



SMA3107

ON Semiconductor®

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MMIC

Amplifier, 3V, 6mA, 0.1 to 2.8GHz, MCPH6

Features

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

Specifications

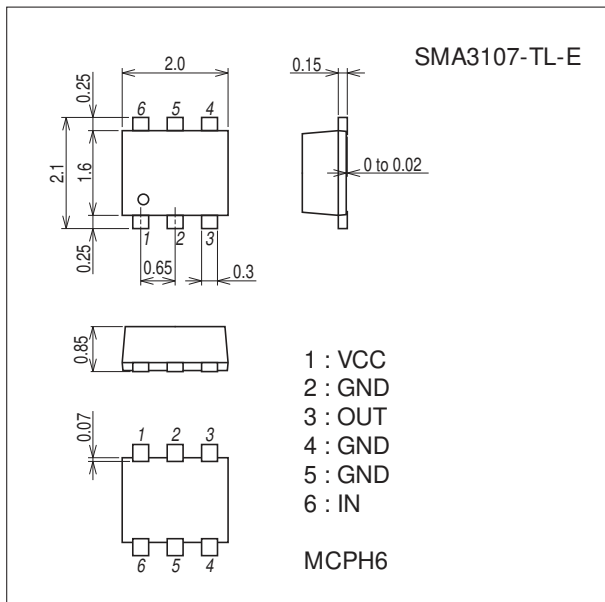
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

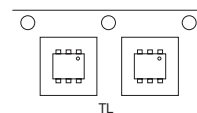
unit : mm (typ)
7022A-018



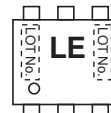
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

Packing Type : TL



Marking



SMA3107

Recommended Operating Condition 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 $T_a=25^{\circ}\text{C}$, $V_{CC}=3\text{V}$, $Z_s=Z_L=50\Omega$

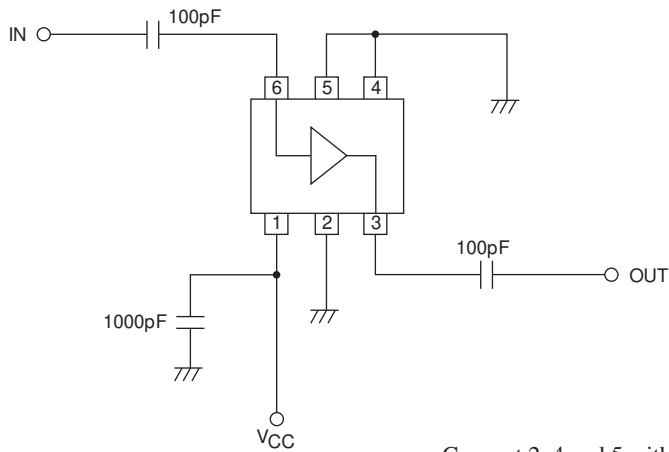
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	I _{CC}		4.3	6.0	7.7	mA
Power Gain	G _p	f=1GHz	21.0	23.5	26.0	dB
		f=2.2GHz	22.0	24.5	27.0	
Isolation	ISL	f=1GHz	33.0	38.0		dB
		f=2.2GHz	40.0	45.0		
Input Return Loss	RL _{in}	f=1GHz	18.0	23.0		dB
		f=2.2GHz	10.0	13.0		
Output Return Loss	RL _{out}	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	P _o (1dB)	f=1GHz	-10	-8		dBm
		f=2.2GHz	-11.5	-9.5		
Upper Limit Operating Frequency	f _u	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.

Ordering Information

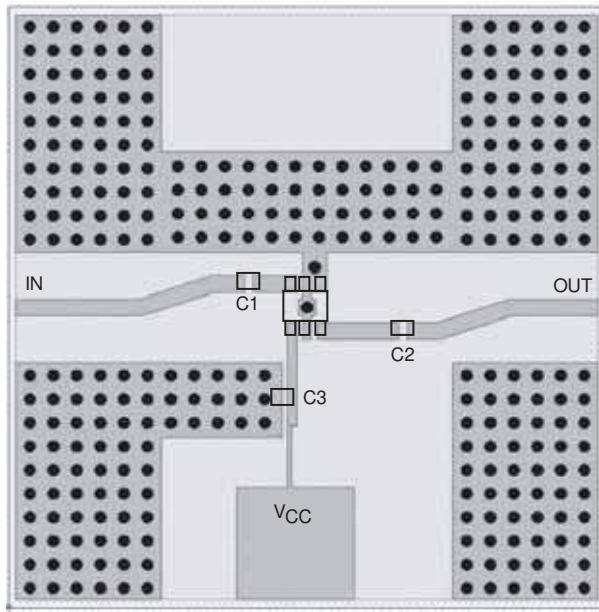
Device	Package	Shipping	memo
SMA3107-TL-E	MCPH6	3,000pcs./reel	Pb Free

Test Circuit

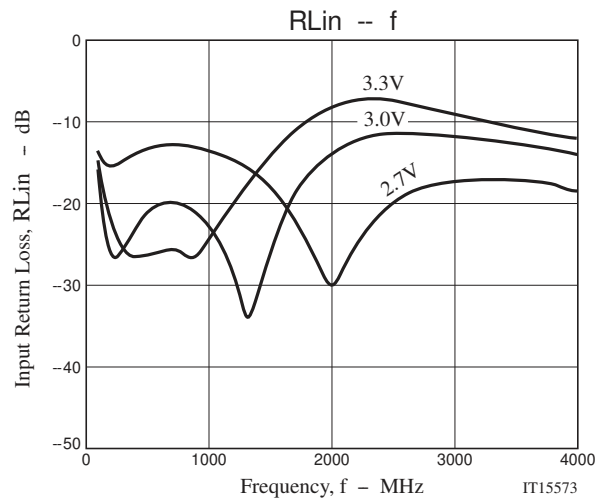
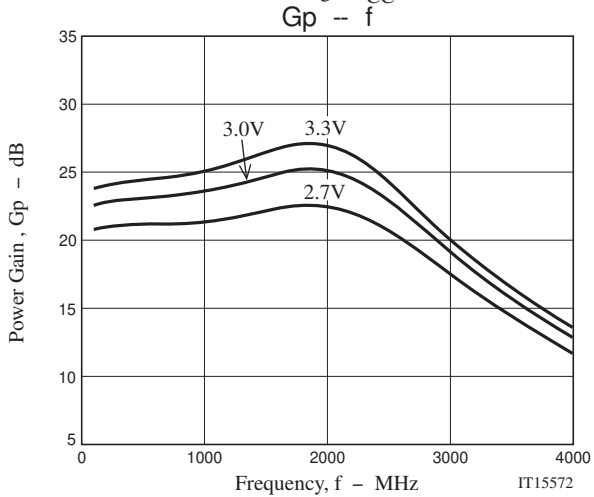
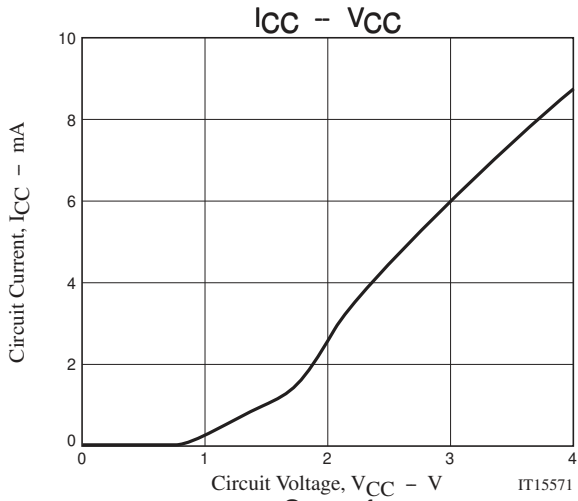


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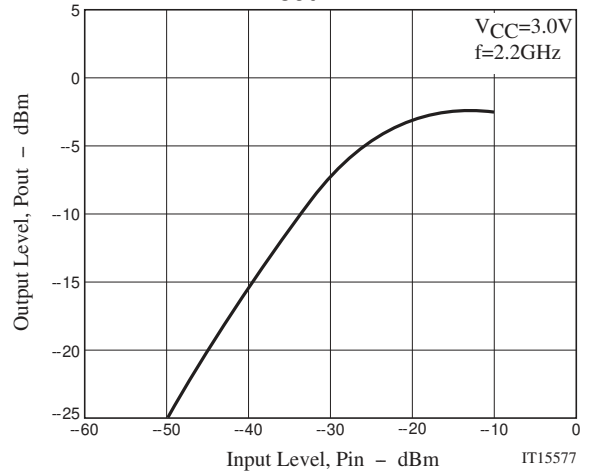
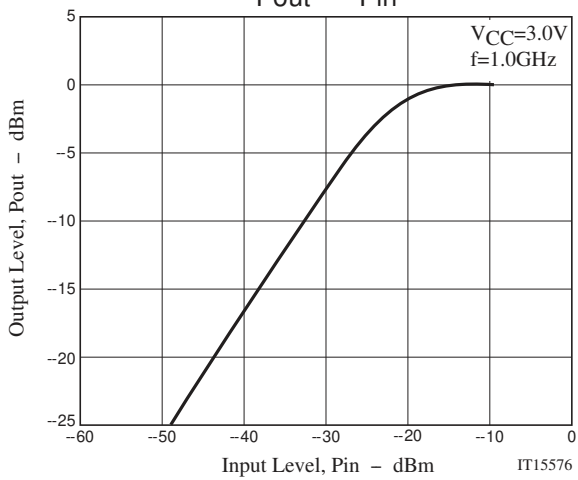
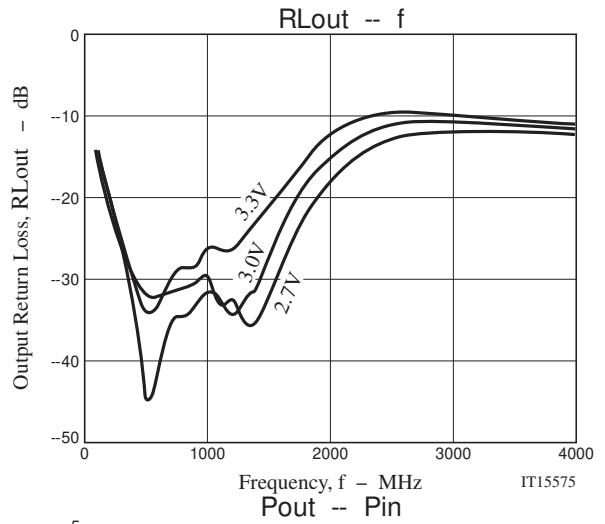
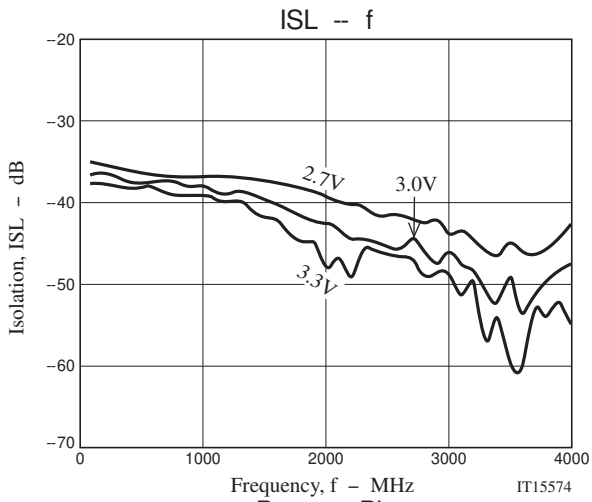
Evaluation Board



Symbol	Value
C1, C2	100pF
C3	1000pF

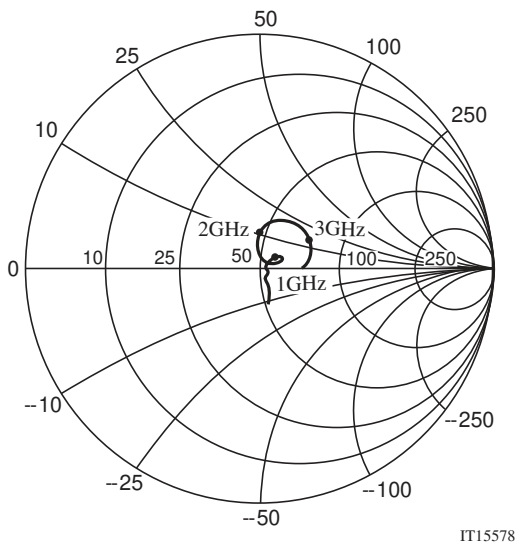


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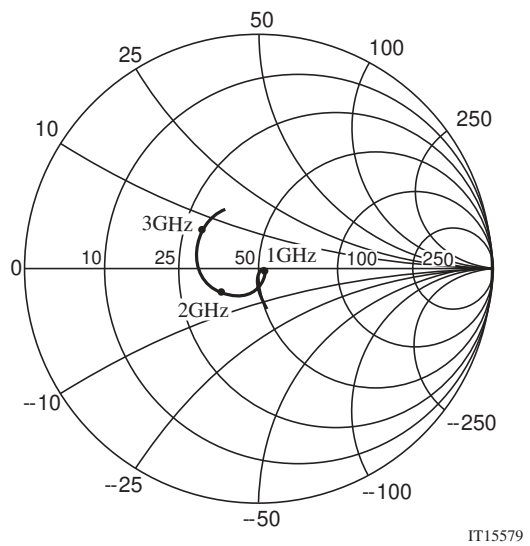


S Parameter

S11



S22



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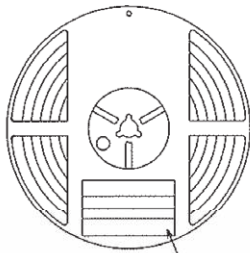
Embossed Taping Specification

SMA3107-TL-E

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



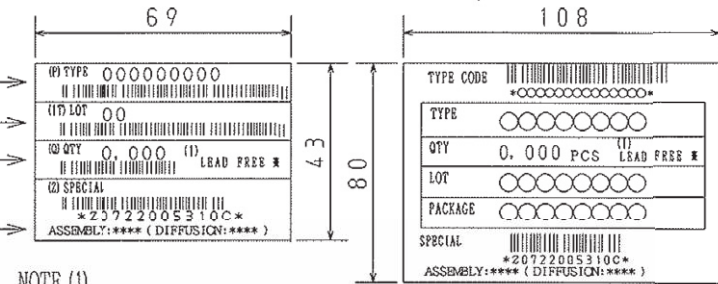
Type No.
LOT No.
Quantity
Origin

Reel label

Reel label, Inner box label
(unit :mm)

Outer box label

It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



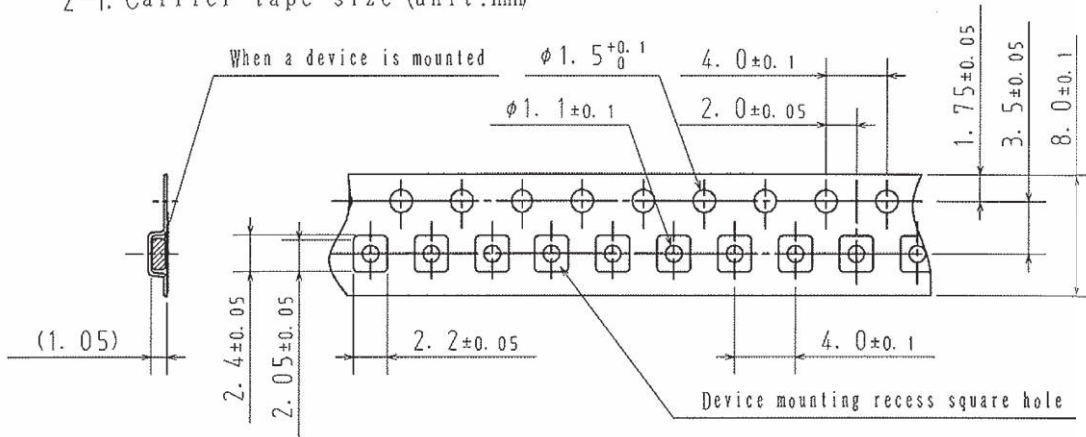
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

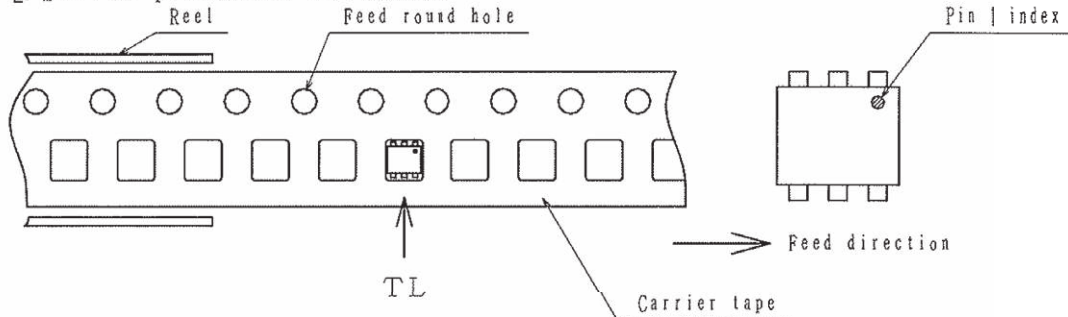
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

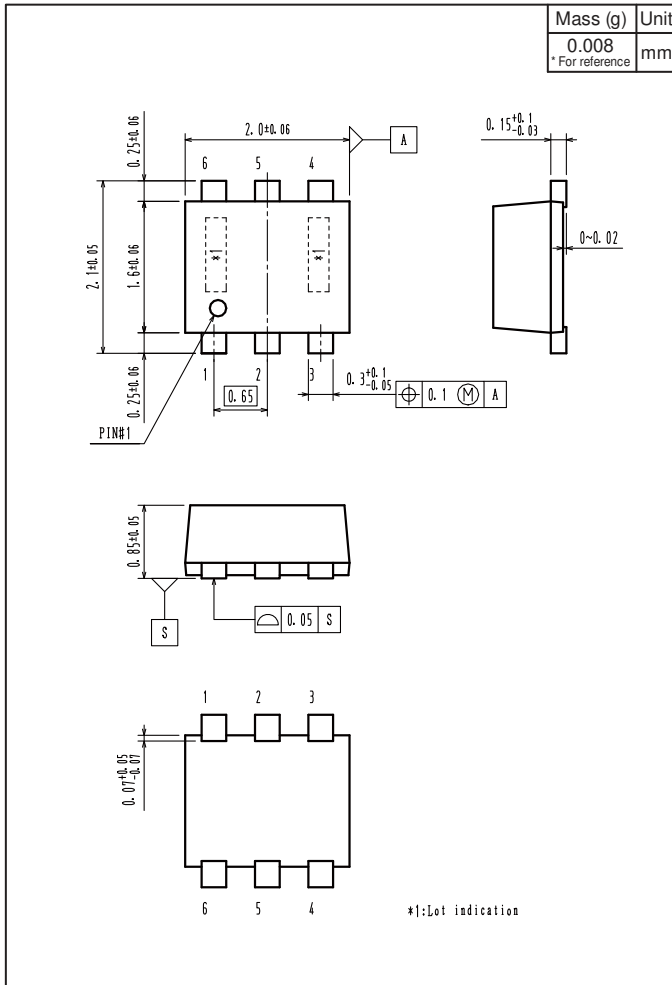


Those with pin | index on the feed hole side.....TL

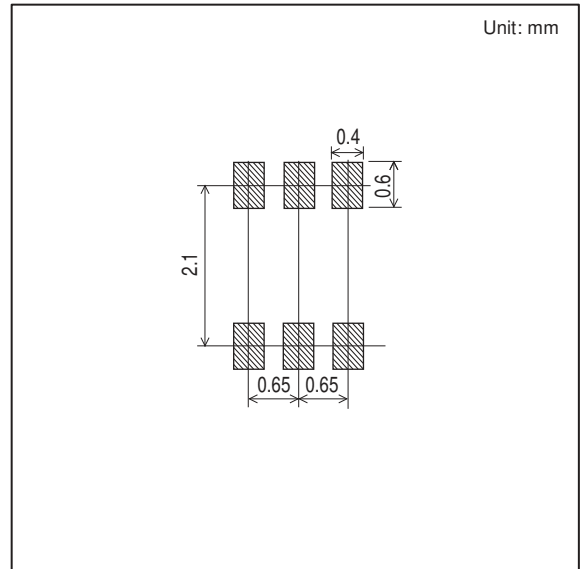
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Outline Drawing

SMA3107-TL-E



Land Pattern Example



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