

# GN02019B

## GaAs IC (with built-in ferroelectric)

Local amplifier for cellular phone

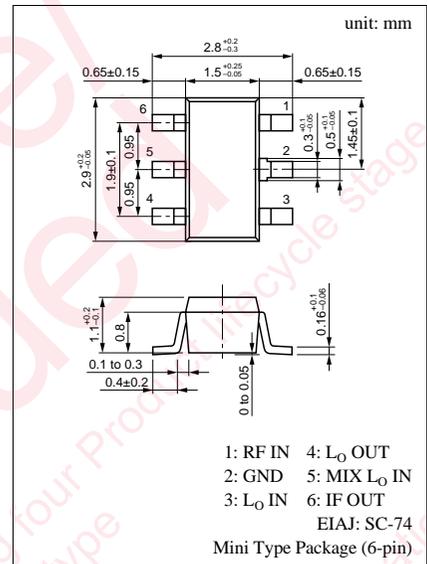
For a mixer amplifier

### ■ Features

- Wide band mixer
- Low consumption current
- Small package: Mini 6pin

### ■ Absolute Maximum Ratings (Ta = 25°C)

| Parameter                     | Symbol             | Ratings     | Unit |
|-------------------------------|--------------------|-------------|------|
| Power supply voltage 1, 2     | V <sub>DD1,2</sub> | 5           | V    |
| Circuit current 1, 2          | I <sub>DD1,2</sub> | 10          | mA   |
| Max input power               | P <sub>in</sub>    | 10          | dBm  |
| Allowable power dissipation   | P <sub>D</sub>     | 100         | mW   |
| Channel temperature           | T <sub>ch</sub>    | 150         | °C   |
| Operating ambient temperature | T <sub>opr</sub>   | -30 to +35  | °C   |
| Storage temperature           | T <sub>stg</sub>   | -55 to +150 | °C   |



### ■ Electrical Characteristics (Ta = 25 ± 3°C)

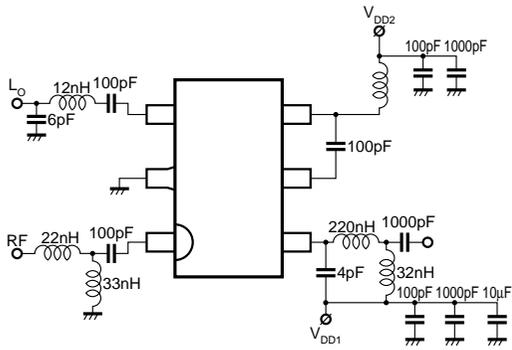
Marking Symbol: HT

| Parameter   | Symbol                          | Conditions   | min  | typ  | max | Unit |
|---|---------------------------------|--|------|------|-----|------|
| Mixer current                                       | I <sub>DD1</sub>                | V <sub>DD1</sub> = 3V  | 1, 2 | 2.3  | 4.2 | mA   |
| Local amplifier current                             | I <sub>DD2</sub>                | V <sub>DD2</sub> = 3V  | 0.6  | 1.6  | 2.6 | mA   |
| Conversion gain                                     | CG <sub>1</sub> <sup>*1,2</sup> | V <sub>DD1</sub> = V <sub>DD2</sub> = 3V<br>f <sub>RF1</sub> = 310MHz, f <sub>RF2</sub> = 310.1MHz<br>P <sub>RF1</sub> = P <sub>RF2</sub> = 30dBm<br>f <sub>LO</sub> = 1015MHz, P <sub>LO</sub> = 10dBm<br>f <sub>IF</sub> = 130MHz, f <sub>IM3</sub> = 130.1MHz   | 3    | 13   |     | dB   |
|   | CG <sub>2</sub> <sup>*1,2</sup> | V <sub>DD1</sub> = V <sub>DD2</sub> = 3V<br>f <sub>RF1</sub> = 885MHz, f <sub>RF2</sub> = 335.1MHz<br>P <sub>RF1</sub> = P <sub>RF2</sub> = -30dBm<br>f <sub>LO</sub> = 1015MHz, P <sub>LO</sub> = -10dBm<br>f <sub>IF</sub> = 130MHz, f <sub>IM3</sub> = 130.1MHz | 8    | 12.5 |     | dB   |
| Output third harmonics mutual modulation distortion | OIP3-1 <sup>*1,2</sup>          | V <sub>DD1</sub> = V <sub>DD2</sub> = 3V<br>f <sub>RF1</sub> = 810MHz, f <sub>RF2</sub> = 310.1MHz<br>P <sub>RF1</sub> = P <sub>RF2</sub> = -30dBm<br>f <sub>LO</sub> = 940MHz, P <sub>LO</sub> = -10dBm<br>f <sub>IF</sub> = 130MHz, f <sub>IM3</sub> = 130.1MHz  | 5    | 10   |     | dBm  |
|   | OIP3-2 <sup>*1,2</sup>          | V <sub>DD1</sub> = V <sub>DD2</sub> = 3V<br>f <sub>RF1</sub> = 885MHz, f <sub>RF2</sub> = 335.1MHz<br>P <sub>RF1</sub> = P <sub>RF2</sub> = -30dBm<br>f <sub>LO</sub> = 1015MHz, P <sub>LO</sub> = -10dBm<br>f <sub>IF</sub> = 130MHz, f <sub>IM3</sub> = 130.1MHz | 5    | 10   |     | dBm  |

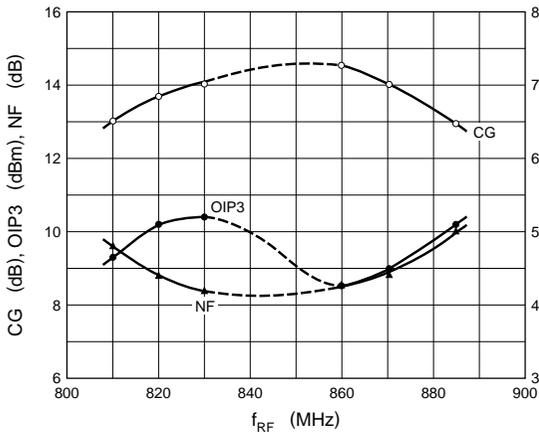
\*1 Refer to measurement circuit.

\*2 Sampling guaranteed items. (AQL = 0.65%)

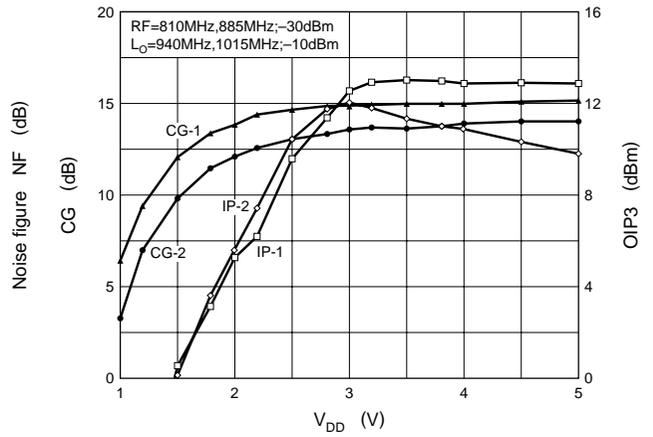
■ Measurement Circuit (CG, OIB3)



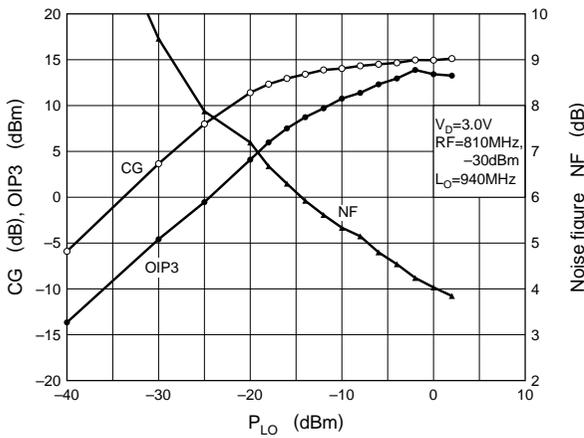
CG, OIP3, NF —  $f_{RF}$



CG, OIP3 —  $V_{DD}$



CG, OIP3, NF —  $P_{LO}$



# Caution for Safety

 **DANGER**

## ■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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