



RF Double Balanced Mixer

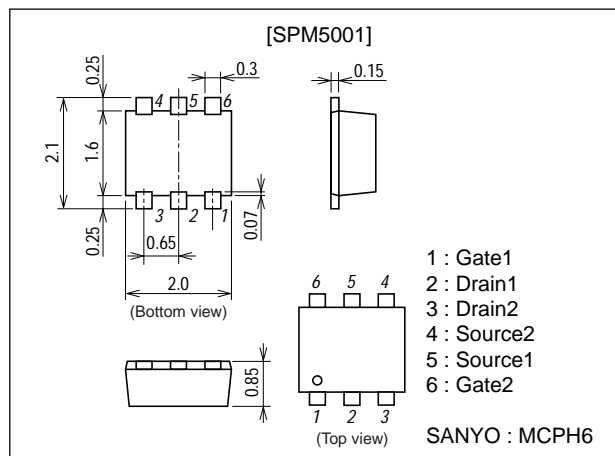
Features

- Wide band double balanced mixer.
- Low distortion.
- The chip surface is covered with highly reliable protection film.
- Automatic surface mounting is available.
- MCPH6 package.

Package Dimensions

unit : mm

2211



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DS}		6	V
Gate-to-Source Voltage	V _{GS}		-4	V
Drain Current	I _D		60	mA
Allowable Power Dissipation	P _D		200	mW
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Source Leakage Current	IG1S1O	V _{G1S1} =-5V			-10	μA
	IG2S1O	V _{G2S1} =-5V			-10	μA
	IG2S2O	V _{G2S2} =-5V			-10	μA
	IG1S2O	V _{G1S2} =-5V			-10	μA
Zero-Gate Voltage Drain Current	ID1S1S	V _{D1} =3V, V _{G1S1} =0, V _{G2} =-4V	20	40	60	mA
	ID2S1S	V _{D2} =3V, V _{G2S1} =0, V _{G1} =-4V	20	40	60	mA
	ID1S2S	V _{D1} =3V, V _{G2S2} =0, V _{G1} =-4V	20	40	60	mA
	ID2S2S	V _{D2} =3V, V _{G1S2} =0, V _{G2} =-4V	20	40	60	mA

Continued on next page.

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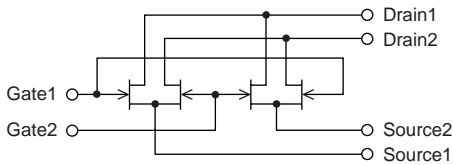
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SPM5001

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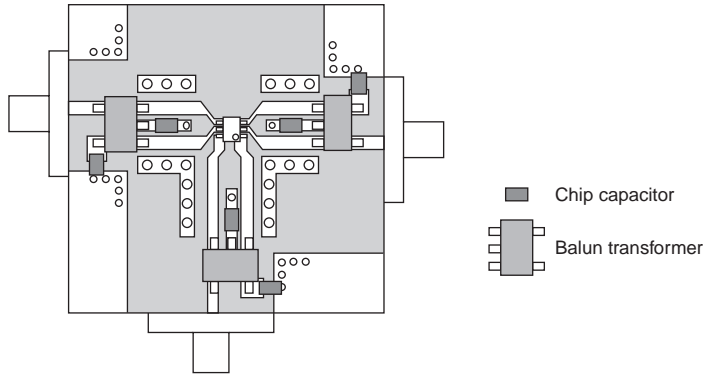
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Source Cutoff Voltage	VG1S1(off)	$V_{D1}=3V, I_D=100\mu A$	-0.5	-1.0	-1.5	V
	VG2S1(off)	$V_{D2}=3V, I_D=100\mu A$	-0.5	-1.0	-1.5	V
	VG2S2(off)	$V_{D1}=3V, I_D=100\mu A$	-0.5	-1.0	-1.5	V
	VG1S2(off)	$V_{D2}=3V, I_D=100\mu A$	-0.5	-1.0	-1.5	V

Equivalent Circuit

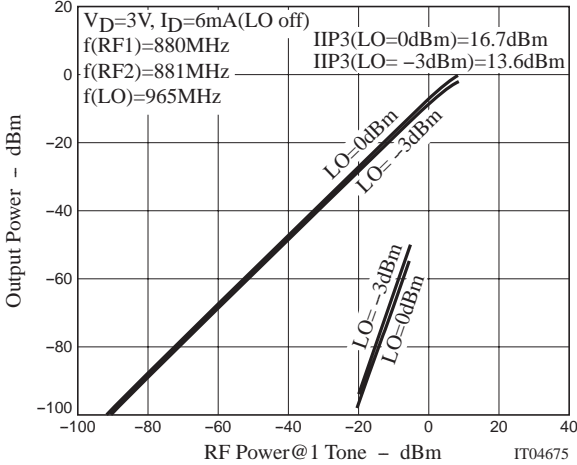


[Reference Data]

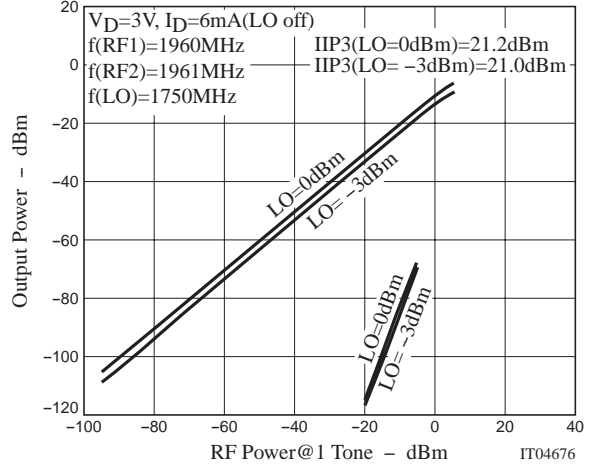
Mixer Characteristics Measured by the Evaluation Board for SPM5001



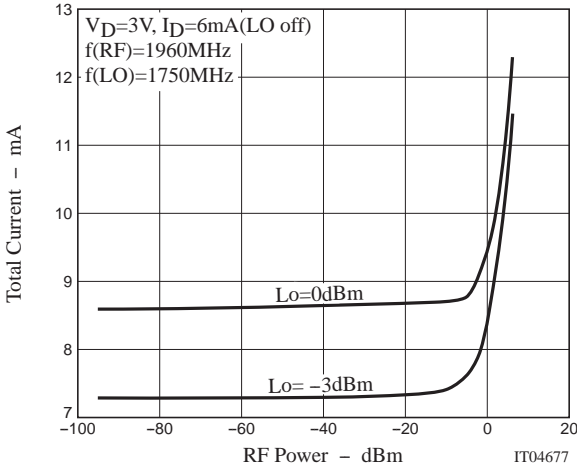
3rd Order Intermodulation Distortion



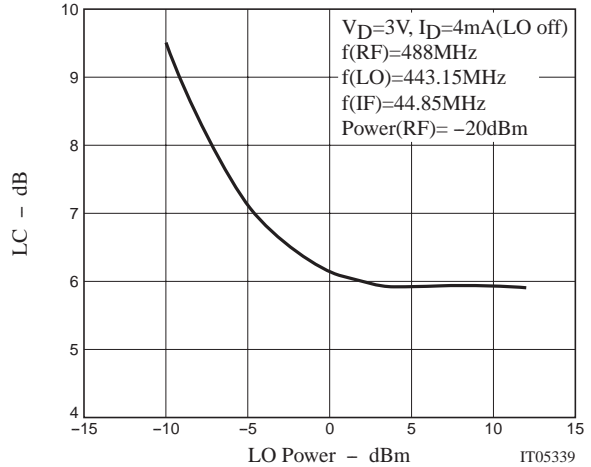
3rd Order Intermodulation Distortion



Total Current vs. RF Power



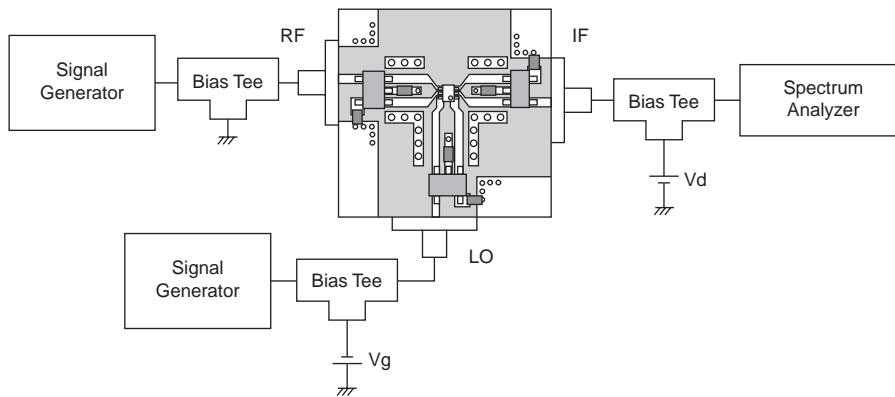
Conversion Loss*



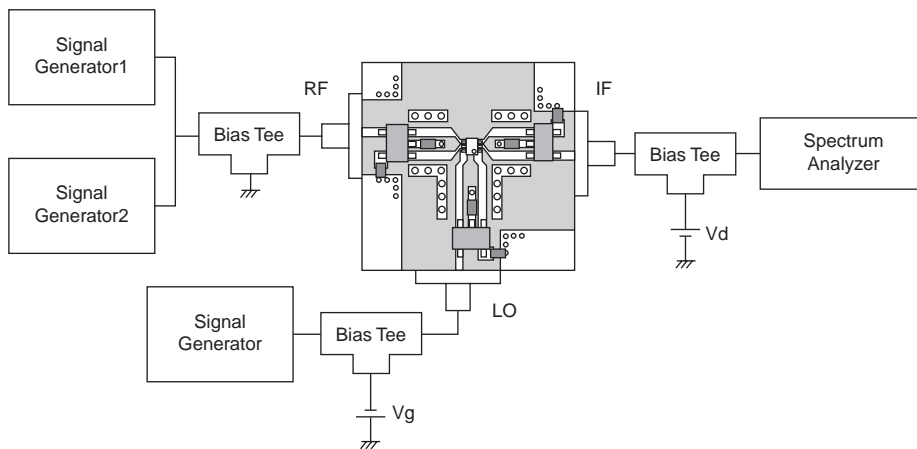
* This Conversion Loss characteristic includes the loss of the test board and the Balun Transformer.

Measurement System

- IF output power vs. RF input power



- IM3, IM2 vs. RF input power



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