MMIC Amplifier, 5 V, 22.7 mA, 0.1 to 3 GHz, MCPH6

NSVG3117SG6

Features

- High Gain: Gp = 33.5 dB typ. @ 2.2 GHz
- Wideband Response: fu = 3.0 GHz
- Low Current: I_{CC} = 22.7 mA typ.
- High Output Power: Po (1 dB) = 5.7 dBm
- Port Impedance: Input/Output: 50 Ω
-

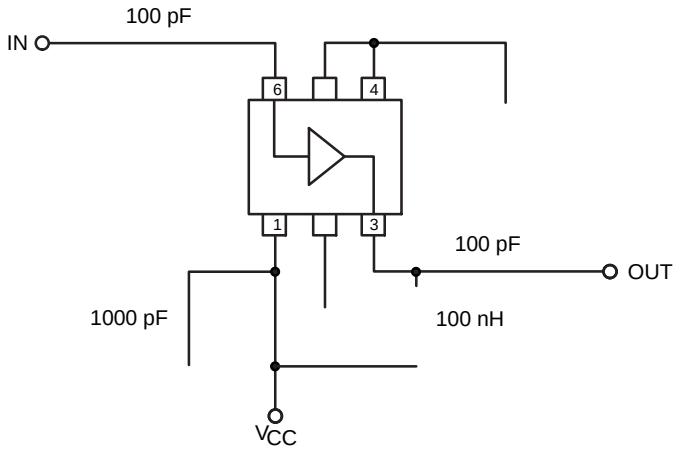
ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 5 V, Zs = Z_L = 50 Ω)

Symbol	Parameter	Conditions	Ratings			Unit
			Min	Typ	Max	
I_{CC}	Circuit Current		18.5	22.7	28.0	mA
Gp	Power Gain	f = 1 GHz	29.5	31.2	32.5	dB
		f = 2.2 GHz	30.5	33.5	35.5	
ISL	Isolation	f = 1 GHz	35.0	37.6	–	dB
		f = 2.2 GHz	34.0	36.5	–	
RLin	Input Return Loss	f = 1 GHz	9.0	11.2	–	dB
		f = 2.2 GHz	4.5	6.0	–	
RLout	Output Return Loss	f = 1 GHz	11.0	14.3	–	dB
		f = 2.2 GHz	12.0	16.3	–	
NF	Noise Figure	f = 1 GHz	–	4.1	5.0	dB
		f = 2.2 GHz	–	3.9	5.0	
Po (1dB)	Gain 1dB Compression Output Power (Note 2)	f = 1 GHz	7.5	9.8	–	dBm
		f = 2.2 GHz	3.7	5.7	–	
fu	Upper Limit Operating Frequency (Note 2)	3 dB down below flat gain at f = 1GHz	–	3.0	–	GHz

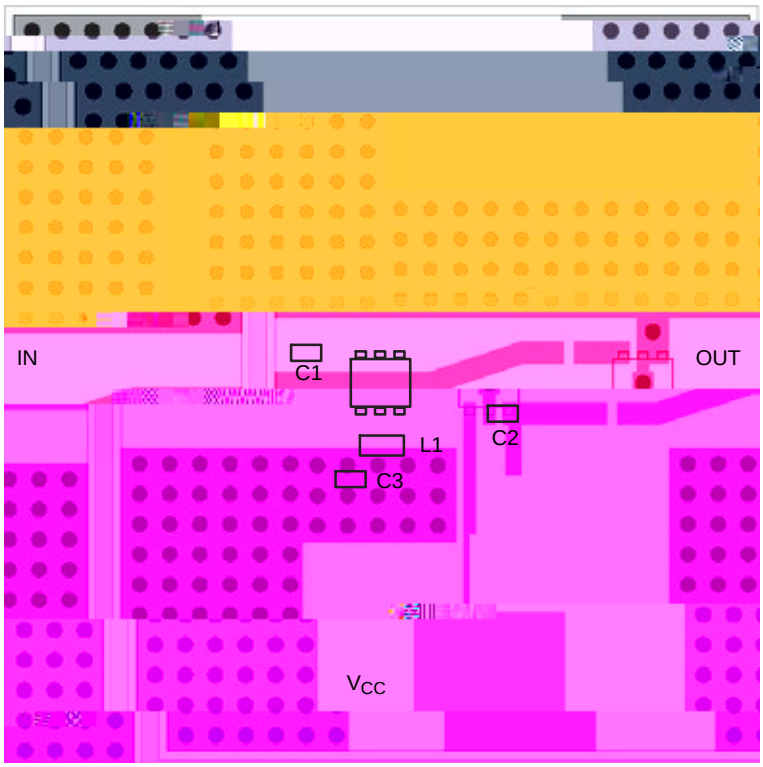
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pay attention to handling since it is liable to be affected by static electricity due to the high frequency process adopted.
2. On evaluation board.

Test Circuit



Evaluation Board



Symbol	Value
C1, C2	100 pF
C3	1000 pF
L1	100 nH

Figure 2. Evaluation Board

Characteristics

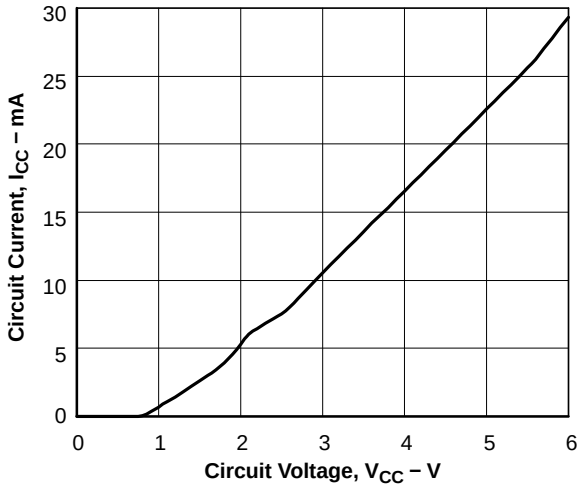


Figure 3. I_{CC} – V_{CC}

NSVG3117SG6

S Parameter

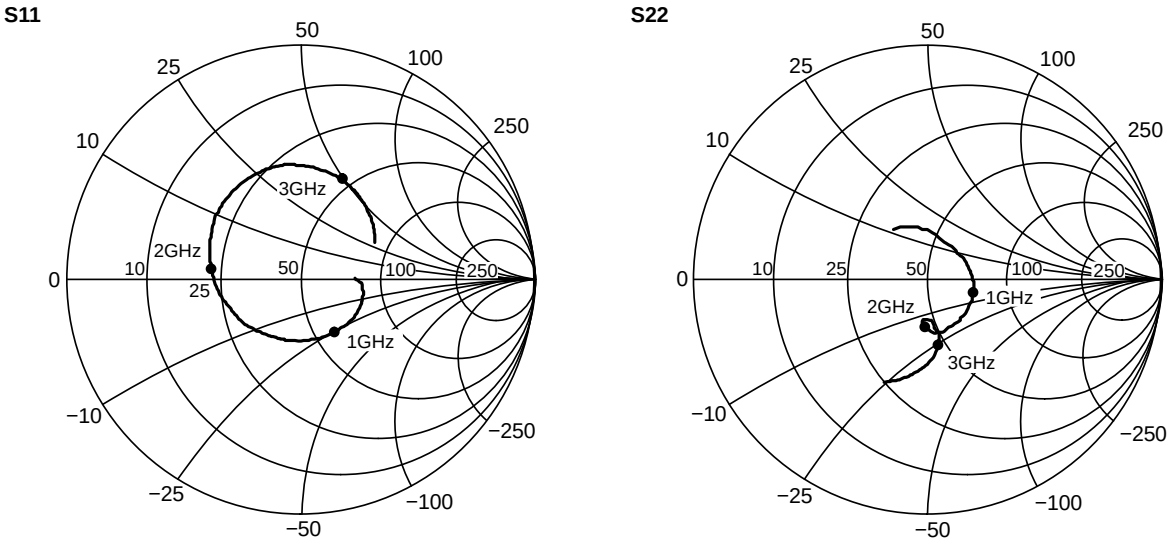
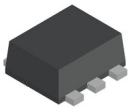


Figure 10. S Parameter (V_{CC} = 5 V)

ORDERING INFORMATION

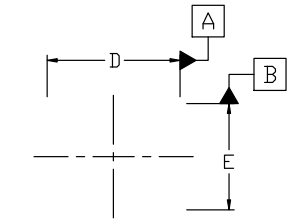
Device Order Number	Specific Device Marking	Package Type (JEITA, JEDEC)	Package Type	Shipping†
NSVG3117SG6T1G	HLG	SC−88FL (Pb−Free/Halogen Free)	MCPH6 (Pb−Free/Halogen Free)	3000 / Tape & Reel

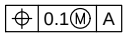
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



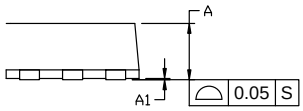
SC−88FL / MCPH6
CASE 419AS
ISSUE A

DATE 28 SEP 2022

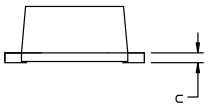




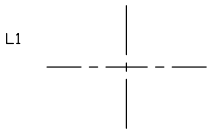
TOP VIEW



SIDE VIEW



FRONT VIEW



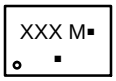
BOTTOM VIEW

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

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.