DATA SHEET

NEC

BIPOLAR ANALOG INTEGRATED CIRCUIT

μPC1675G

GENERAL PURPOSE WIDE BNAD AMPLIFIER

DESCRIPTION

The μPC1675G is a silicon monolithic integrated circuit employing small package (4pins mini mold) and designed for use as a wide bnad amplifier convers from HF band to UHF band.

FEATURES

- Excellent frequency response : 1.9 GHz TYP.
  @ 3 dB down below flat gain.
- High isolation.
- Super small package.
- Uni- and low voltage operation : V_{CC} = 5 V
- Input and output matching 50 Ω.

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Supply Voltage	V_{CC}	6	V
Total Power Dissipation	P_T	200	mW
Operating Temperature	T_{opt}	–40 to +85	°C
Storage Temperature	T_{stg}	–55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C, V_{CC} = 5 V)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Circuit Current	I_{CC}	12	17	22	mA	No Signal
Power Gain	G_P	10	12	14	dB	f = 0.5 GHz
Noise Figure	NF		5.5	7.0	dB	f = 0.5 GHz
Upper Limit Operating Frequency	f_u	1.6	1.9		GHz	3 dB down below flat gain
Isolation	ISL	21	25		dB	f = 0.5 GHz
Input Return Loss	RL_{in}	9	12		dB	f = 0.5 GHz
Output Return Loss	RL_{out}	8	11		dB	f = 0.5 GHz
Maximum Output Level	P_O	2	4		dBm	f = 0.5 GHz, P_{in} = 0 dBm

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Document No. P12446EJ2V0DS00 (2nd edition)
(Previous No. IC-1890)
Date Published March 1997 N
Printed in Japan

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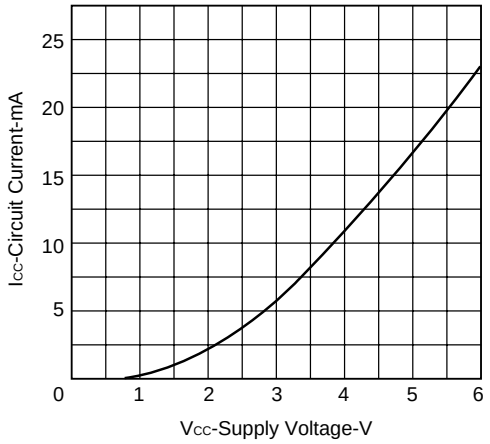
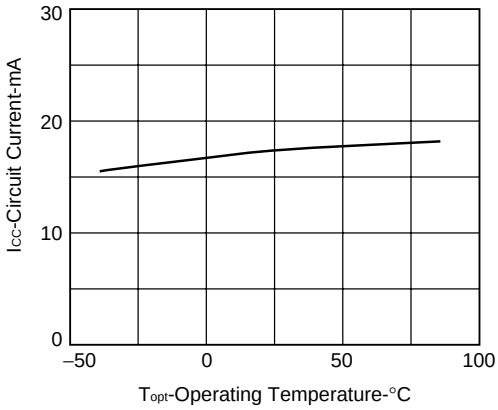
TYPICAL CHARACTERISTICS (T_A = 25 °C)

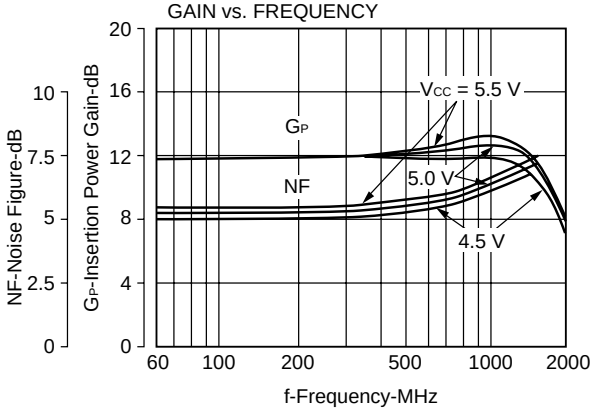
CIRCUIT CURRENT vs. SUPPLY VOLTAGE



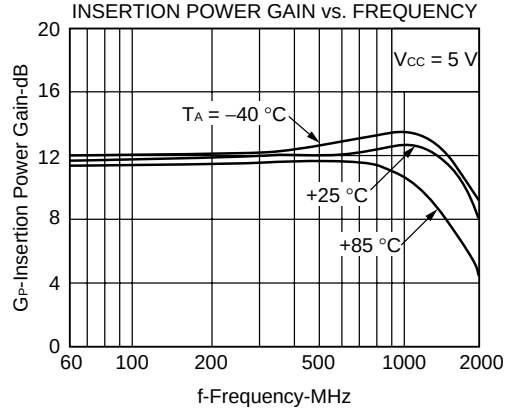
CIRCUIT CURRENT vs. OPERATING TEMPERATURE



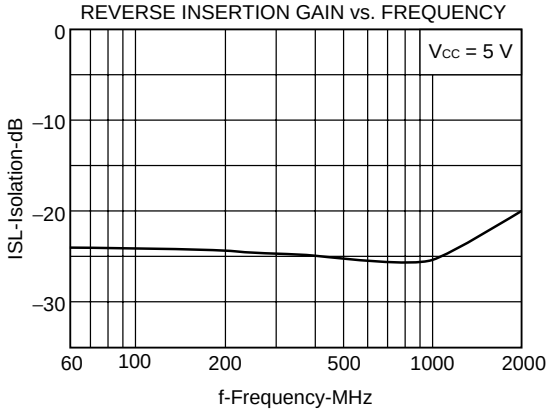
NOISE FIGURE AND INSERTION POWER GAIN vs. FREQUENCY



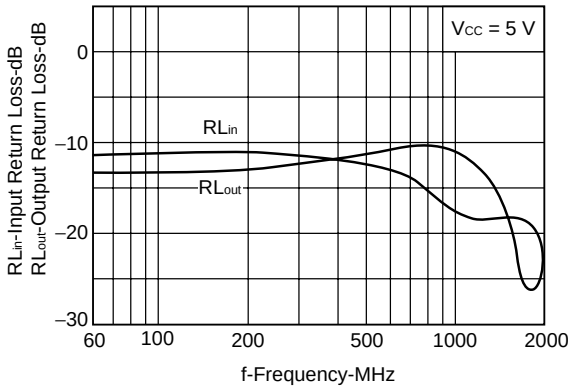
INSERTION POWER GAIN vs. FREQUENCY



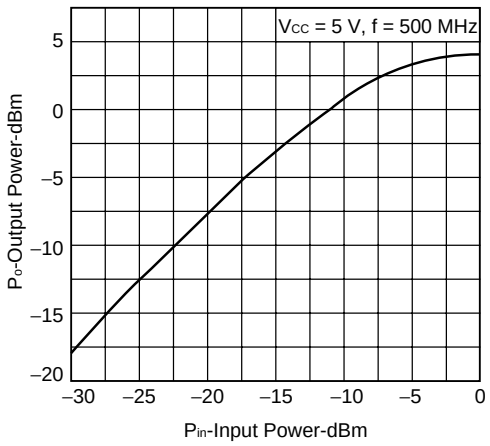
REVERSE INSERTION GAIN vs. FREQUENCY



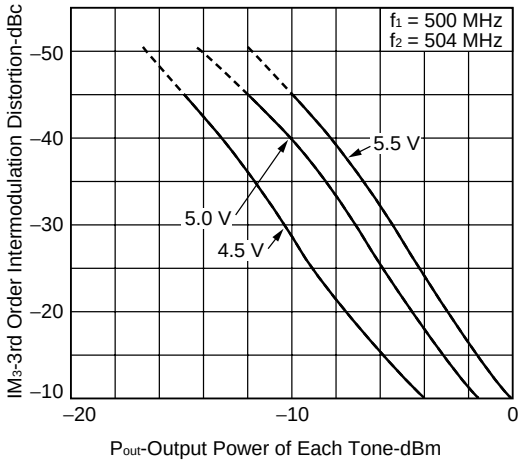
INPUT AND OUTPUT RETURN LOSS vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER



THIRD ORDER INTERMODULATION DISTORTION
vs. OUTPUT POWER OF EACH TONE



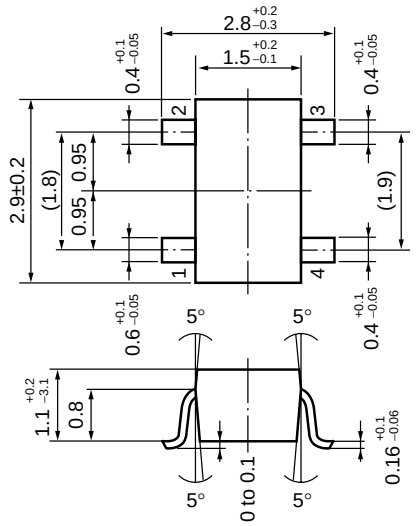
S-PARAMETER

V_{CC} = 5 V, Z_O = 50

f (MHz)	$\|S_{11}\|$	$\angle S_{11}$	$\|S_{21}\|$	$\angle S_{21}$	$\|S_{12}\|$	$\angle S_{12}$	$\|S_{22}\|$	$\angle S_{22}$
100	0.284	–27.1	3.853	–33.8	0.065	–27.0	0.225	159.1
200	0.287	–55.4	3.877	–67.6	0.064	–51.4	0.235	95.7
400	0.270	–114.3	3.933	–135.5	0.059	–98.3	0.266	15.6
600	0.228	–173.0	4.039	155.7	0.054	–142.3	0.294	–60.1
800	0.178	132.5	4.167	85.3	0.052	177.3	0.305	–134.3
1000	0.136	85.8	4.239	12.8	0.053	138.4	0.283	151.9
1200	0.120	46.0	4.160	–61.0	0.060	97.5	0.229	80.2
1400	0.122	3.6	3.894	–135.0	0.068	53.3	0.156	13.3
1600	0.124	–45.4	3.512	152.1	0.078	6.4	0.084	–40.9
1800	0.114	–98.5	3.083	81.2	0.088	–42.4	0.048	–56.1
2000	0.085	–55.6	2.661	12.1	0.098	–92.6	0.067	–75.0

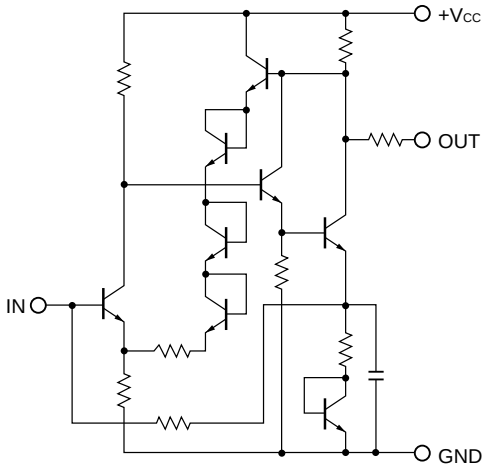
PACKAGE DIMENSIONS

PACKAGE DIMENSIONS
(Units: mm)



PIN CONNECTIONS
1. GND
2. OUTPUT
3. V_{CC}
4. INPUT

EQUIVALENT CIRCUIT



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Anti-radioactive design is not implemented in this product.

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