



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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SMA5101

MMIC

Mixer, IIP3=15dBm, Gc=-0.5dB@450MHz, MCPH6

ON Semiconductor®

<http://onsemi.com>

Features

- Wide band : up to Ku band
- Low distortion : IIP3=20dBm (@ICC > 11mA)
- SMT, Ultra small package : 2.0×2.1×0.85mm
- High conversion gain : -0.5dB (@450MHz)
- Low voltage available : 1.2V and above
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

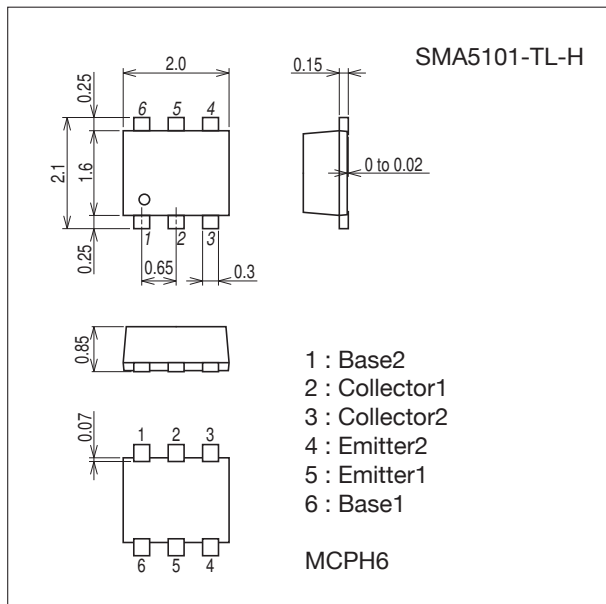
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		8	V
Collector-to-Emitter Voltage	VCEO		6	V
Emitter-to-Base Voltage	VEBO		2	V
Collector Current	ICC		50	mA
Max Power Dissipation	PC		280	mW
Operating Temperature	Topr		-40 to +85	°C
Storage Temperature	Tstg		-55 to +150	°C

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)

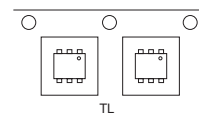
7022A-020



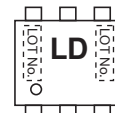
Product & Package Information

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

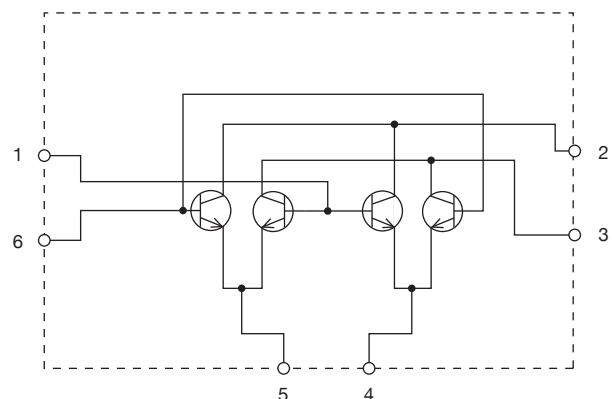
Packing Type : TL



Marking



Equivalent Circuit



IT15506

SMA5101

Recommended Operating Condition at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VC1E1		1.2	3	6	V
	VC2E1		1.2	3	6	V
	VC1E2		1.2	3	6	V
	VC2E2		1.2	3	6	V

Electrical Characteristics at Ta=25°C

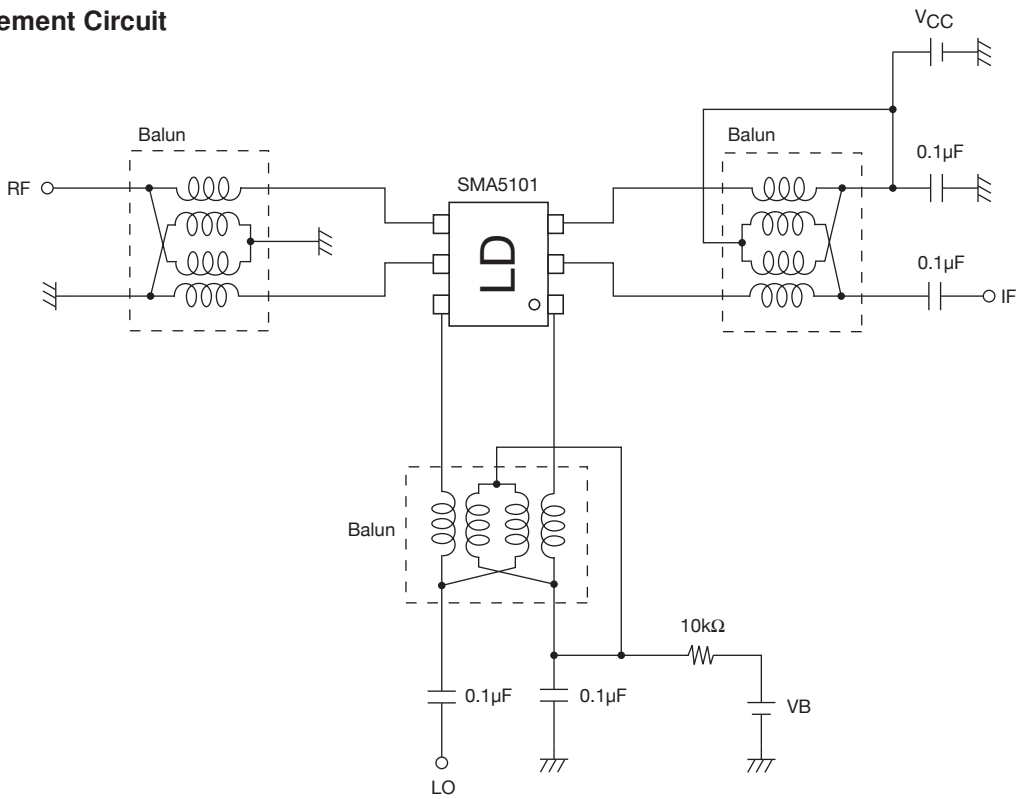
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	IC1B1O	VC1B1=5V			1	μA
	IC2B1O	VC2B1=5V			1	μA
	IC1B2O	VC1B2=5V			1	μA
	IC2B2O	VC2B2=5V			1	μA
Emitter Cutoff Current	IE1B1O	VE1B1=1V			1	μA
	IE2B1O	VE2B1=1V			1	μA
	IE1B2O	VE1B2=1V			1	μA
	IE2B2O	VE2B2=1V			1	μA
DC Current Gain	hFE1	VC1E1=1V, IC1E1=3mA	20		120	
	hFE2	VC2E1=1V, IC2E1=3mA	20		120	
	hFE3	VC1E2=1V, IC1E2=3mA	20		120	
	hFE4	VC2E2=1V, IC2E2=3mA	20		120	
Conversion Gain *1	Gc	VCC=5V, ICC=6mA, f(RF)=450MHz, f(LO)=500MHz, P(RF)=-15dBm, P(LO)=-6dBm		-0.5		dB
Input Intercept Point *1	IIP3	VCC=5V, ICC=6mA, f(RF1)=450MHz, f(RF2)=451MHz, f(LO)=500MHz, P(RF1)=P(RF2)=-15dBm, P(LO)=-6dBm		15		dBm

*1 : On evaluation board

Ordering Information

Device	Package	Shipping	memo
SMA5101-TL-H	MCPH6	3,000pcs./reel	Pb Free and Halogen Free

Measurement Circuit

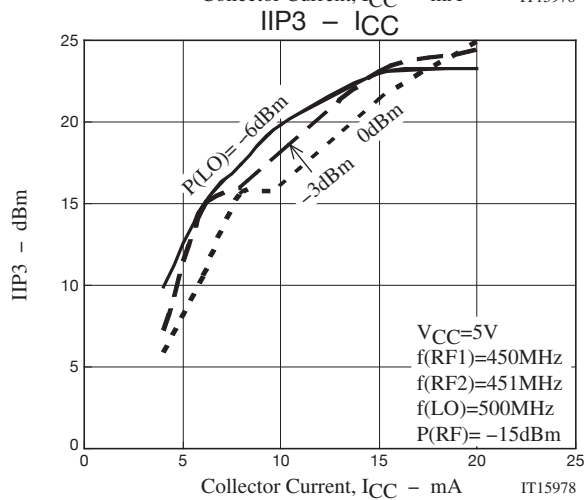
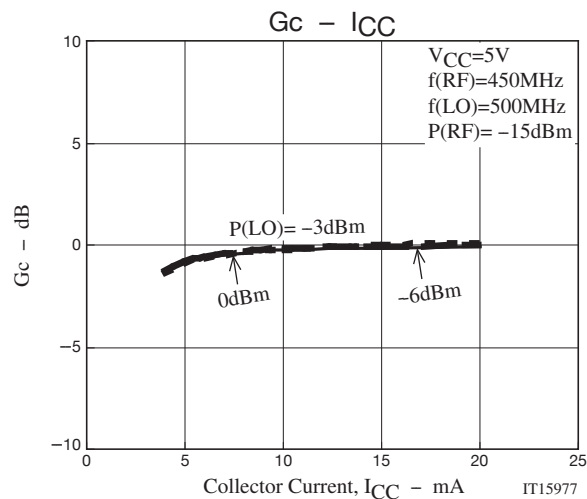
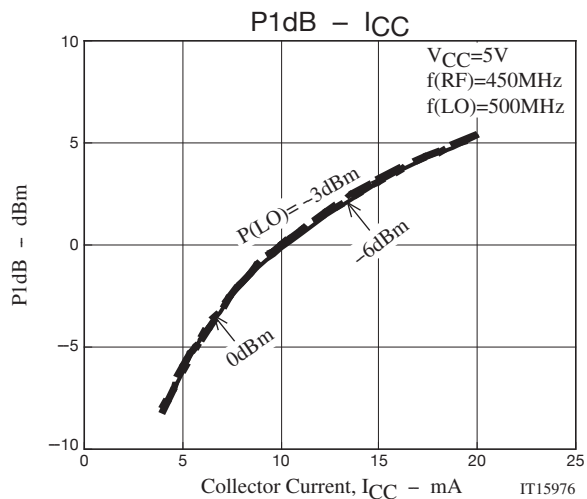


Evaluation Board



The schematic diagram illustrates a 100-MHz 1-bit DAC. It features an LD (Laser Diode) chip at its core. The RF input is coupled to the LD chip through a balun. The LD chip's output is also coupled to a balun, which is then connected to a 0.1 μF capacitor and an IF output. A 0.1 μF capacitor is also connected to the LD chip's output. The LD chip is biased via a current source (Rbias) connected to VCC. The LD chip's output is also connected to a balun, which is then connected to a 0.1 μF capacitor and an IF output. The LD chip's output is also connected to a balun, which is then connected to a 0.1 μF capacitor and an IF output. The LD chip's output is also connected to a balun, which is then connected to a 0.1 μF capacitor and an IF output.

IT15509



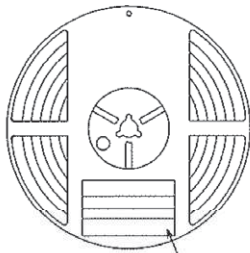
Embossed Taping Specification

SMA5101-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

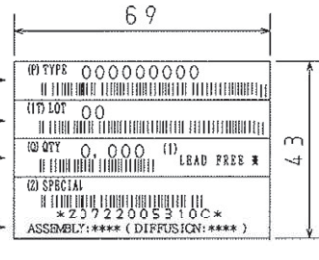
Packing method



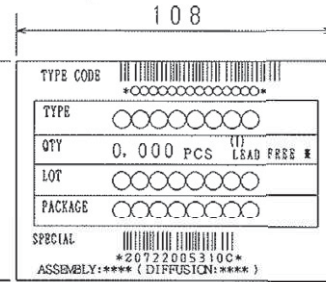
Type No.
LOT No.
Quantity
Origin

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.



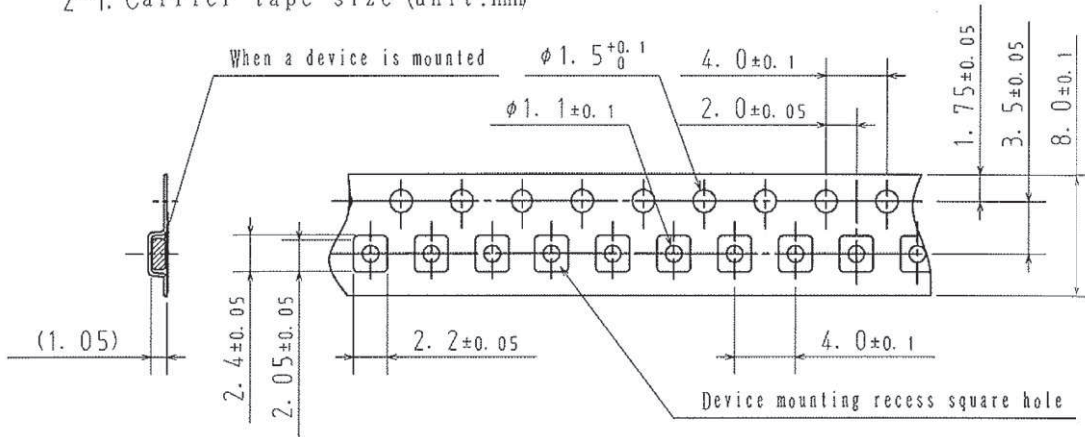
NOTE (1)

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

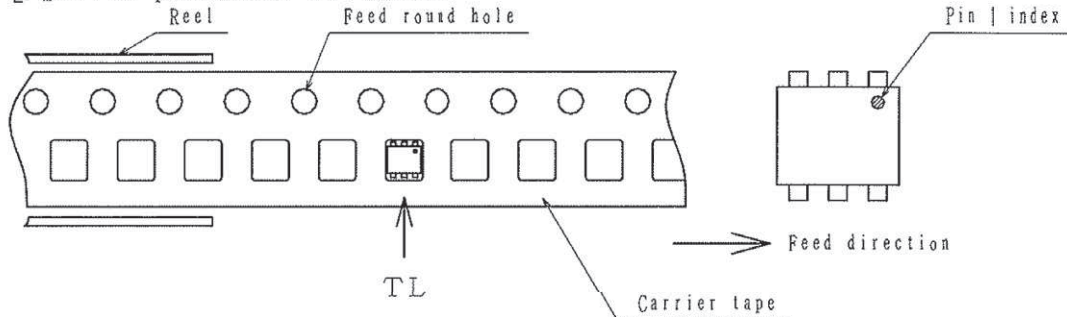
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



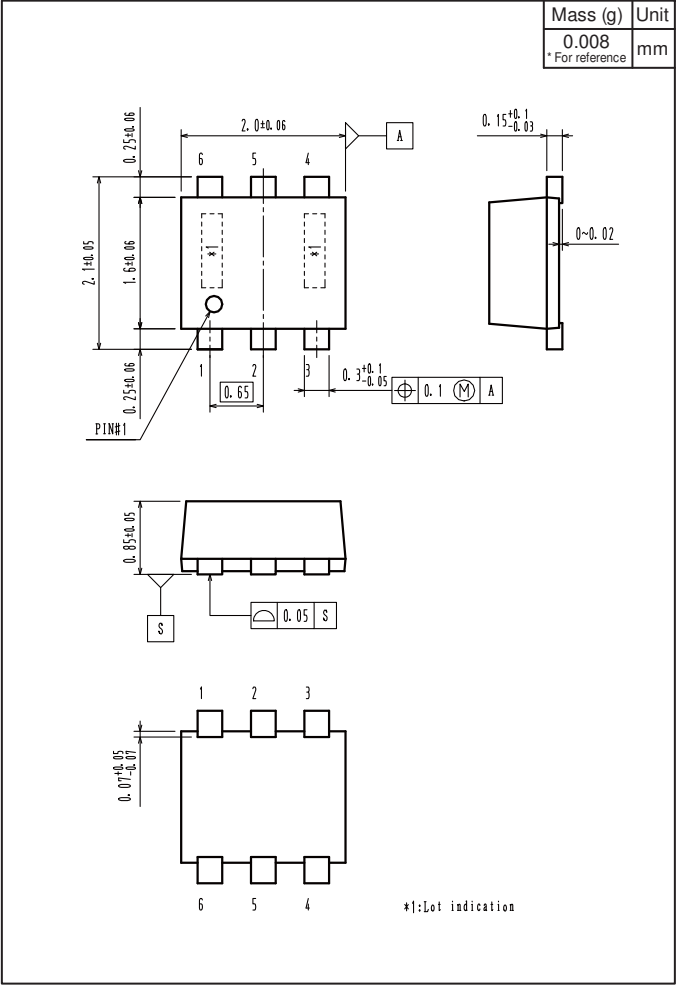
2-2. Device placement direction



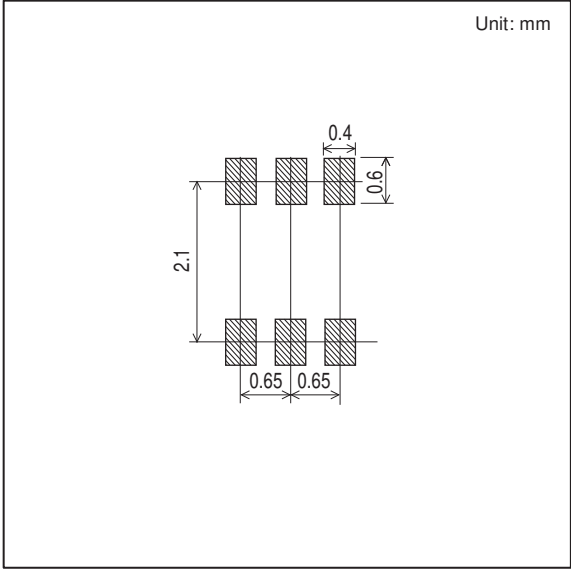
Those with pin 1 index on the feed hole side.....TL

SMA5101

Outline Drawing
SMA5101-TL-H



Land Pattern Example



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