



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

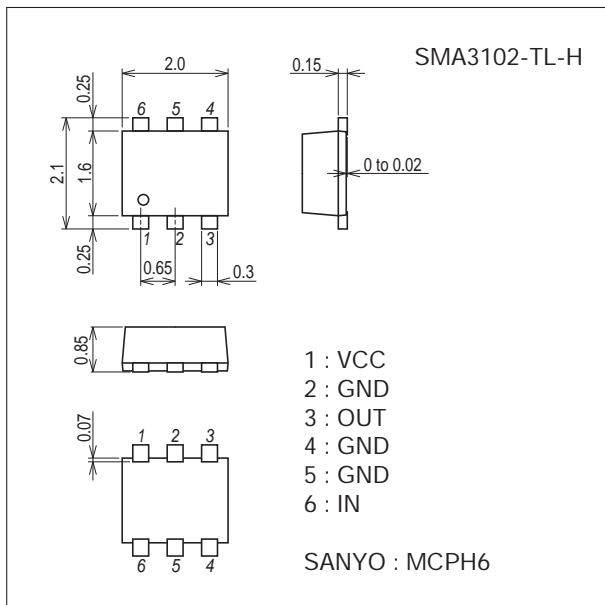
Specifications

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	PD		280	mW
Operating Temperature	T_{opr}		-40 to +85	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

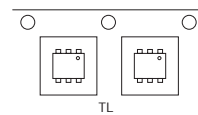
unit : mm (typ)
7022A-018



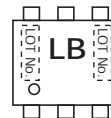
Product & Package Information

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

Packing Type : TL



Marking



SMA3102

Recommended Operating Condition 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

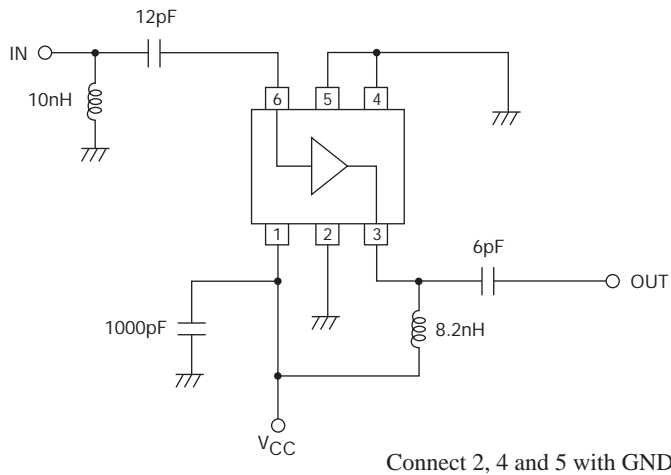
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	ICC		7.0	10.0	14.0	mA
Power Gain	Gp	f=1.575GHz	21.5	24.5	27.5	dB
Isolation	ISL	f=1.575GHz	33.0	38.0		dB
Input Return Loss	RLin	f=1.575GHz	8.0	10.0		dB
Output Return Loss	RLout	f=1.575GHz	12.0	16.0		dB
Noise Figure	NF	f=1.575GHz		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.

Ordering Information

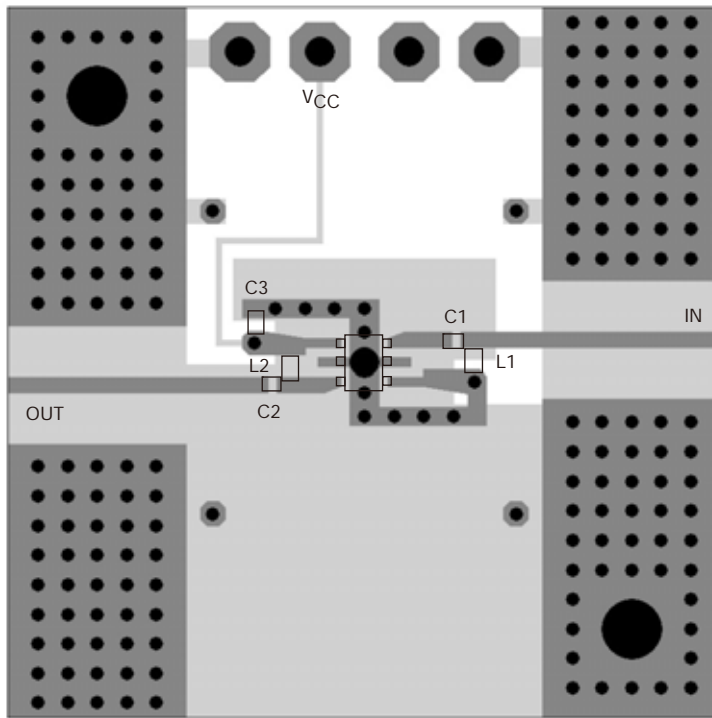
Device	Package	Shipping	memo
SMA3102-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free

Test Circuit

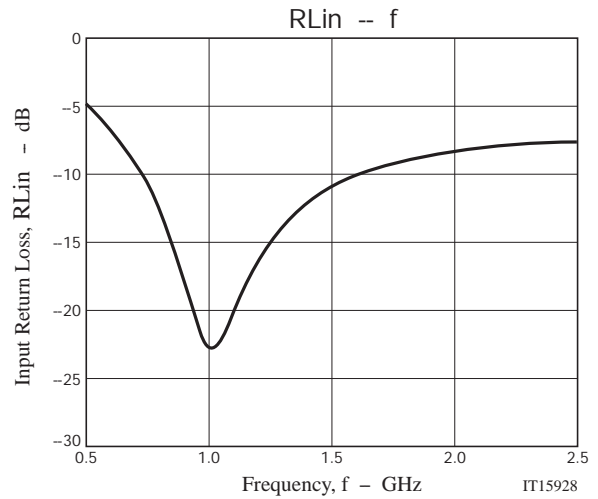
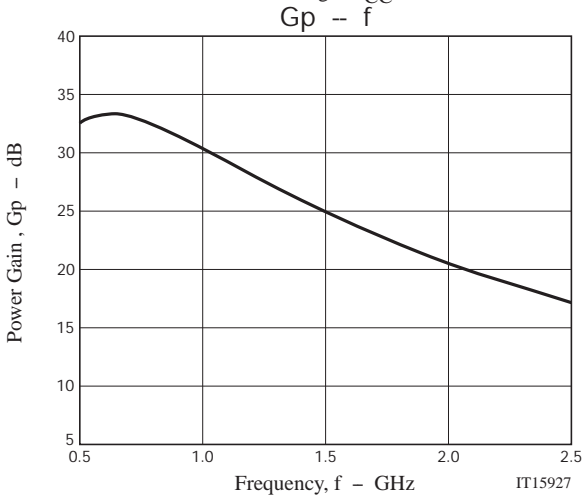
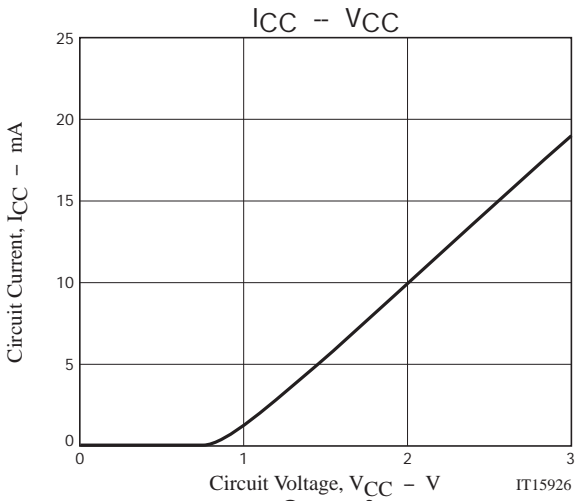


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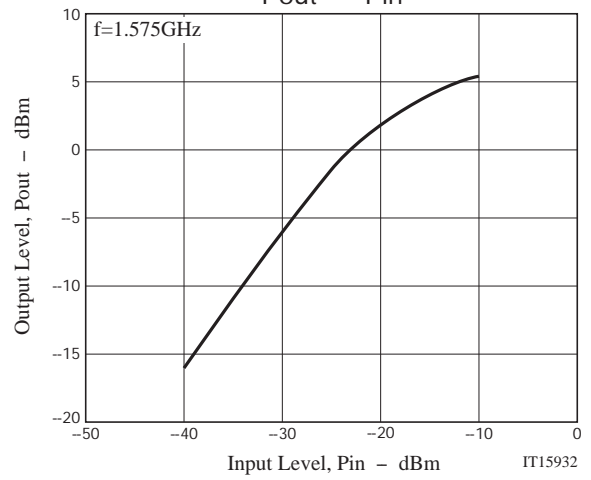
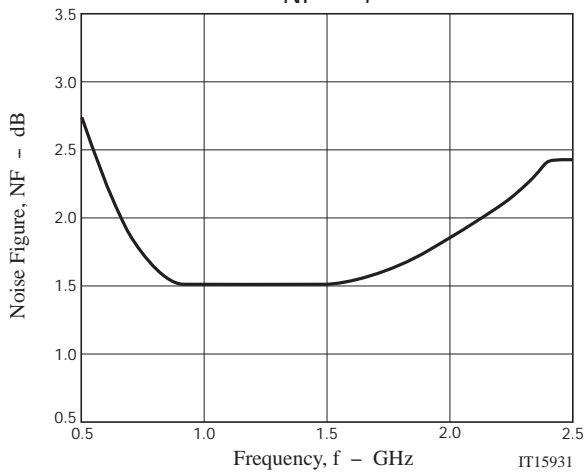
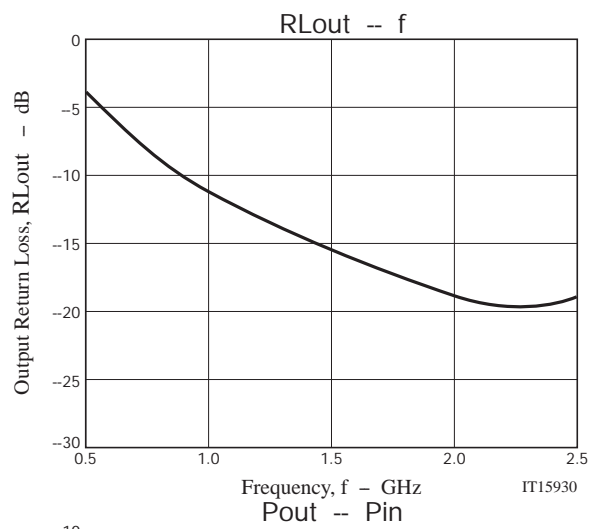
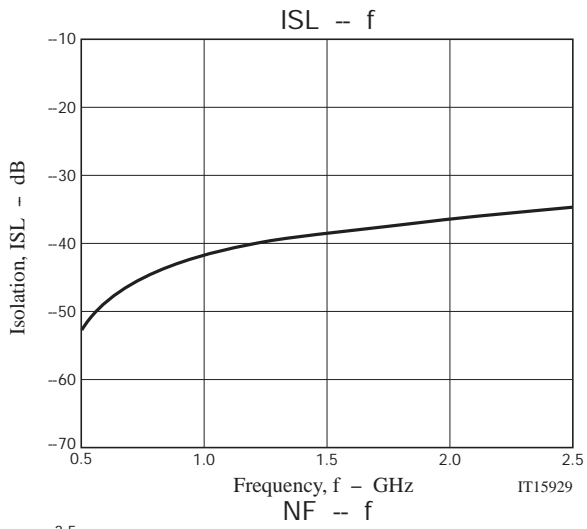
Design of the Evaluation Board



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



SMA3102



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Embossed Taping Specification

SMA3102-TL-H

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

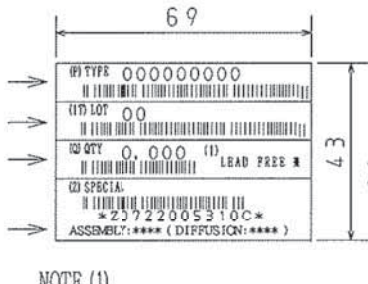
Packing method



Reel label

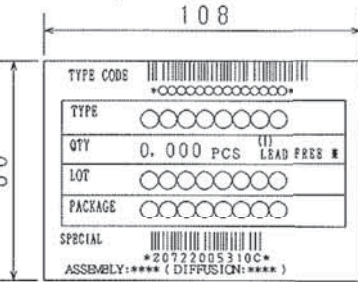
Type No.
LOT No.
Quantity
Origin

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.)



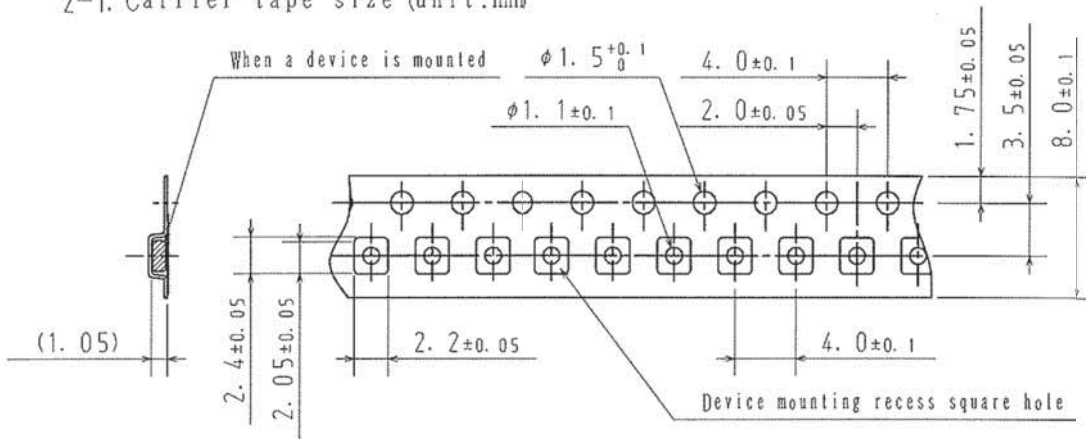
NOTE (1)

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

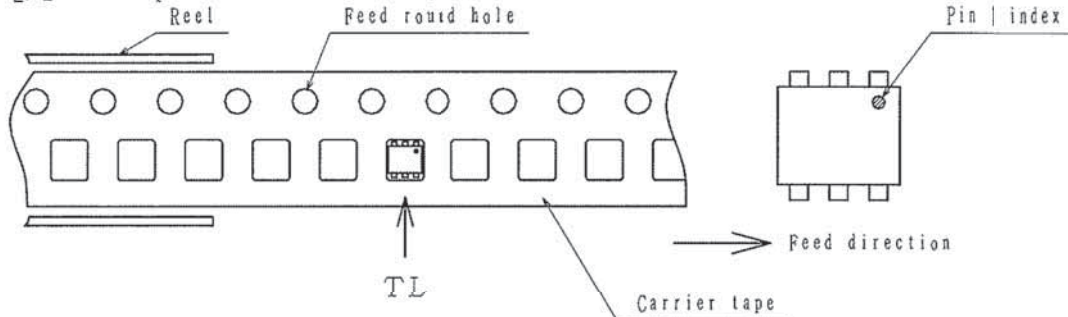
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



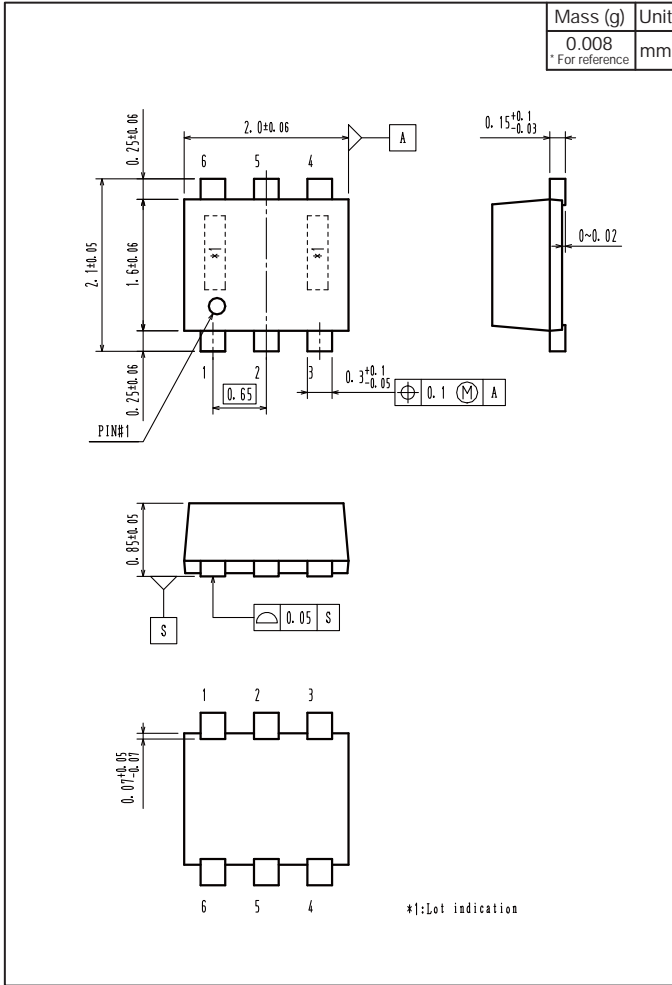
2-2. Device placement direction



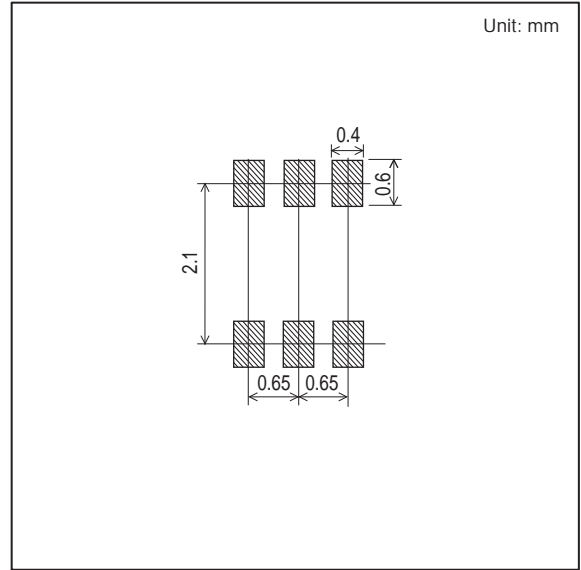
Those with pin | index on the feed hole side.....TL

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Outline Drawing SMA3102-TL-H



Land Pattern Example



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