

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

Silicon Monolithic Linear IC **RF Double Balanced Mixer IC**

Features

• Wide band : up to Ku band

SMA5101-

- 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

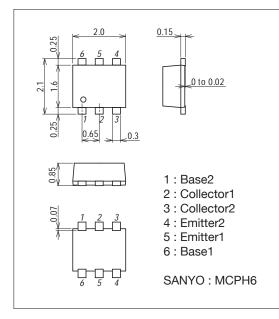
Absolute Maximum Ratings at Ta=25°C

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

• Package

Package Dimensions

unit : mm (typ) 7022A-020



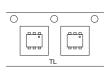
Product & Package Information

: MCPH6

: SC-88, SOT363

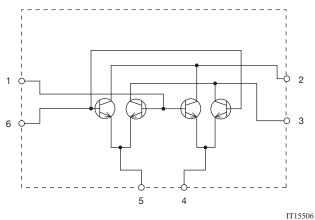
• JEITA, JEDEC • Minimum Packing Quantity : 3,000pcs/real

Packing Type: TL





Equivalent Circuit



SANYO Semiconductor Co., Ltd. http://semicon.sanyo.com/en/network

Recommended Operating Conditions at Ta=25°C

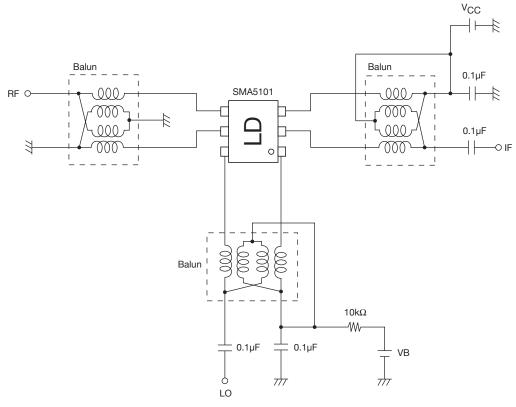
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
	VC1E1		1.2	3	6	V
Supply Voltage	V _{C2E1}		1.2	3	6	V
Supply Voltage	VC1E2		1.2	3	6	V
	V _{C2E2}		1.2	3	6	V

Electrical Characteristics at Ta=25°C

Parameter	Cumbal	Conditions	Ratings			Unit
	Symbol	Conditions	min	typ	max	Unit
Collector Cutoff Current	IC1B1O	VC1B1=5V			1	μΑ
	IC2B1O	VC2B1=5V			1	μΑ
	IC1B2O	V _{C1B2} =5V			1	μΑ
	IC2B2O	V _{C2B2} =5V			1	μΑ
Emitter Cutoff Current	lE1B1O	VE1B1=1V			1	μΑ
	IE2B1O	VE2B1=1V			1	μΑ
	IE1B2O	V _{E1B2} =1V			1	μΑ
	IE2B2O	V _{E2B2} =1V			1	μA
DC Current Gain	hFE1	V _{C1E1} =1V, I _{C1E1} =3mA	20		120	
	hFE2	VC2E1=1V, IC2E1=3mA	20		120	
	hFE3	V _{C1E2} =1V, I _{C1E2} =3mA	20		120	
	hFE4	V _{C2E2} =1V, I _{C2E2} =3mA	20		120	
Conversion Gain *1		V _{CC} =5V, I _{CC} =6mA,				
	Gc	f(RF)=450MHz, f(LO)=500MHz,		-0.5		dB
		P(RF)=-15dBm, P(LO)=-6dBm				
Input Intercept Point *1	IIP3	V _{CC} =5V, I _{CC} =6mA,				
		f(RF1)=450MHz, f(RF2)=451MHz,		15		dBm
		f(LO)=500MHz,				
		P(RF1)=P(RF2)=-15dBm, P(LO)=-6dBm				

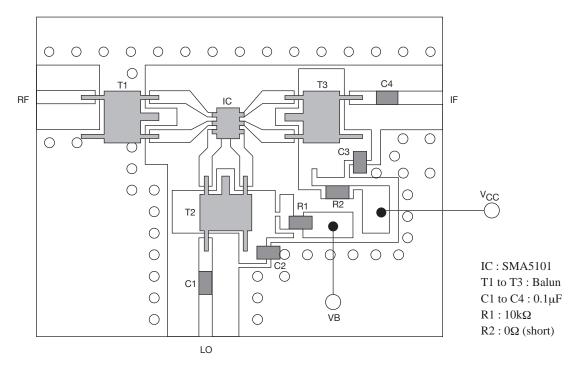
*1 : On evaluation board

Measurement Circuit



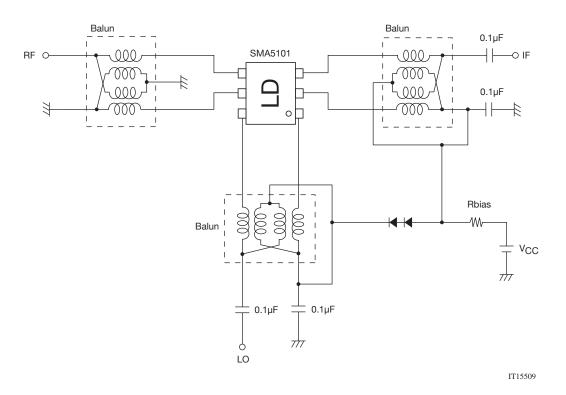
IT15507

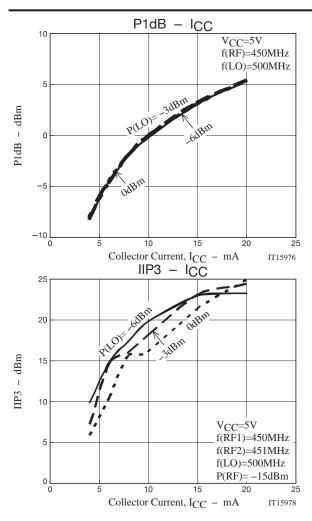
Evaluation Board

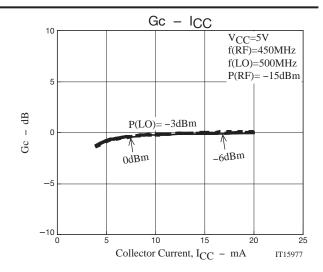


IT15508

Circuit Example (Self Bias)







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