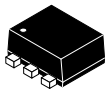
MMIC Amplifier

3 V, 16 mA, 0.1 to 3.6 GHz, MCPH6

SMA3109



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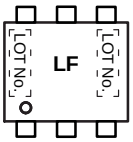
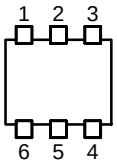
特長

- 高利得である：Gp = 23 dB Typ. @ 1 GHz
- 動作周波数帯域が広い：fu = 3.6 GHz
- 低消費電流：I_{CC} = 16 mA Typ
- 高出力パワー：Po(1dB) = 4 dBm
- 特性インピーダンス：入出力 50 Ω
- This is a Pb−Free Device

マーキング



PIN DESCRIPTION



1: VCC
2: GND
3: OUT
4: GND
5: GND
6: IN

ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

絶対最大定格 ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

記号	項目	定格値	Unit
V_{CC}	電源電圧	5	V
I_{CC}	回路電流	25	mA
P_D	許容損失	280	mW
Topr	動作周囲温度	−40~ +85	°C
Tstg	保存周囲温度	−55~ +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
(参考訳)
最大定格を超えるストレスは、デバイスにダメージを与える危険性があります。これらの定格値を超えた場合は、デバイスの機能性を損ない、ダメージが生じ、信頼性に影響を及ぼす危険性があります。

推奨動作範囲 (Ta = 25°C)

記号	項目	定格値			Unit
		Min	Typ	Max	
V_{CC}	電源電圧	2.7	3	3.3	V
Topr	動作周囲温度	−40	+25	+85	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.
(参考訳)
推奨動作範囲を超えるストレスでは推奨動作機能を得られません。推奨動作範囲を超えるストレスの印加は、デバイスの信頼性に影響を与える危険性があります。

電気的特性 ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 3 V, Z_S = Z_L = 50 Ω)

記号	項目	条件	定格値			Unit
			Min	Typ	Max	
I_{CC}	回路電流		11.5	16.0	20.5	mA
Gp	電力利得	f = 1 GHz	21.0	23.0	26.0	dB
		f = 2.2 GHz	22.0	24.0	27.0	
ISL	アイソレーション	f = 1 GHz	27.0	31.5	−	dB
		f = 2.2 GHz	27.0	31.5	−	
RLin	入力リターンロス	f = 1 GHz	16.0	20.5	−	dB
		f = 2.2 GHz	10.0	15.0	−	
RLout	出力リターンロス	f = 1 GHz	15.0	20.0	−	dB
		f = 2.2 GHz	10.0	14.0	−	
NF	雑音指数	f = 1 GHz	−	4.3	5.0	dB
		f = 2.2 GHz	−	4.3	5.0	
Po(1dB)	1 dB 利得圧縮点出力電力	f = 1 GHz	4.0	6.4	−	dBm
		f = 2.2 GHz	2.0	4.2	−	
fu	動作周波数帯域	1 GHz のゲインより 3 dB 低下	−	3.6	−	GHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
(参考訳)
製品パラメータは、特別な記述が無い限り、記載されたテスト条件に対する電気的特性で示しています。異なる条件下で製品動作を行った時には、電気的特性で示している特性を得られない場合があります。

注: 本製品は、高周波プロセスを使用しています。
静電気等の影響を受けやすくなっていますので取り扱いにご注意下さい。

測定回路図

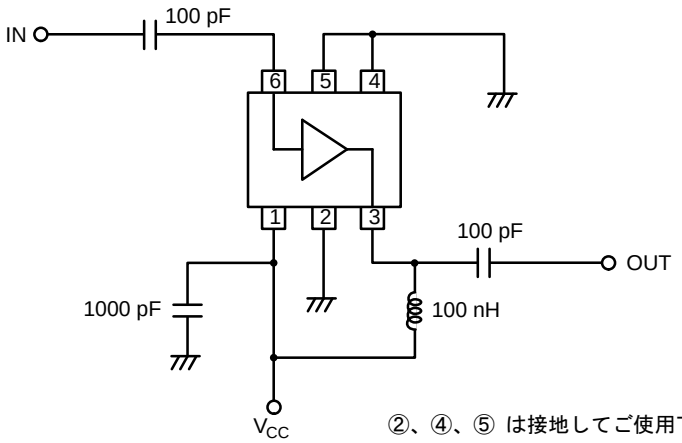
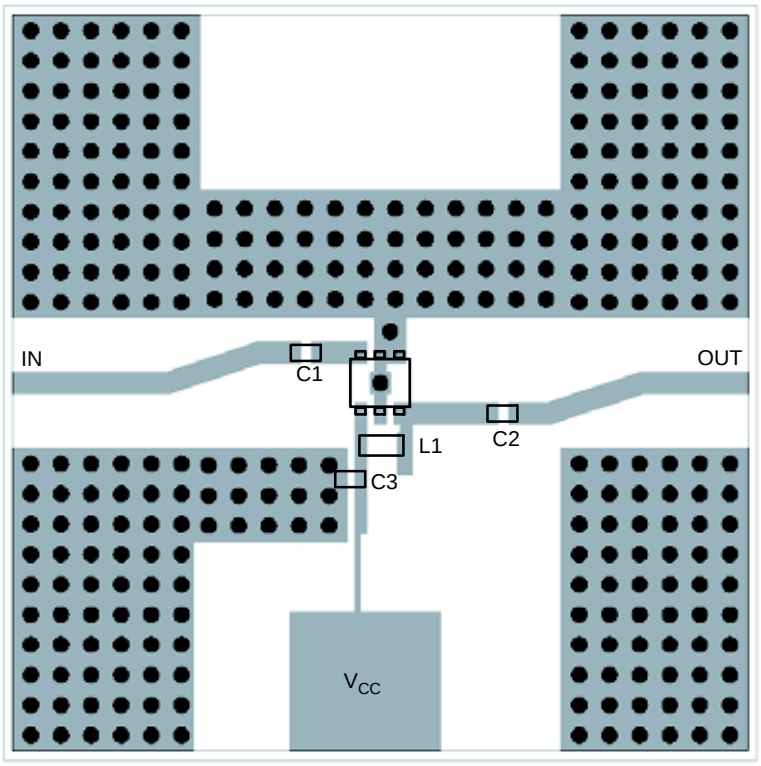


図 1. 測定回路図

評価基板



記号	値
C1, C2	100 pF
C3	1000 pF
L1	100 nH

図 2. 評価基板

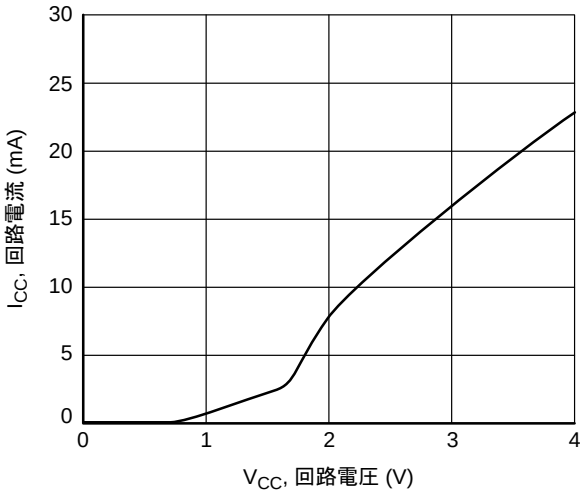


図 3. I_{CC} − V_{CC}

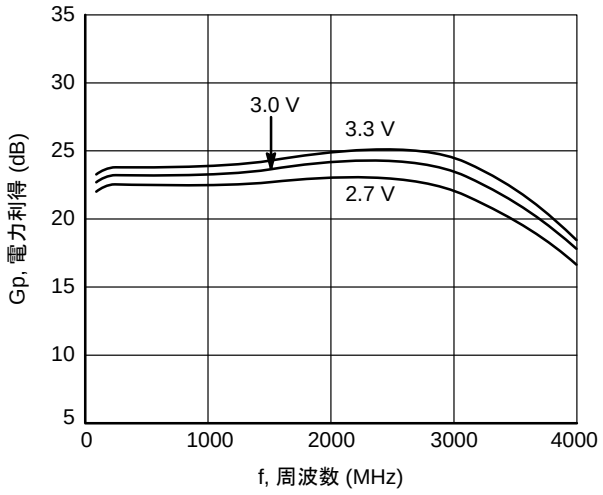


図 4. **Gp − f**

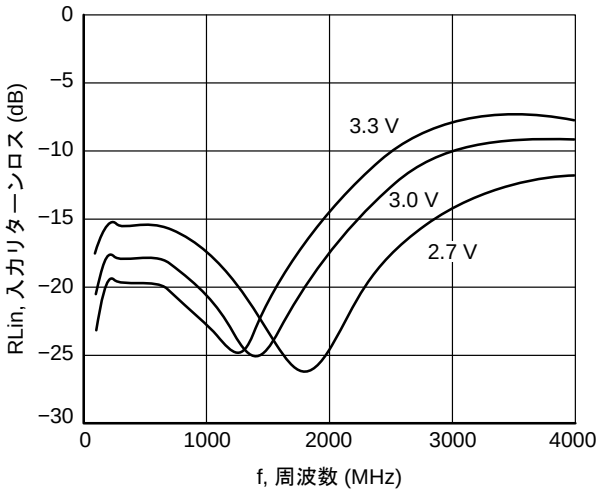


図 5. **RLin − f**

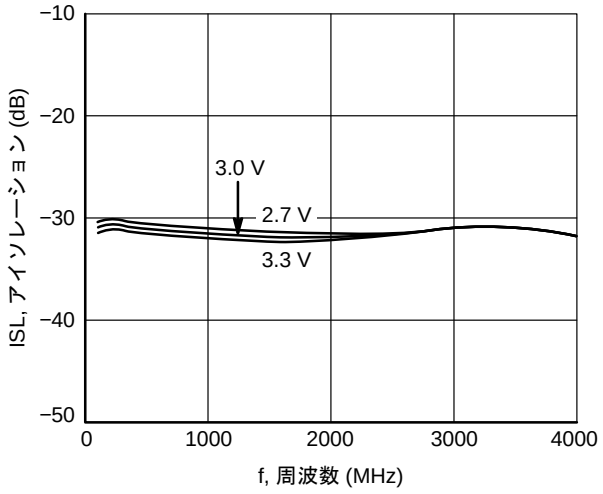


図 6. **ISL − f**

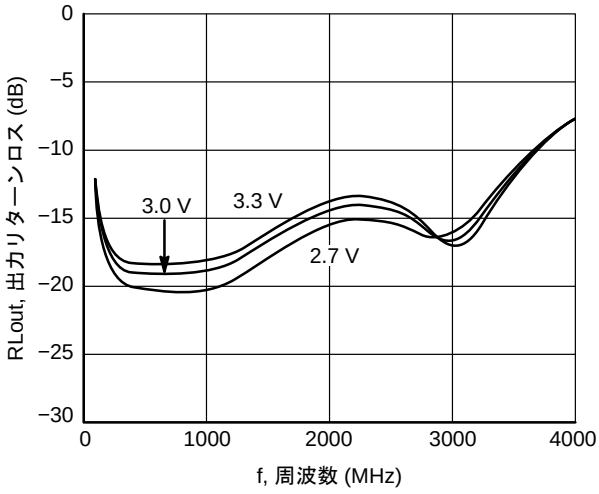


図 7. **RLout − f**

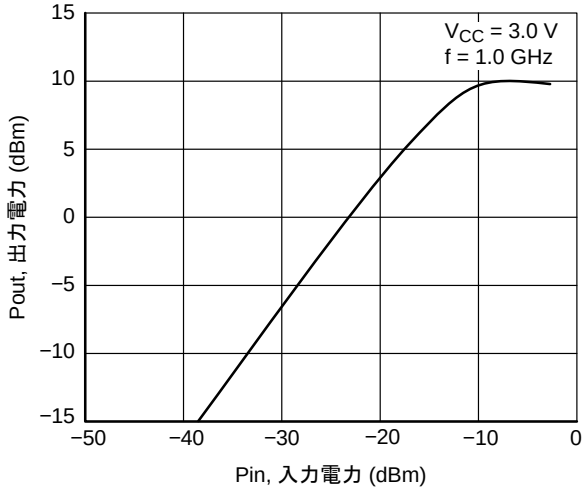


図 8. **Pout − Pin**

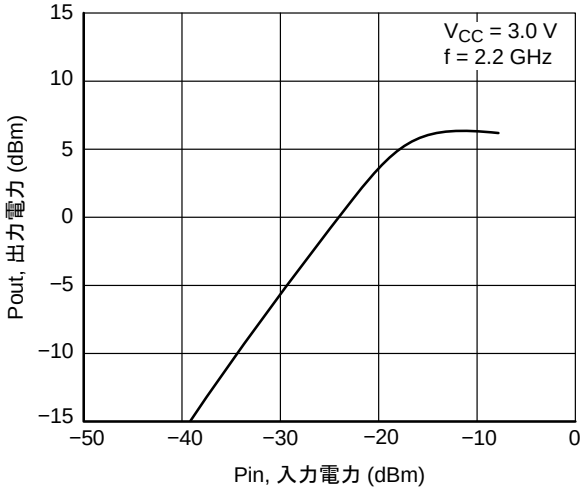


図 9. **Pout − Pin**

Sパラメータ

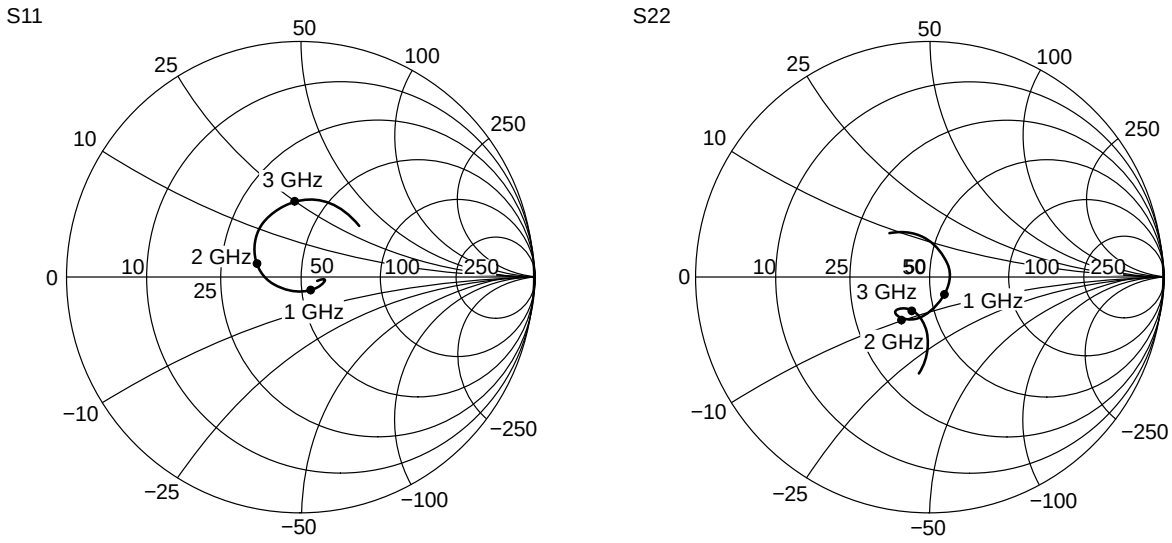
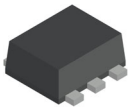


図 10. S パラメータ

ORDERING INFORMATION

Device	Specific Device Marking	パッケージ名 (JEITA, JEDEC)	パッケージ名	Shipping†
SMA3109−TL−E	LF	SC−88FL (Pb−Free)	MCPH6 (Pb−Free)	3000 / Tape & Reel

†For Information On Tape And Reel Specifications, Including Part Orientation And Tape Sizes, Please Refer To Our Tape And Reel Packaging Specifications Brochure, Brd8011/D.



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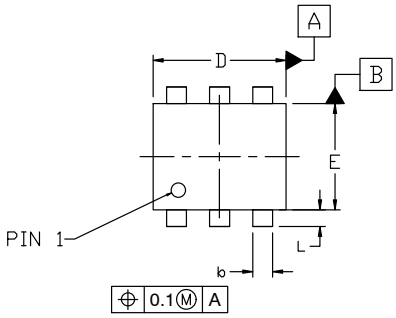
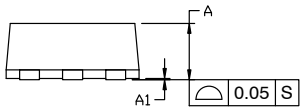
ISSUE A

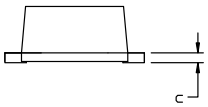
DATE 28 SEP 2022



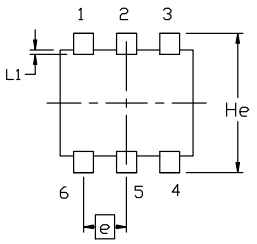
TOP VIEW



SIDE VIEW



FRONT VIEW



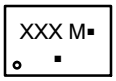
BOTTOM VIEW

NOTES:

1. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND THE BAR PROTRUSIONS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.85	0.90
A1	0.00	---	0.02
b	0.25	0.30	0.40
c	0.12	0.15	0.25
D	1.94	2.00	2.06
E	1.54	1.60	1.66
He	2.05	2.10	2.15
L	0.19	0.25	0.31
L1	0.00	0.07	0.12
e	0.65 BSC		

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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ADDITIONAL INFORMATION

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