



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## SMA5101 — Silicon Monolithic Linear IC RF Double Balanced Mixer IC

### 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

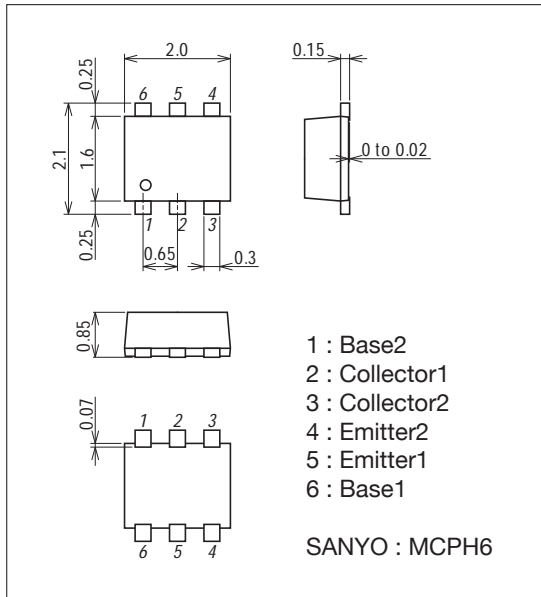
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		8	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		6	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		2	V
Collector Current	I <sub>CC</sub>		50	mA
Max Power Dissipation	P <sub>C</sub>		280	mW
Operating Temperature	T <sub>opr</sub>		-40 to +85	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

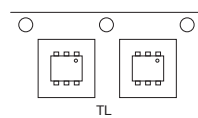
7022A-020



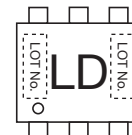
### Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SOT363
- Minimum Packing Quantity : 3,000pcs/real

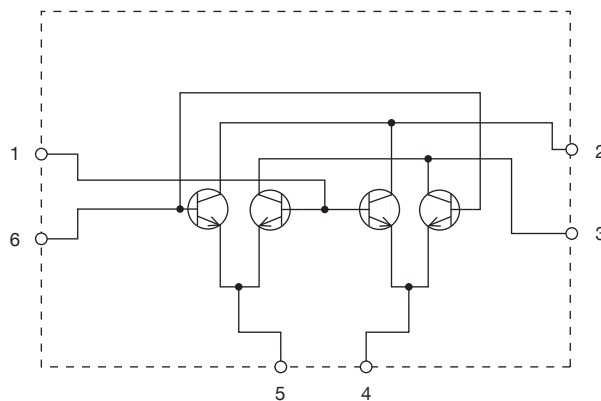
### Packing Type: TL



### Marking



### Equivalent Circuit



IT15506

# SMA5101

## Recommended Operating Conditions at Ta=25°C

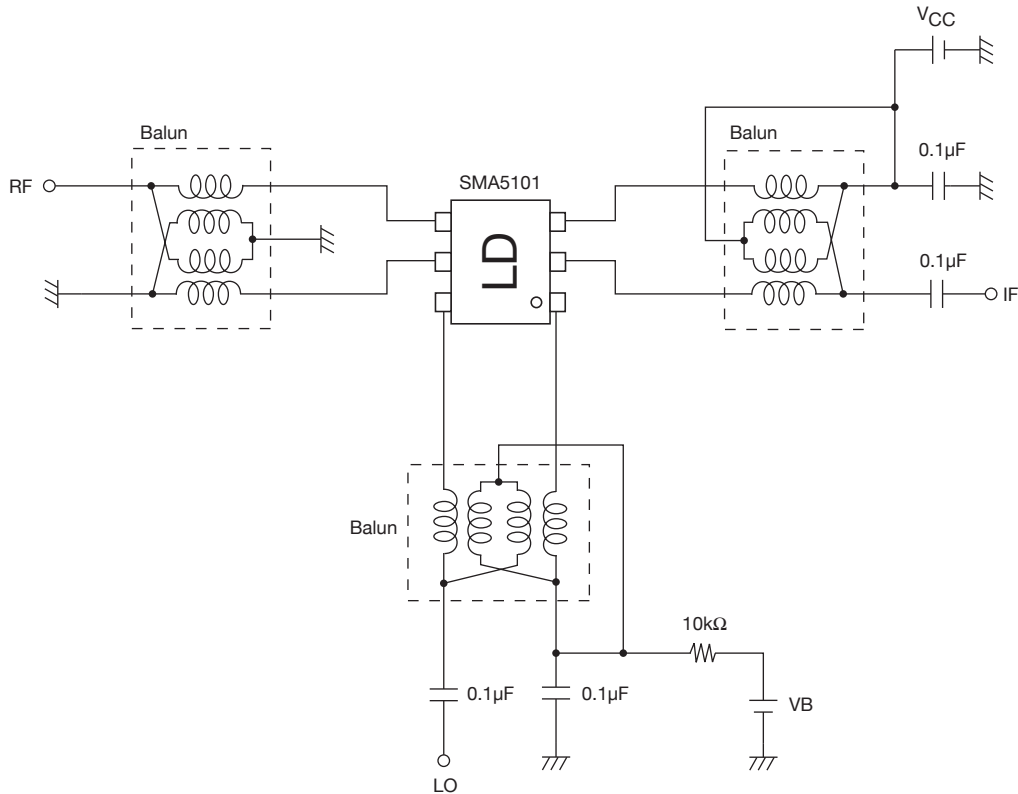
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply Voltage	VC1E1		1.2	3	6	V
	VC2E1		1.2	3	6	V
	VC1E2		1.2	3	6	V
	VC2E2		1.2	3	6	V

## 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

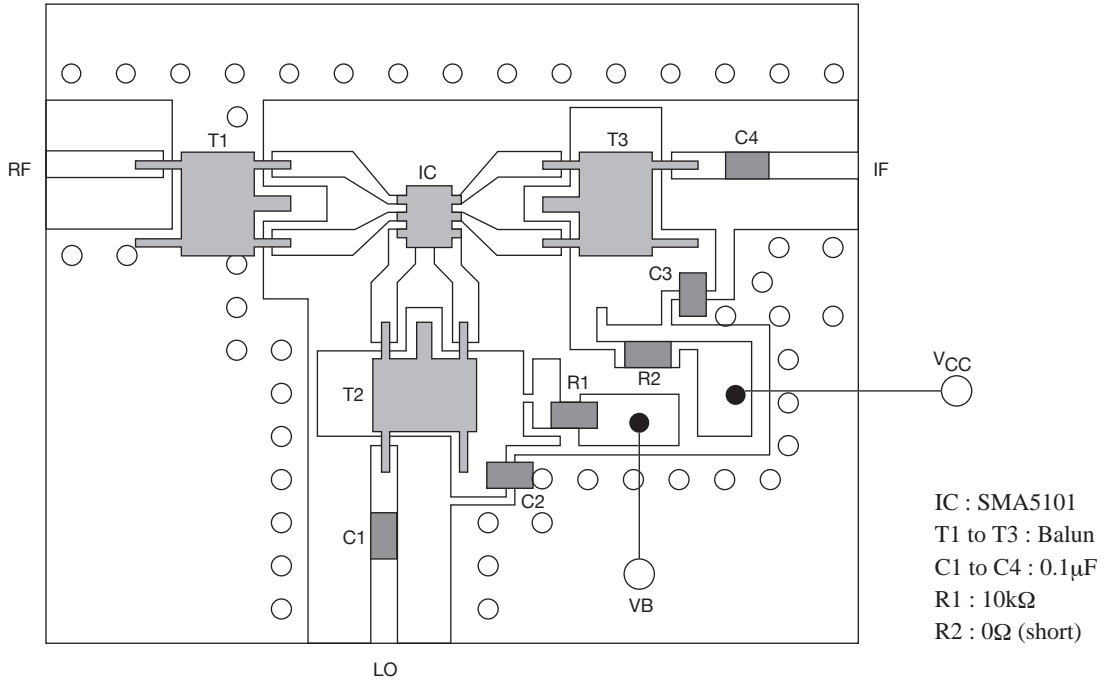
## Measurement Circuit



IT15507

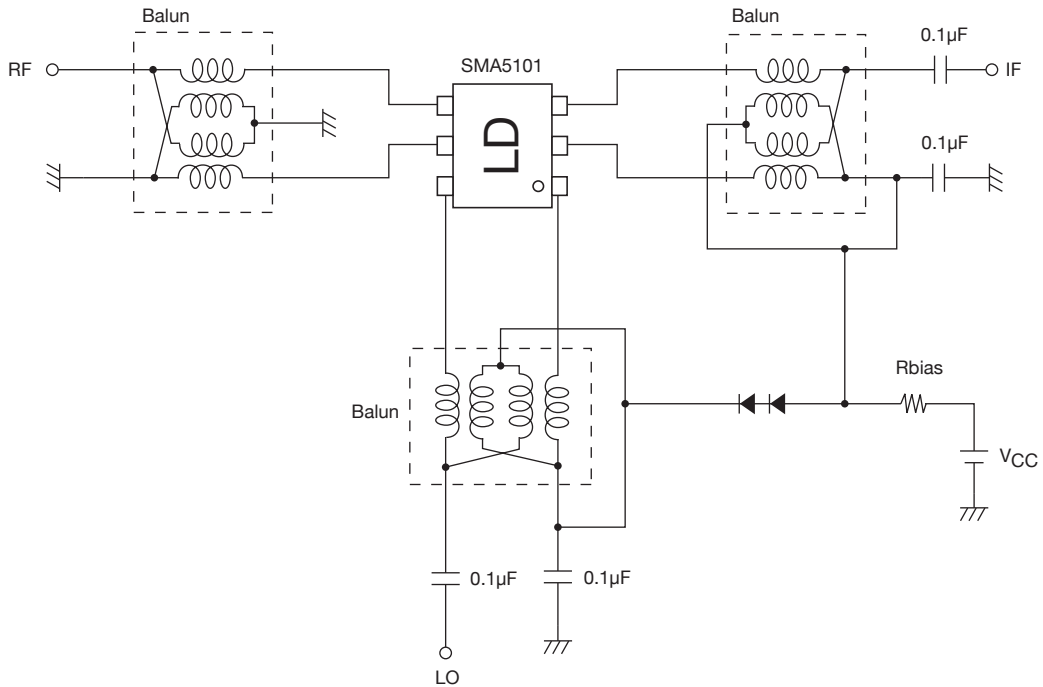
# SMA5101

## Evaluation Board



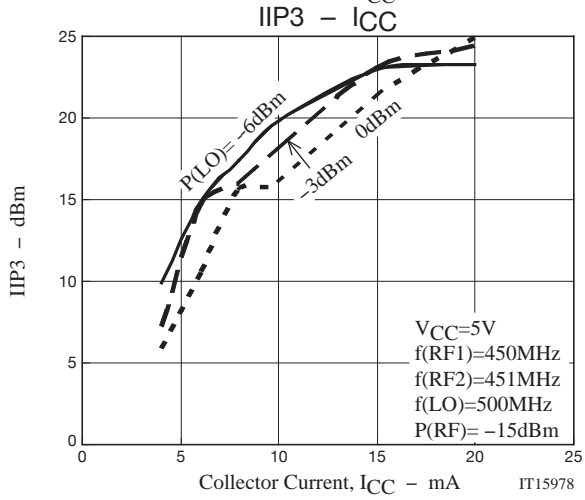
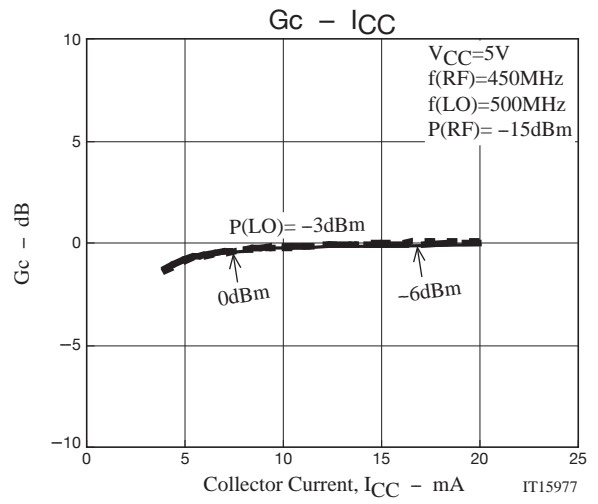
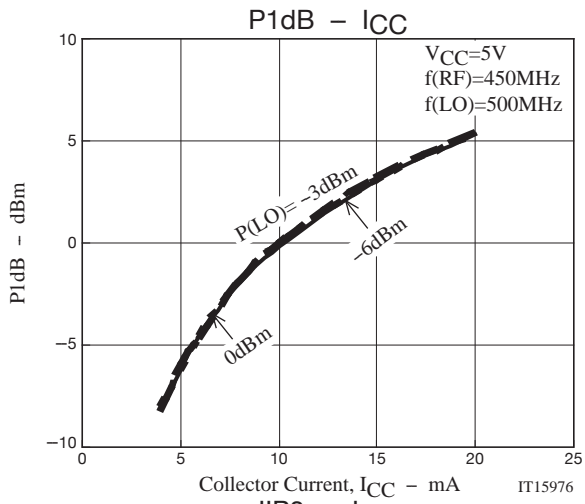
IT15508

## Circuit Example (Self Bias)



IT15509

# SMA5101



- Any and all SANYO Semiconductor Co.,Ltd. products described or contained herein are, with regard to "standard application", intended for the use as general electronics equipment (home appliances, AV equipment, communication device, office equipment, industrial equipment etc.). The products mentioned herein shall not be intended for use for any "special application" (medical equipment whose purpose is to sustain life, aerospace instrument, nuclear control device, burning appliances, transportation machine, traffic signal system, safety equipment etc.) that shall require extremely high level of reliability and can directly threaten human lives in case of failure or malfunction of the product or may cause harm to human bodies, nor shall they grant any guarantee thereof. If you should intend to use our products for applications outside the standard applications of our customer who is considering such use and/or outside the scope of our intended standard applications, please consult with us prior to the intended use. If there is no consultation or inquiry before the intended use, our customer shall be solely responsible for the use.
- Specifications of any and all SANYO Semiconductor Co.,Ltd. products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Semiconductor Co.,Ltd. assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO Semiconductor Co.,Ltd. products described or contained herein.
- SANYO Semiconductor Co.,Ltd. strives to supply high-quality high-reliability products, however, any and all semiconductor products fail or malfunction with some probability. It is possible that these probabilistic failures or malfunction could give rise to accidents or events that could endanger human lives, trouble that could give rise to smoke or fire, or accidents that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO Semiconductor Co.,Ltd. products described or contained herein are controlled under any of applicable local export control laws and regulations, such products may require the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written consent of SANYO Semiconductor Co.,Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO Semiconductor Co.,Ltd. product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production.
- Upon using the technical information or products described herein, neither warranty nor license shall be granted with regard to intellectual property rights or any other rights of SANYO Semiconductor Co.,Ltd. or any third party. SANYO Semiconductor Co.,Ltd. shall not be liable for any claim or suits with regard to a third party's intellectual property rights which has resulted from the use of the technical information and products mentioned above.

This catalog provides information as of October, 2010. Specifications and information herein are subject to change without notice.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.

