +85	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

7022A-018



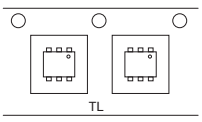
1 : VCC
2 : GND
3 : OUT
4 : GND
5 : GND
6 : IN

SANYO : MCPH6

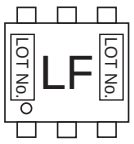
Product & Package Information

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

Type of Taping: TL



Marking



Recommended Operating Conditions at Ta=25°C

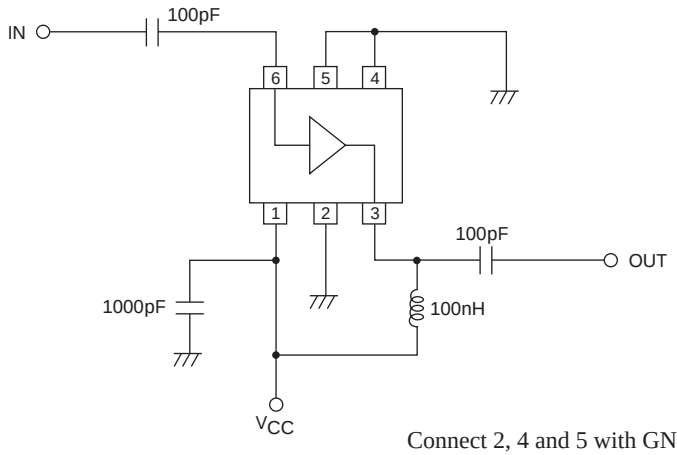
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	V_{CC}		2.7	3	3.3	V
Operating Ambient Temperature	Topr		−40	+25	+85	°C

Electrical Characteristics at Ta=25°C, V_{CC}=3V, Zs=Z_L=50Ω

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	I_{CC}		11.5	16.0	20.5	mA
Power Gain	Gp	f=1GHz	21.0	23.0	26.0	dB
		f=2.2GHz	22.0	24.0	27.0	
Isolation	ISL	f=1GHz	27.0	31.5		dB
		f=2.2GHz	27.0	31.5		
Input Return Loss	RLin	f=1GHz	16.0	20.5		dB
		f=2.2GHz	10.0	15.0		
Output Return Loss	RLout	f=1GHz	15.0	20.0		dB
		f=2.2GHz	10.0	14.0		
Noise Figure	NF	f=1GHz		4.3	5.0	dB
		f=2.2GHz		4.3	5.0	
Gain 1dB Compression Output Power	Po(1dB)	f=1GHz	4.0	6.4		dBm
		f=2.2GHz	2.0	4.2		
Upper Limit Operating Frequency	fu	3dB down below flat gain at f =1GHz		3.6		GHz

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

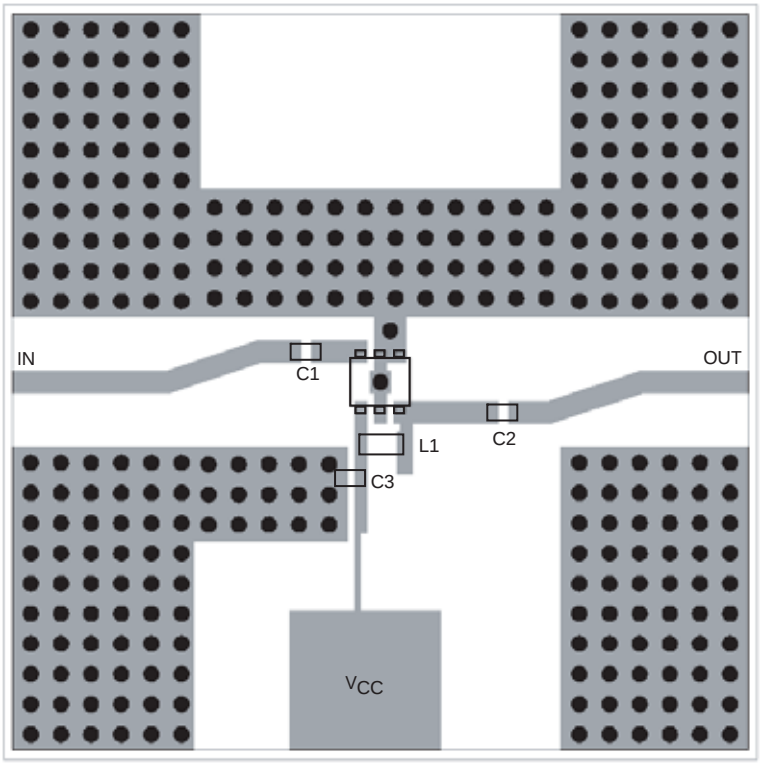
Test Circuit



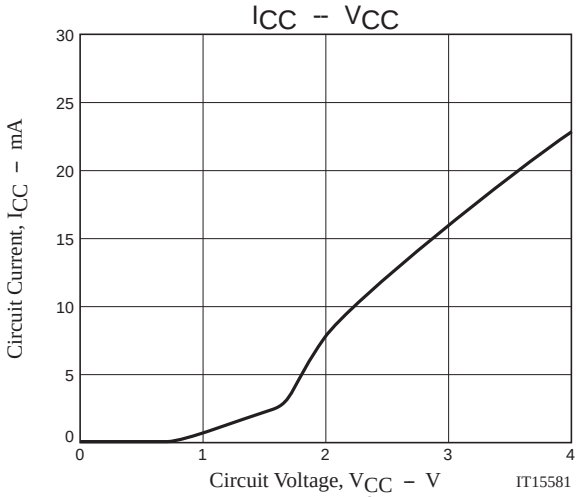
Connect 2, 4 and 5 with GND.

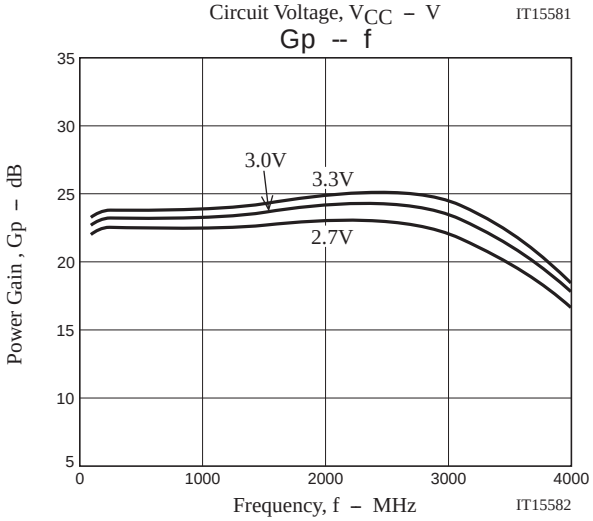
IT15580

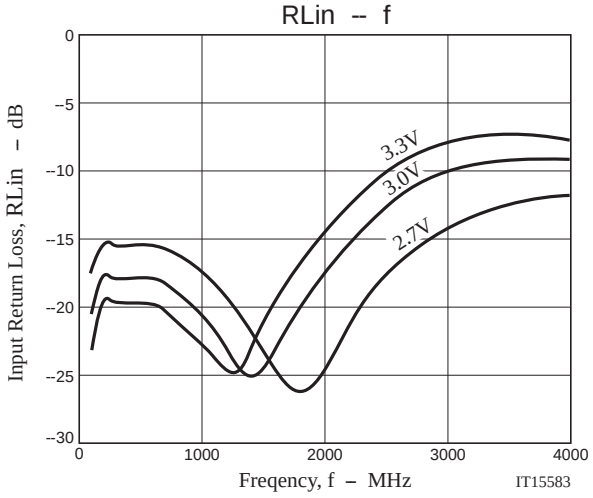
Evaluation Board

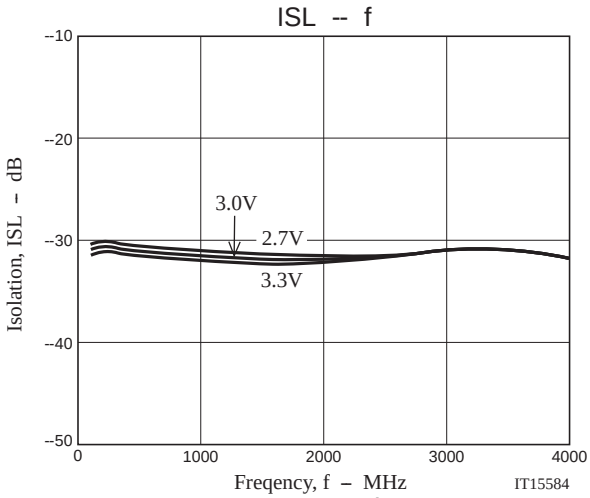


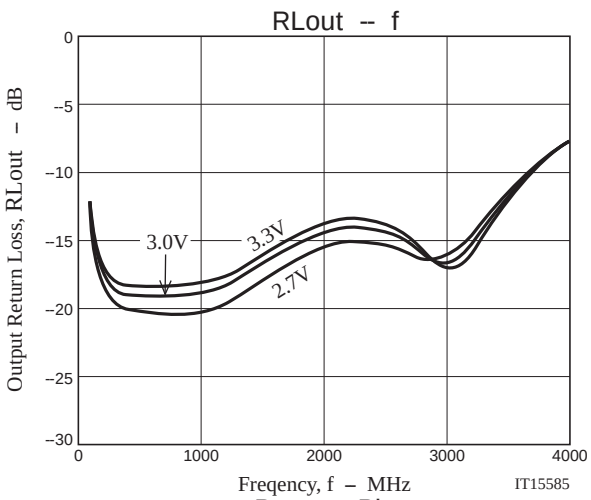
Symbol	Value
C1, C2	100pF
C3	1000pF
L1	100nH

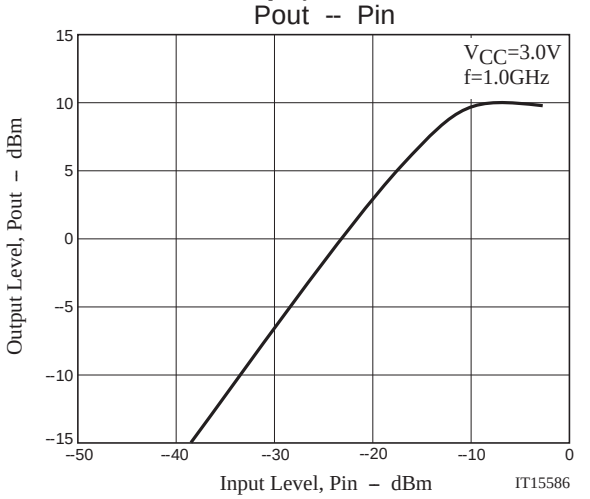


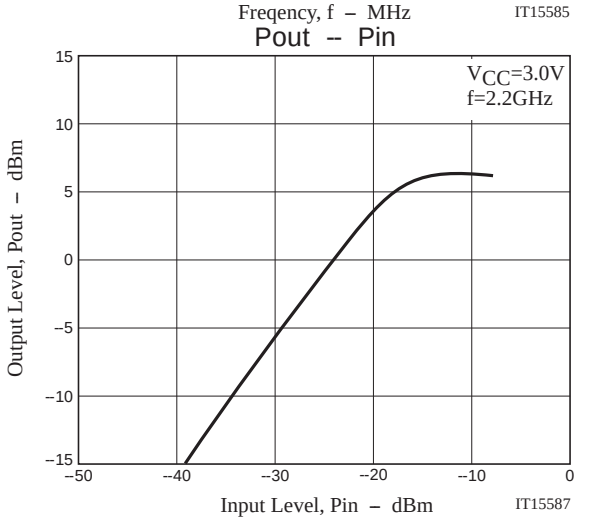






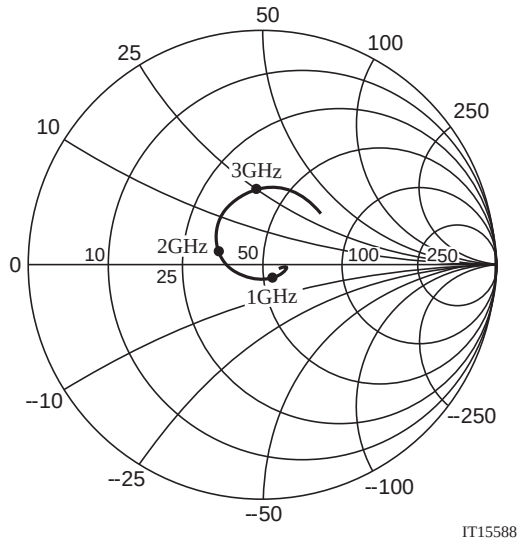




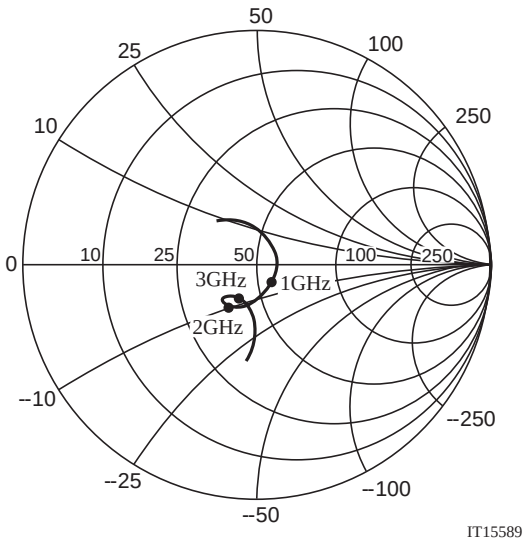


S Parameter

S11



S22



This catalog provides information as of June, 2010. Specifications and information herein are subject to change without notice.