

BIPOLAR ANALOG INTEGRATED CIRCUIT

μ PC1652G

SILICON MONOLITHIC BIPOLAR INTEGRATED CIRCUIT

WIDE BAND AMPLIFIER

DESCRIPTION

The μ PC1652G is a silicon monolithic integrated circuit especially designed as a wide band amplifier covering HF band through UHF band.

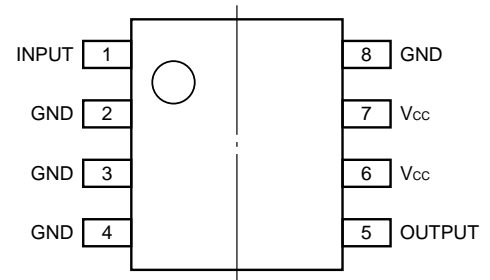
FEATURES

- Excellent frequency response : 1 200 MHz TYP. @ 3 dB down
- High power gain : 18 dB TYP. @ f = 500 MHz
- Low voltage operation : $V_{CC} = 5$ V
- SOP package

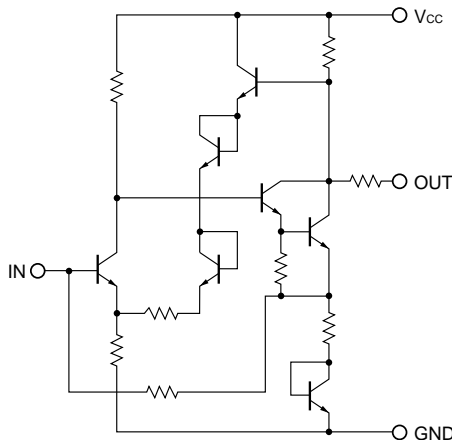
ABSOLUTE MAXIMUM RATINGS ($T_A = +25$ °C)

Supply Voltage	V_{CC}	7	V
Total Power dissipation	P_D	440	mW
Operating Ambient Temperature	T_A	-20 to +75	°C
Storage Temperature	T_{stg}	-40 to +125	°C

PIN CONNECTIONS



EQUIVALENT CIRCUIT



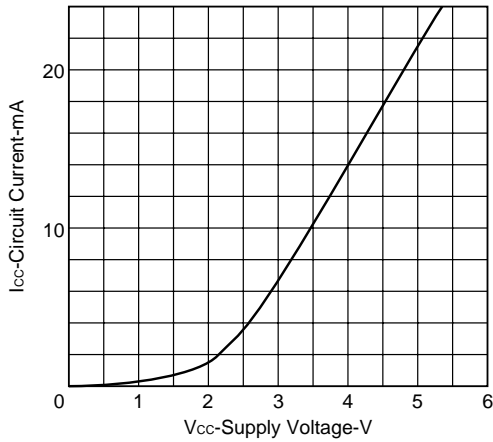
ELECTRICAL CHARACTERISTICS ($T_A = +25$ °C, $V_{CC} = 5$ V)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Circuit Current	I_{CC}	15	20	25	mA	No signals
Power Gain	G_P	16	18	20	dB	f = 500 MHz
Noise Figure	NF		5.5	6.5	dB	f = 500 MHz
Band Width	BW	1000	1200		MHz	3 dB down below flat gain
Isolation	I_{SO}	23	26		dB	f = 500 MHz
Input Return Loss	$ S_{11} $	17	20		dB	f = 500 MHz
Output Return Loss	$ S_{22} $	12	15		dB	f = 500 MHz
Maximum Output Level	P_O	3	5		dBm	f = 500 MHz

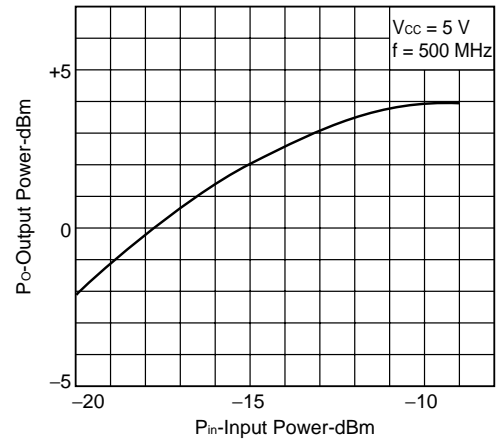
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TYPICAL CHARACTERISTICS ($T_A = +25\text{ }^\circ\text{C}$)

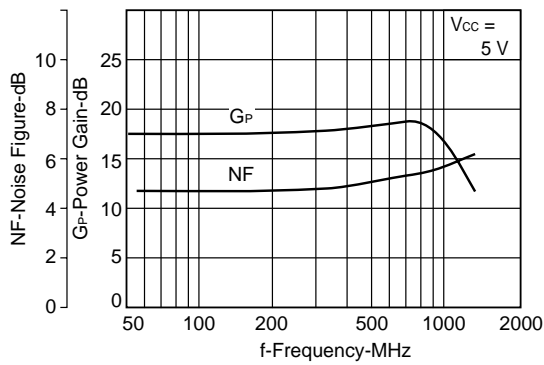
CIRCUIT CURRENT vs. SUPPLY VOLTAGE



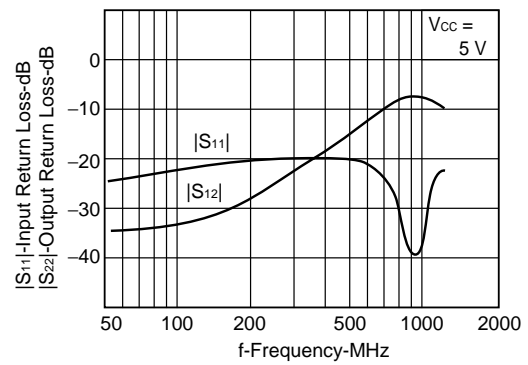
INPUT POWER vs. OUTPUT POWER



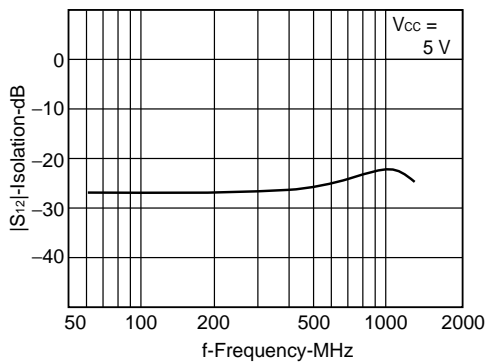
NOISE FIGURE AND POWER GAIN vs. FREQUENCY



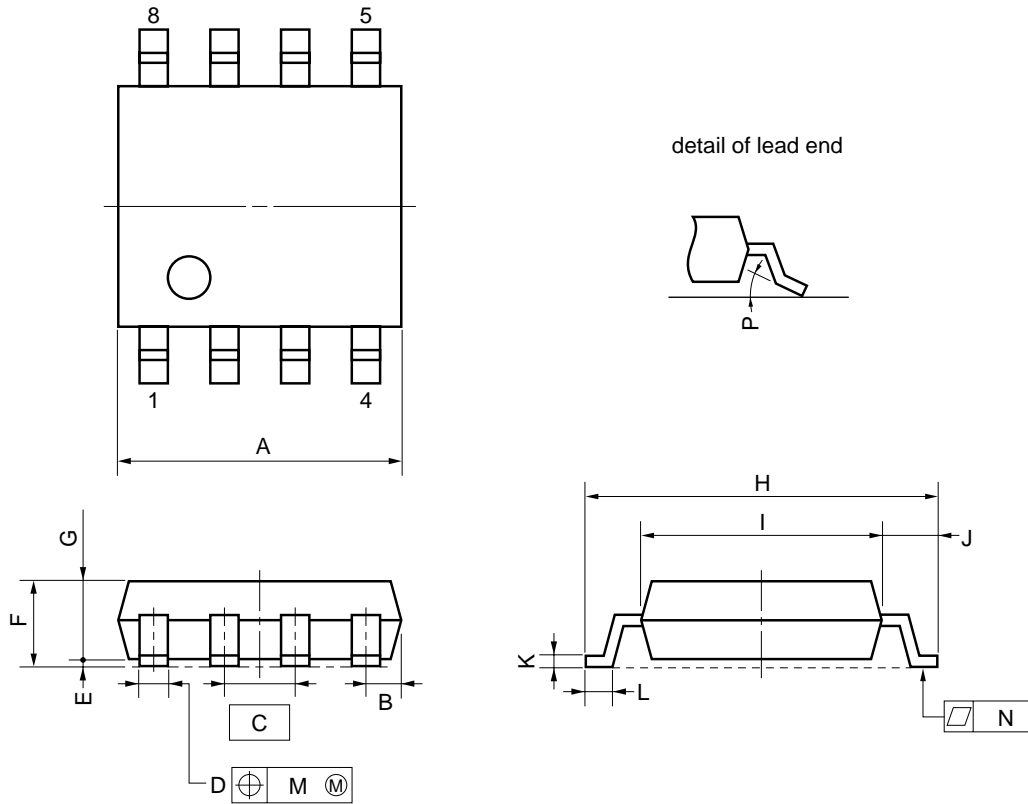
INPUT AND OUTPUT RETURN LOSS vs. FREQUENCY



ISOLATION vs. FREQUENCY



8 PIN PLASTIC SOP (225 mil)



NOTE

Each lead centerline is located within 0.12 mm (0.005 inch) of its true position (T.P.) at maximum material condition.

ITEM	MILLIMETERS	INCHES
A	5.37 MAX.	0.212 MAX.
B	0.78 MAX.	0.031 MAX.
C	1.27 (T.P.)	0.050 (T.P.)
D	0.40 ^{+0.10} _{-0.05}	0.016 ^{+0.004} _{-0.003}
E	0.1±0.1	0.004±0.004
F	1.8 MAX.	0.071 MAX.
G	1.49	0.059
H	6.5±0.3	0.256±0.012
I	4.4	0.173
J	1.1	0.043
K	0.15 ^{+0.10} _{-0.05}	0.006 ^{+0.004} _{-0.002}
L	0.6±0.2	0.024 ^{+0.008} _{-0.009}
M	0.12	0.005
N	0.10	0.004
P	3° ^{+7°} _{-3°}	3° ^{+7°} _{-3°}

S8GM-50-225B-3

NOTE ON CORRECT USE

- (1) Observe precautions for handling because of electro-static sensitive devices.
- (2) Form a ground pattern as wide as possible to keep minimum ground impedance (to prevent undesired oscillation).
- (3) Keep the track length of the ground pins as short as possible.
- (4) The bypass capacitor should be attached to the V_{CC} pin.
- (5) The DC cut capacitor must be each attached to the input and output pins.

RECOMMENDED SOLDERING CONDITIONS

This product should be soldered in the following recommended conditions. Other soldering methods and conditions than the recommended conditions are to be consulted with our sales representatives.

μPC1652G

Soldering Method	Soldering Conditions	Recommended Condition Symbol
Infrared ray reflow	Package peak temperature: 235 °C, Hour: within 30 s. (more than 210 °C), Time: 3 times, Limited days: no. ^{Note}	IR35-00-3
VPS	Package peak temperature: 215 °C, Hour: within 40 s. (more than 200 °C), Time: 3 times, Limited days: no. ^{Note}	VP15-00-3
Wave soldering	Soldering tub temperature: less than 260 °C, Hour: within 10 s. Time: 1 time, Limited days: no. ^{Note}	WS60-00-1
Pin part heating	Pin area temperature: less than 300 °C, Hour: within 3 s/pin. Limited days: no. ^{Note}	

Note It is the storage days after opening a dry pack, the storage conditions are 25 °C, less than 65 % RH.

Caution The combined use of soldering method is to be avoided (However, except the pin area heating method).

For details of recommended soldering conditions for surface mounting, refer to information document **SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL (C10535E)**.

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Anti-radioactive design is not implemented in this product.