



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

SMA3107 — Silicon MMIC Wideband Amplifier

Features

- High Gain : $G_p=23.5\text{dB typ. @ }1\text{GHz}$
- Wideband response : $f_u=2.8\text{GHz}$
- Low current : $I_{CC}=6\text{mA typ.}$
- Port impedance : input/output 50Ω

Specifications

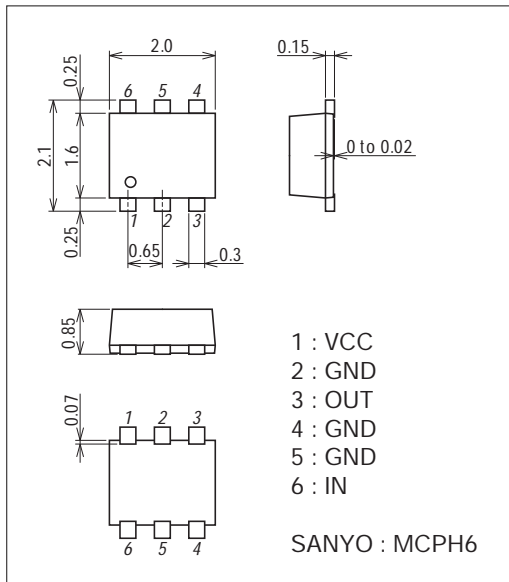
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply Voltage	V_{CC}		5	V
Circuit Current	I_{CC}		15	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)

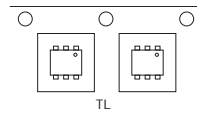
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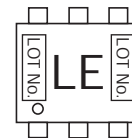
Product & Package Information

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

Type of Taping: TL



Marking



SMA3107

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

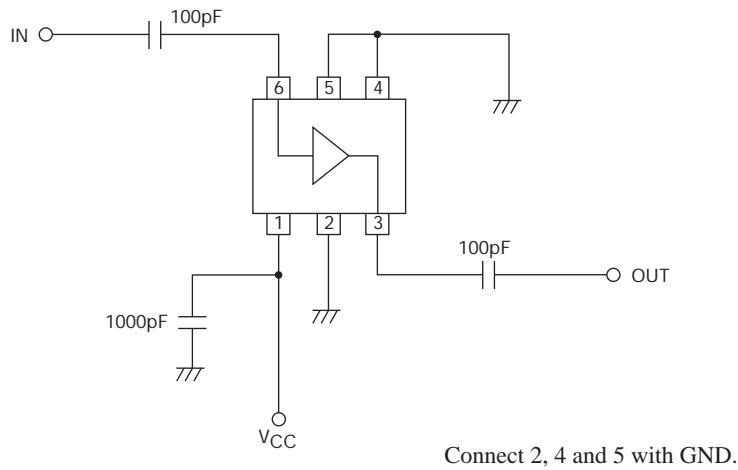
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VCC		2.7	3	3.3	V
Operating Ambient Temperature	Topr		-40	+25	+85	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$, $V_{CC}=3\text{V}$, $Z_s=Z_L=50\Omega$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	ICC		4.3	6.0	7.7	mA
Power Gain	Gp	f=1GHz	21.0	23.5	26.0	dB
		f=2.2GHz	22.0	24.5	27.0	
Isolation	ISL	f=1GHz	33.0	38.0		dB
		f=2.2GHz	40.0	45.0		
Input Return Loss	RLin	f=1GHz	18.0	23.0		dB
		f=2.2GHz	10.0	13.0		
Output Return Loss	RLout	f=1GHz	27.0	32.0		dB
		f=2.2GHz	10.0	13.0		
Noise Figure	NF	f=1GHz		3.1	4.3	dB
		f=2.2GHz		3.6	4.3	
Gain 1dB Compression Output Power	Po(1dB)	f=1GHz	-8.5	-6.5		dBm
		f=2.2GHz	-11.5	-9.5		
Upper Limit Operating Frequency	fu	3dB down below flat gain at f =1GHz		2.8		GHz

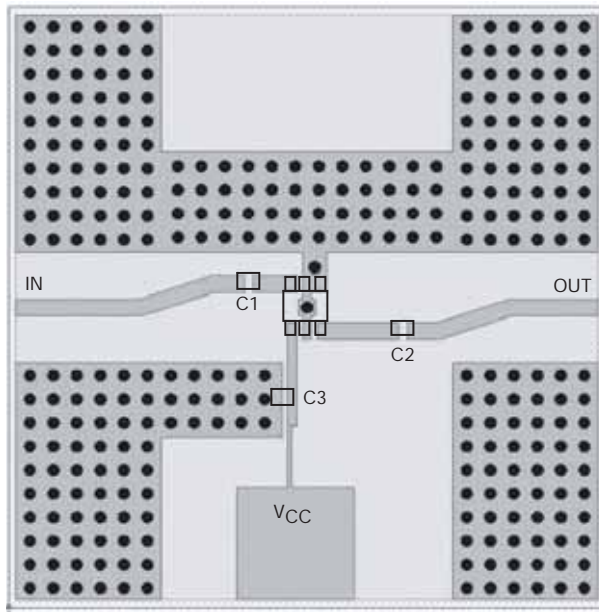
Note) Pay attention to handling since it is liable to be affected by static electricity due to the high frequency process adopted.

Test Circuit

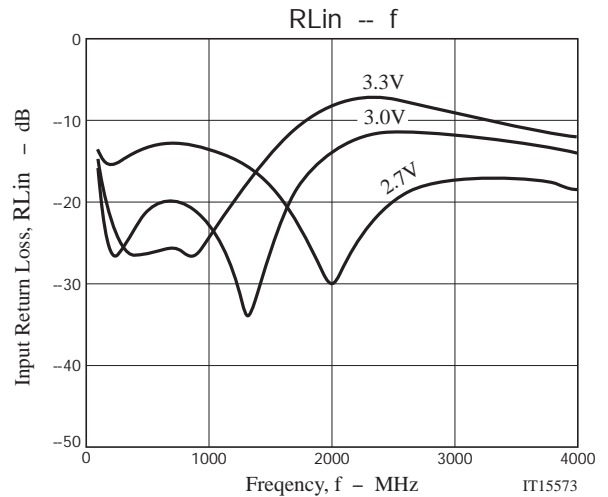
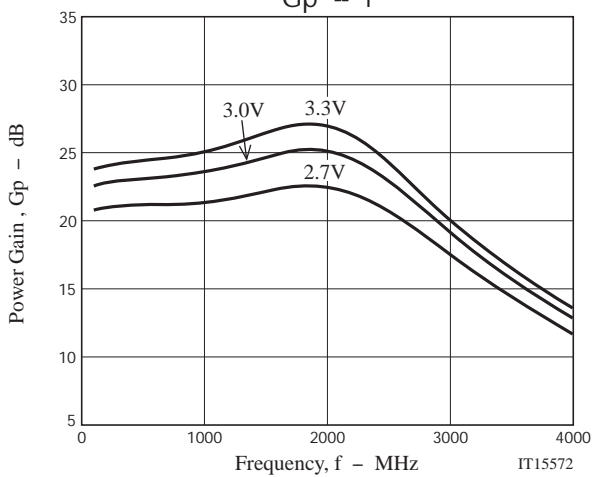
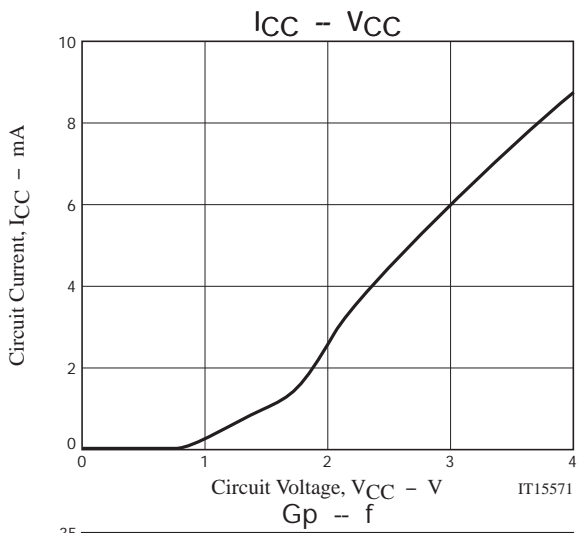


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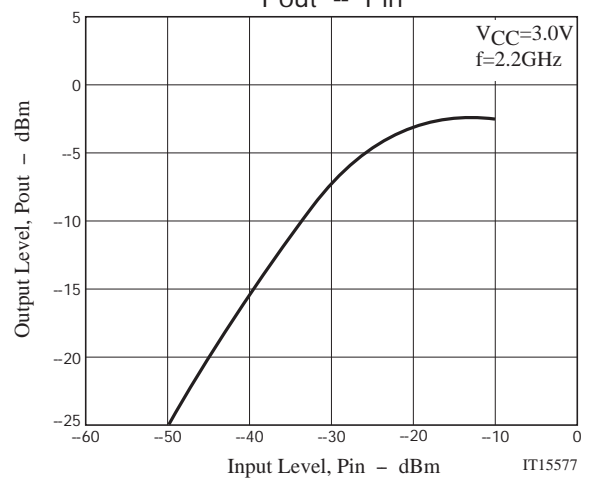
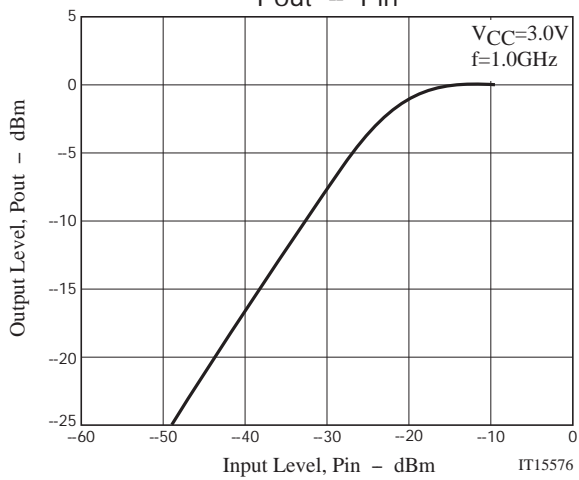
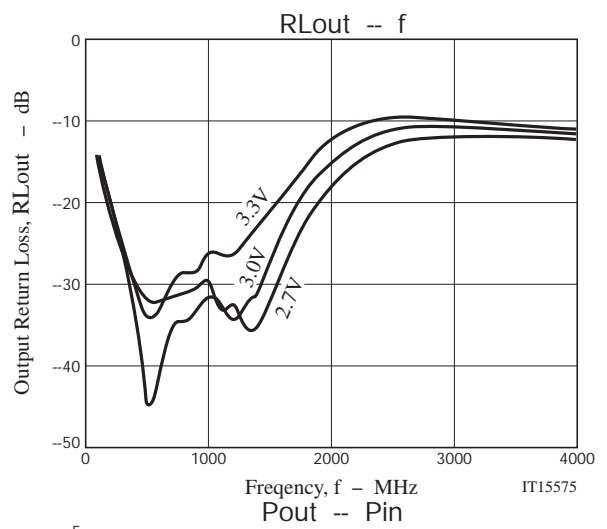
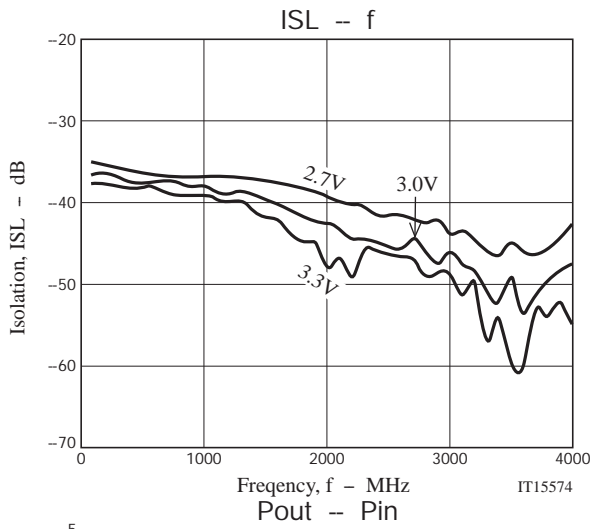
Evaluation Board



Symbol	Value
C1, C2	100pF
C3	1000pF

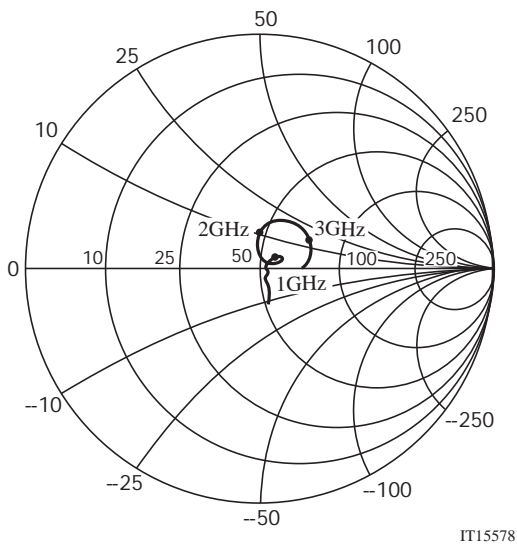


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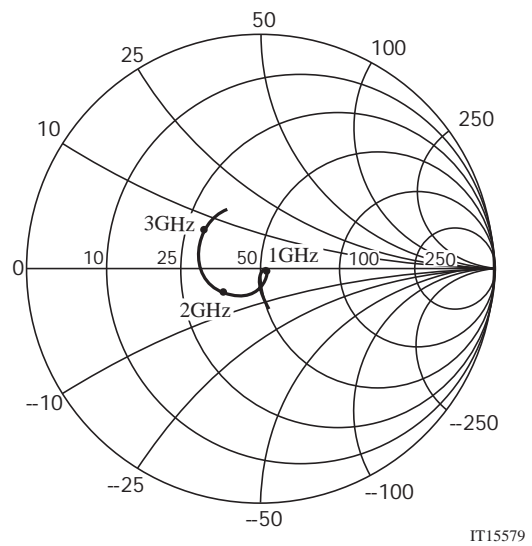


S Parameter

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