



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## SMA3117 — Silicon MMIC Wideband Amplifier

### Features

- High Gain :  $G_p=33.5\text{dB typ. @}2.2\text{GHz}$
- Wideband response :  $f_u=3.0\text{GHz}$
- Low current :  $I_{CC}=22.7\text{mA typ.}$
- High output power :  $P_o(1\text{dB})=5.7\text{dBm}$
- Port impedance : input/output  $50\Omega$
- Halogen free compliance

### Specifications

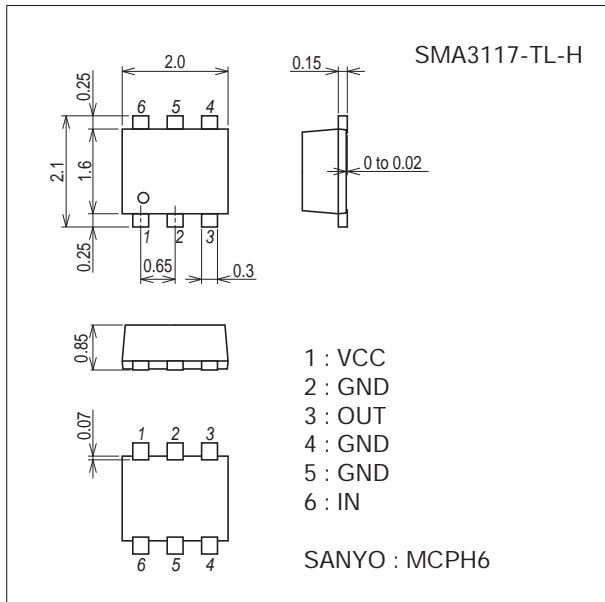
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply Voltage	$V_{CC}$		6	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)

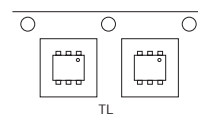
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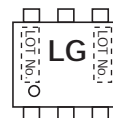
### Product & Package Information

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

### Packing Type : TL



### Marking



# SMA3117

## Recommended Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VCC		4.5	5	5.5	V
Operating Ambient Temperature	Topr		-40	+25	+85	°C

## Electrical Characteristics at Ta=25°C, VCC=5V, Zs=ZL=50Ω

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	ICC		18.5	22.7	28.0	mA
Power Gain	Gp	f=1GHz	29.5	31.2	32.5	dB
		f=2.2GHz	30.5	33.5	35.5	
Isolation	ISL	f=1GHz	35.0	37.6		dB
		f=2.2GHz	34.0	36.5		
Input Return Loss	RLin	f=1GHz	9.0	11.2		dB
		f=2.2GHz	4.5	6.0		
Output Return Loss	RLout	f=1GHz	11.0	14.3		dB
		f=2.2GHz	12.0	16.3		
Noise Figure	NF	f=1GHz		4.1	5.0	dB
		f=2.2GHz		3.9	5.0	
Gain 1dB Compression Output Power *1	Po(1dB)	f=1GHz	7.5	9.8		dBm
		f=2.2GHz	3.7	5.7		
Upper Limit Operating Frequency *1	fu	3dB down below flat gain at f=1GHz		3.0		GHz

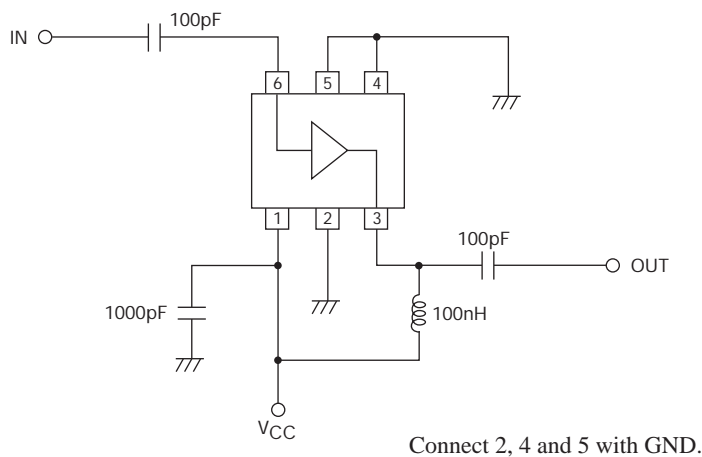
\*1 : On evaluation board

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

## Ordering Information

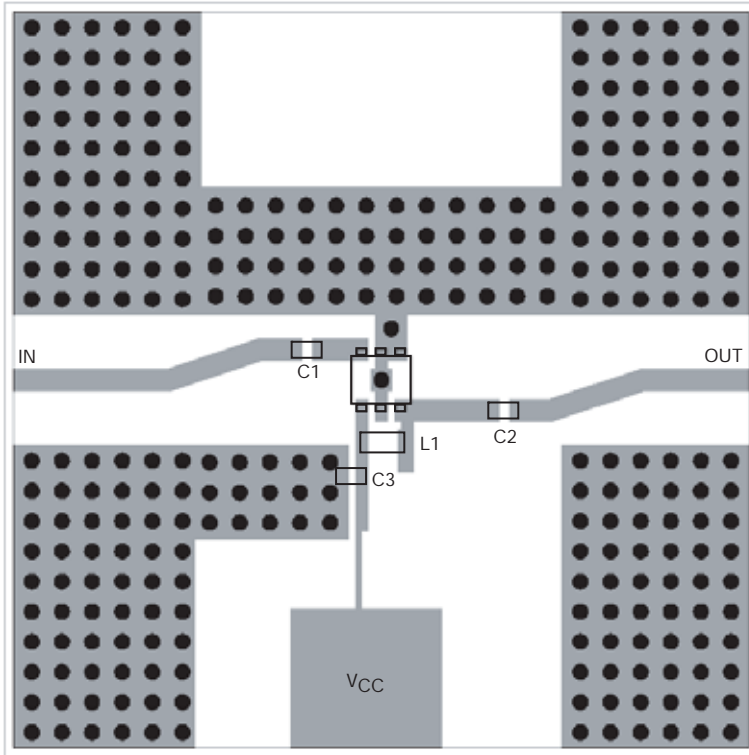
Device	Package	Shipping	memo
SMA3117-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free

## Test Circuit

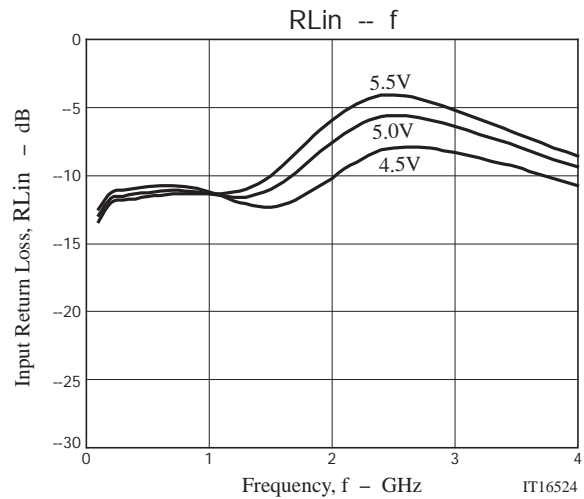
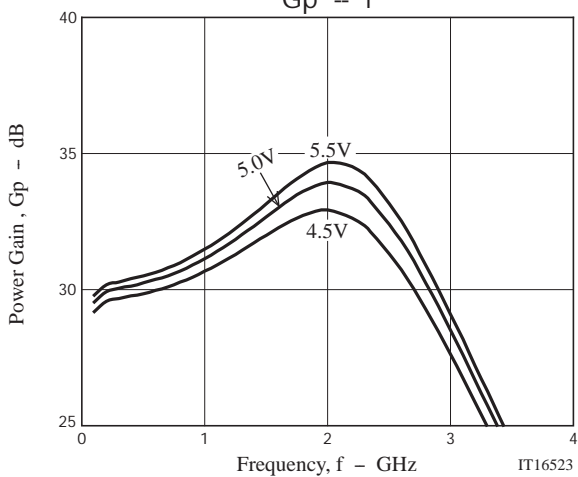
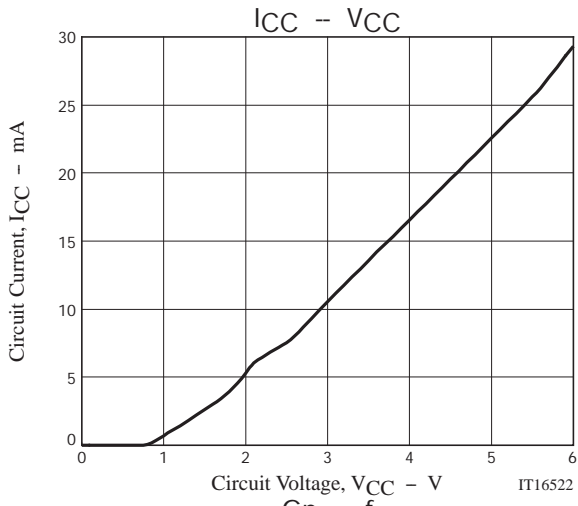


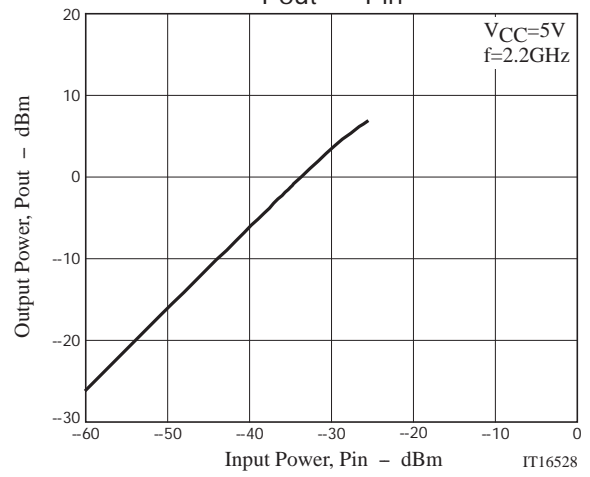
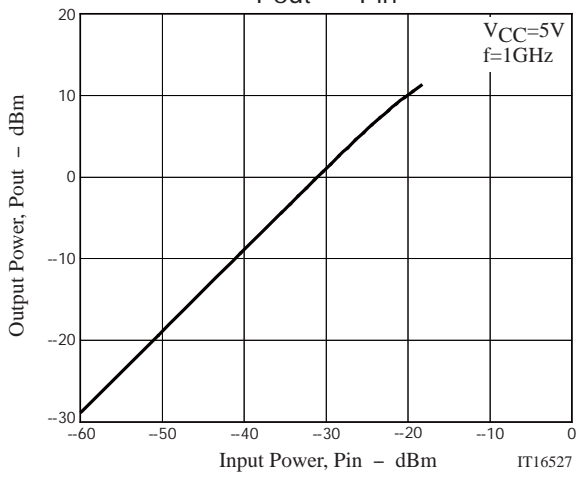
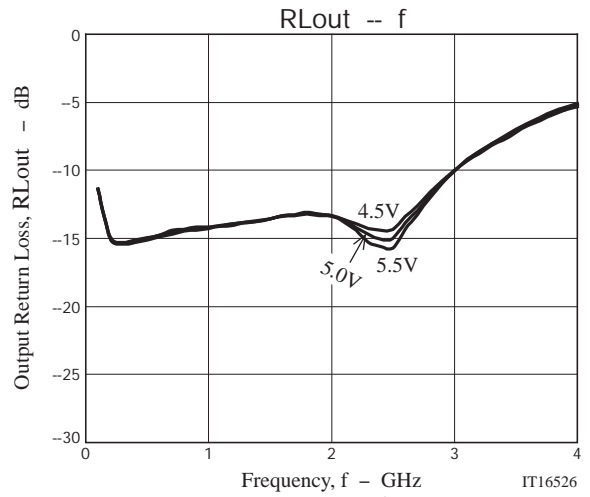
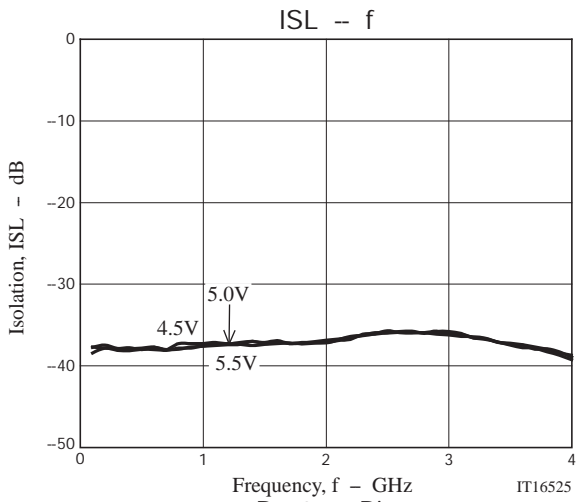
IT15580

Evaluation Board

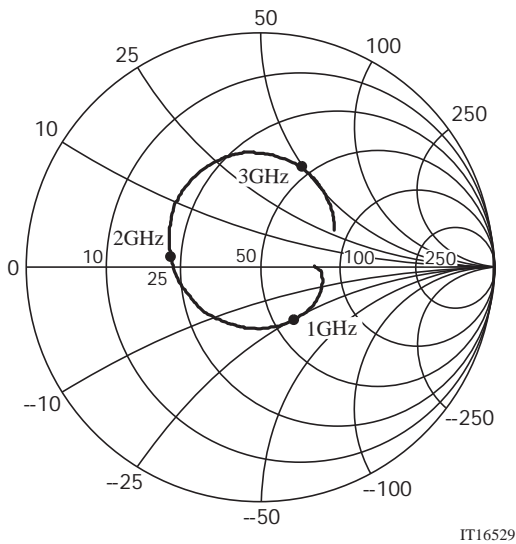


Symbol	Value
C1, C2	100pF
C3	1000pF
L1	100nH

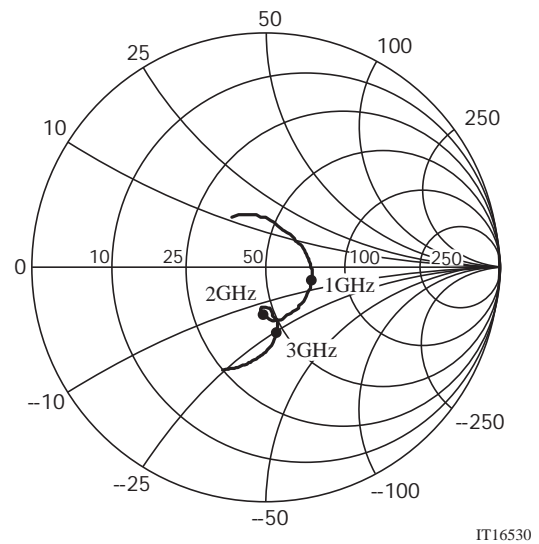




S Parameter (VCC=5V)  
S11



S22



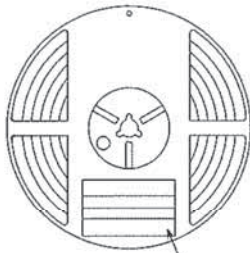
Embossed Taping Specification

SMA3117-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

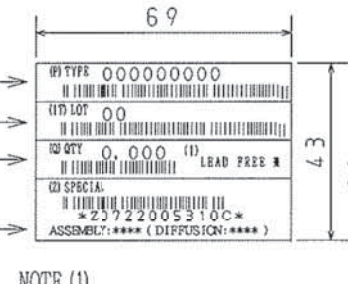
Packing method



Type No.  
LOT No.  
Quantity  
Origin

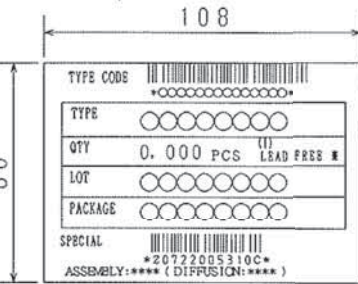
Reel label

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.)



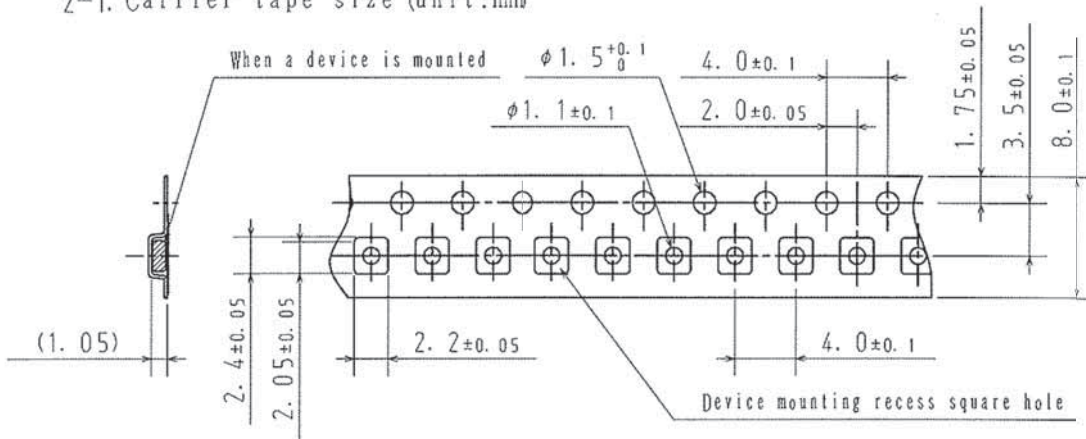
NOTE (1)

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

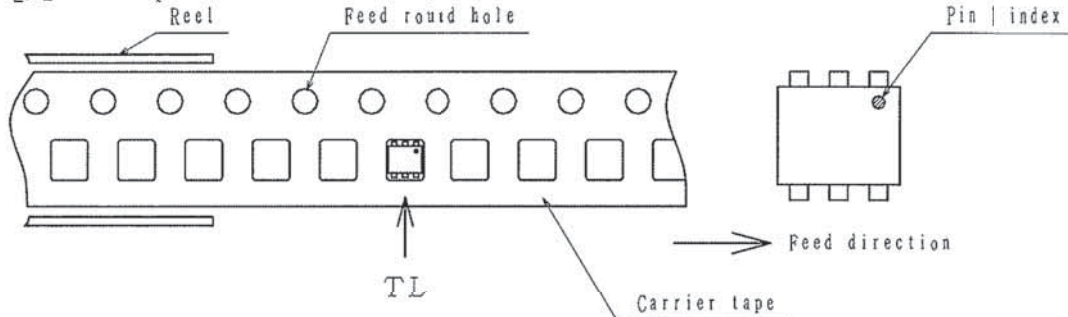
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



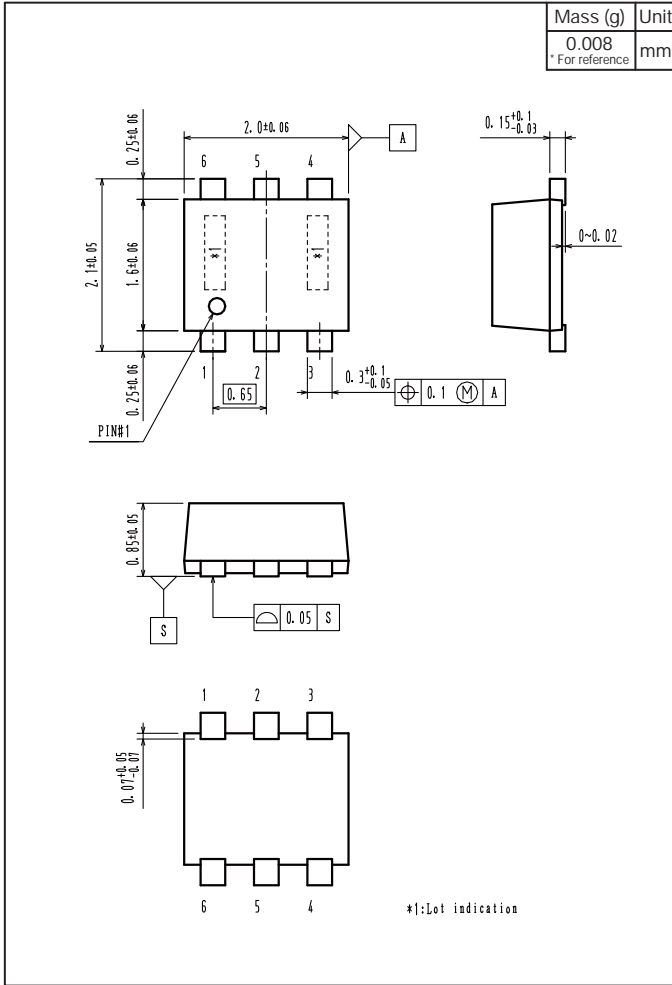
2-2. Device placement direction



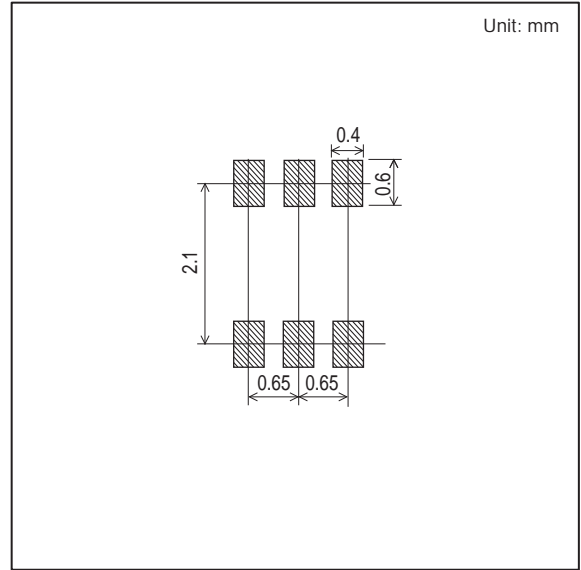
Those with pin | index on the feed hole side.....TL

# SMA3117

## Outline Drawing SMA3117-TL-H



## Land Pattern Example



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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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