Ordering number : EN8936A

SMA3117

MMIC
Amplifiler, 5V, 22.7mA, 0.1 to 3GHz, MCPH6

ON Semiconductor®
http://onsemi.com

Features

- High Gain : Gp=33.5dB typ. @2.2GHz
- Wideband response : fu=3.0GHz
- Low current : I_{CC}=22.7mA typ.
- High output power : Po(1dB)=5.7dBm
- Port impedance : input/output 50Ω
- Halogen free compliance

Specifications

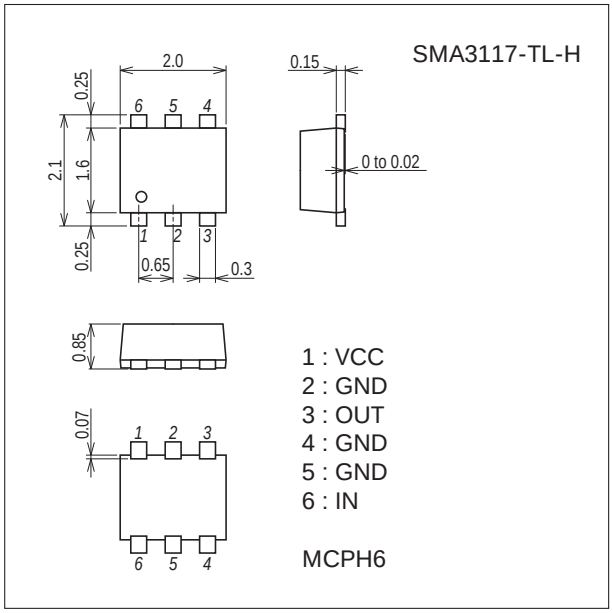
Absolute Maximum Ratings at Ta=25°C

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	Topr		−40 to +85	°C
Storage Temperature	Tstg		−55 to +150	°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

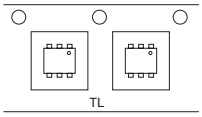
unit : mm (typ)
7022A-018



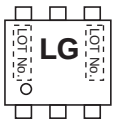
Product & Package Information

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

Packing Type : TL



Marking



Recommended Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	V_{CC}		4.5	5	5.5	V
Operating Ambient Temperature	Topr		−40	+25	+85	°C

Electrical Characteristics at Ta=25°C, V_{CC}=5V, Zs=Z_L=50Ω

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit Current	I_{CC}		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

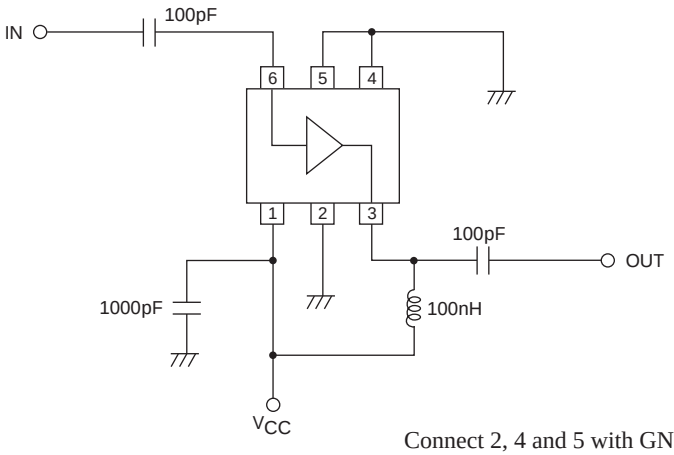
*1 : On evaluation board

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

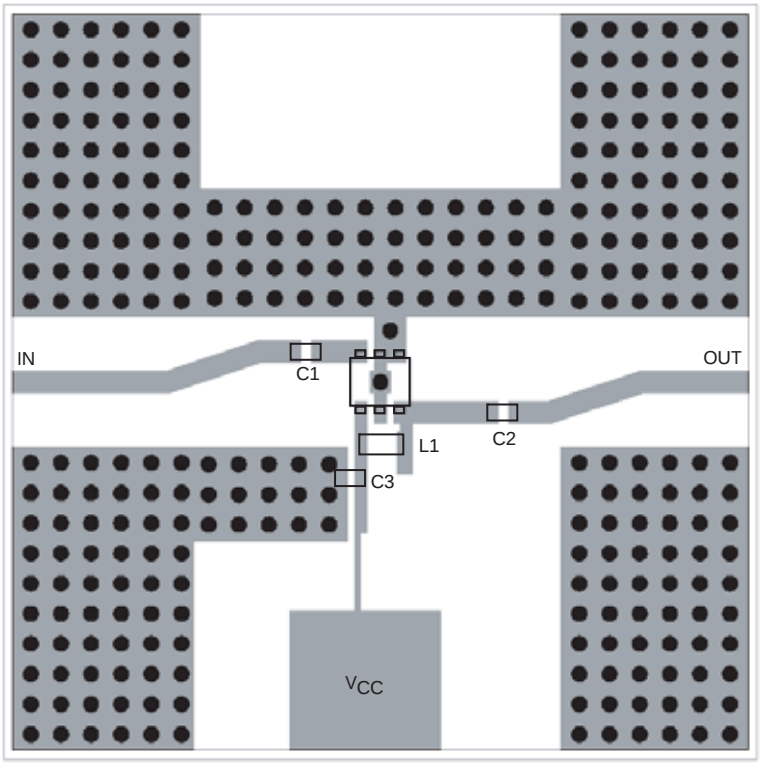
Test Circuit



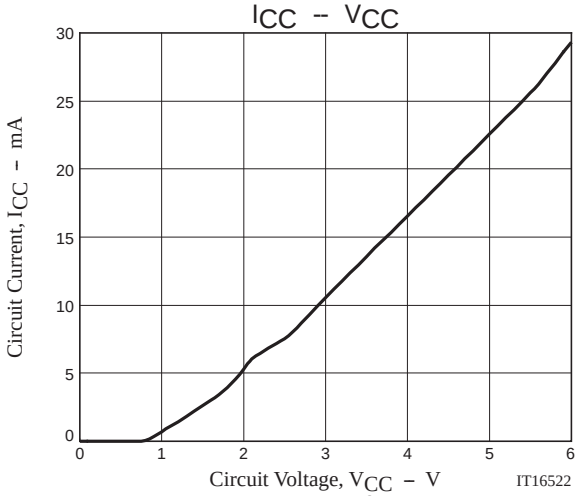
Connect 2, 4 and 5 with GND.

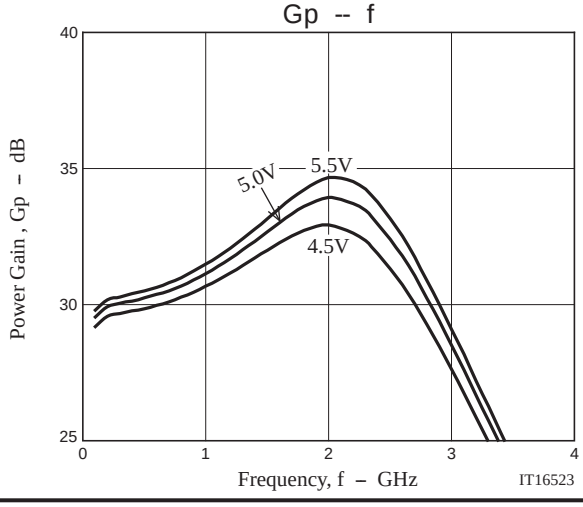
IT15580

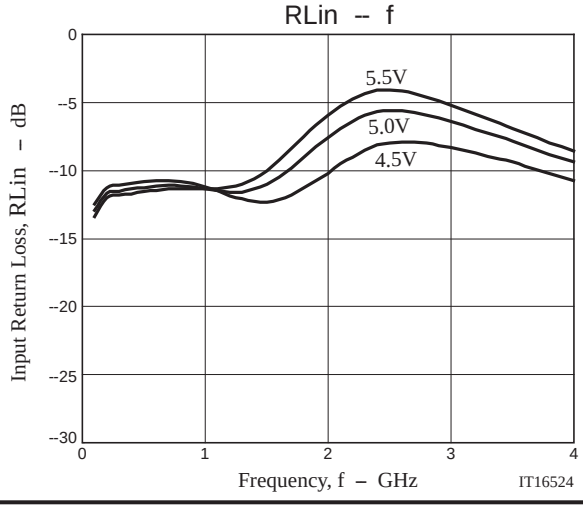
Evaluation Board

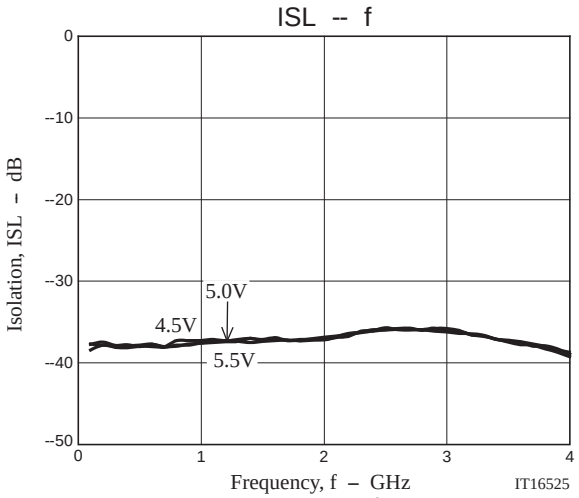


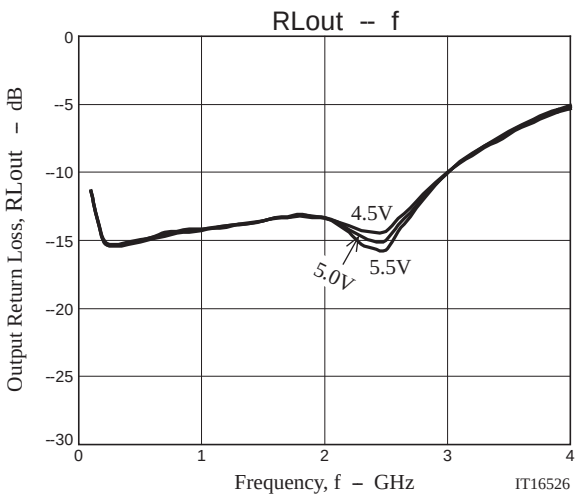
Symbol	Value
C1, C2	100pF
C3	1000pF
L1	100nH

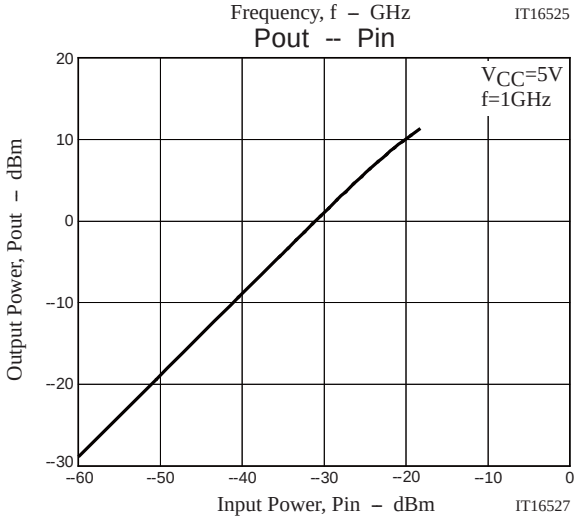


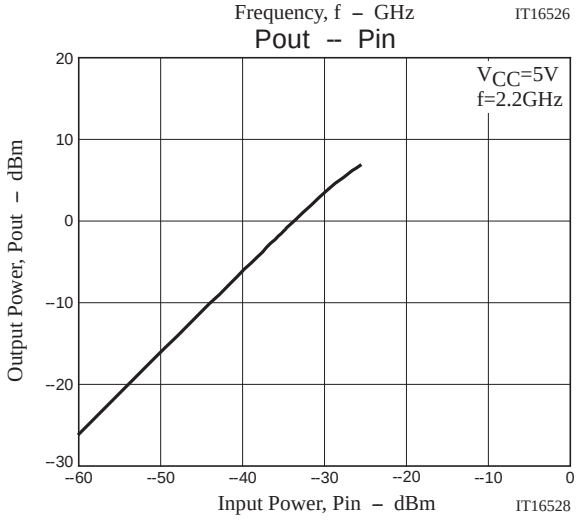






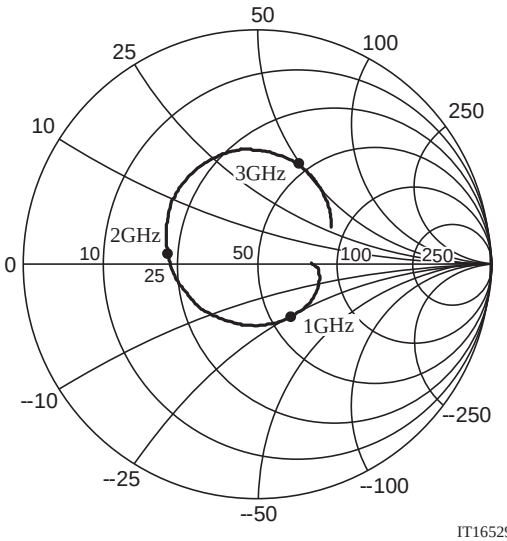




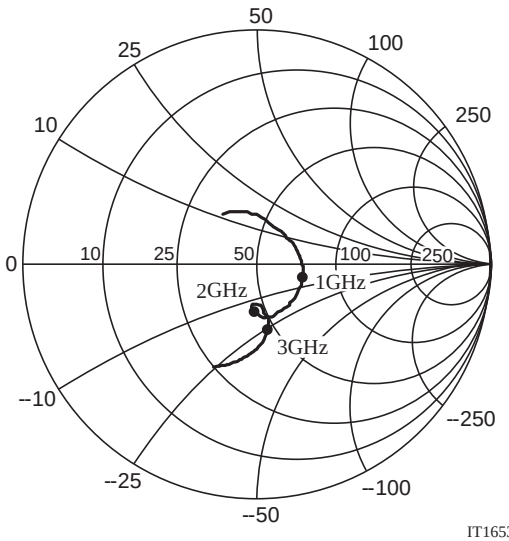


S Parameter (V_{CC}=5V)

S11



S22



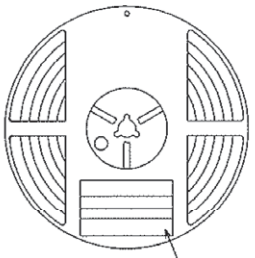
Embossed Taping Specification

SMA3117-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximun 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

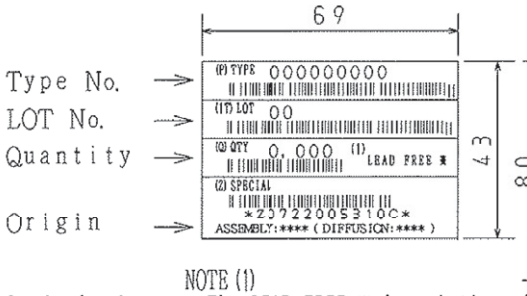
Packing method



Reel label

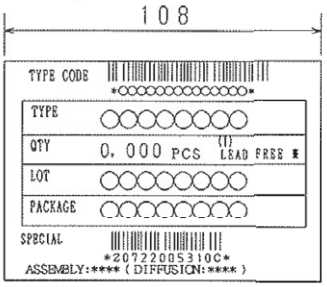
Reel label, Inner box label

(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.

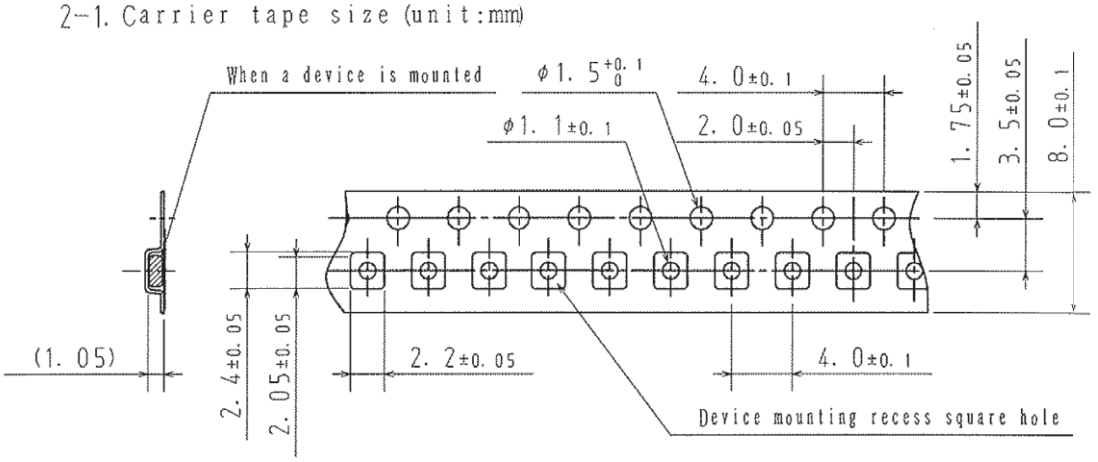


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

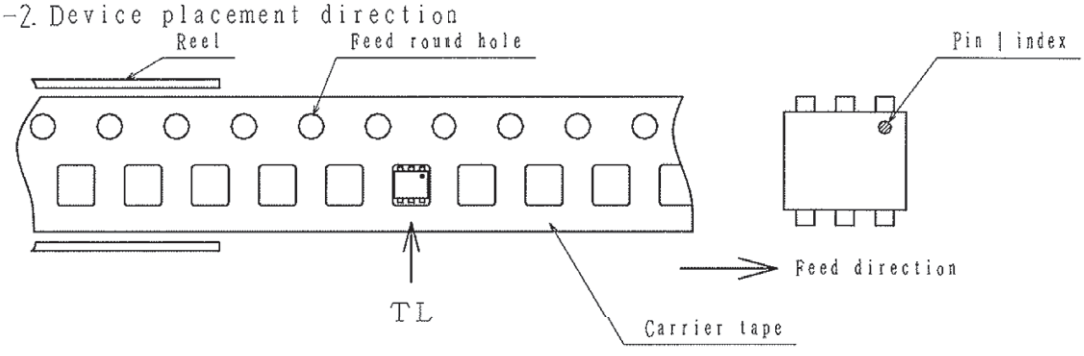
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



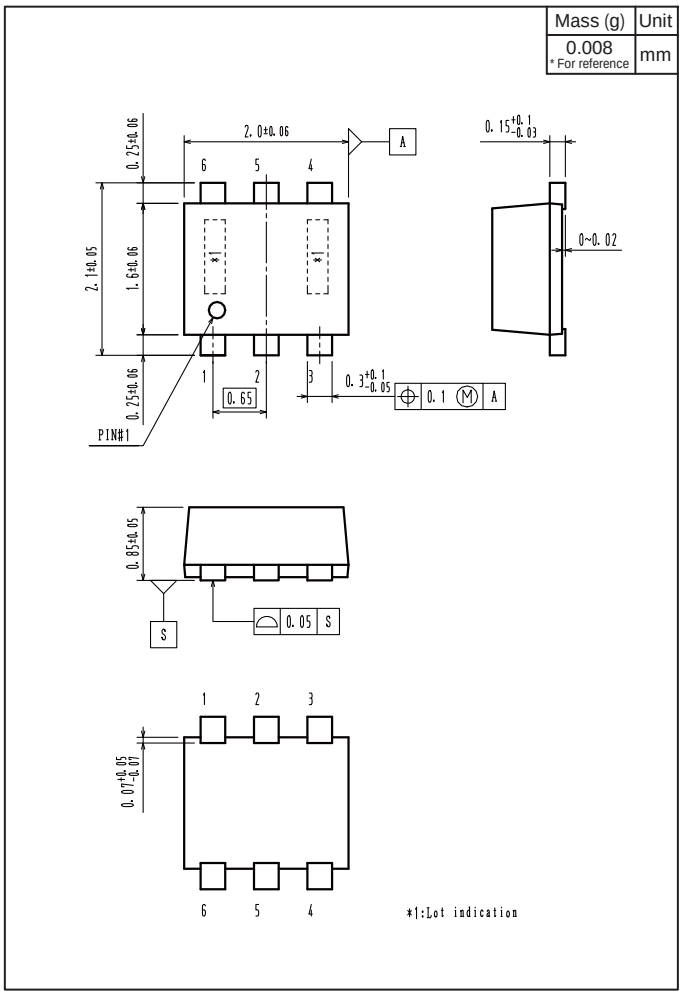
2-2. Device placement direction



Those with pin 1 index on the feed hole side·····TL

Outline Drawing

SMA3117-TL-H



Land Pattern Example