

### FEATURES

- **BROAD FREQUENCY RESPONSE:** To 1200 MHz TYP at 3 dB Down
- **HIGH POWER GAIN:** 19 dB TYP at  $f = 500$  MHz
- **LOW VOLTAGE OPERATION:**  $V_{cc} = 5$  V
- **SMALL PACKAGE**

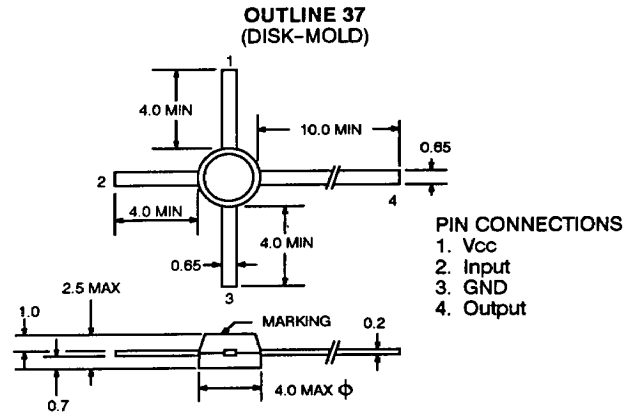
### DESCRIPTION

The UPC1651G is a silicon monolithic integrated circuit especially designed as a wide band amplifier covering the HF band through UHF band.

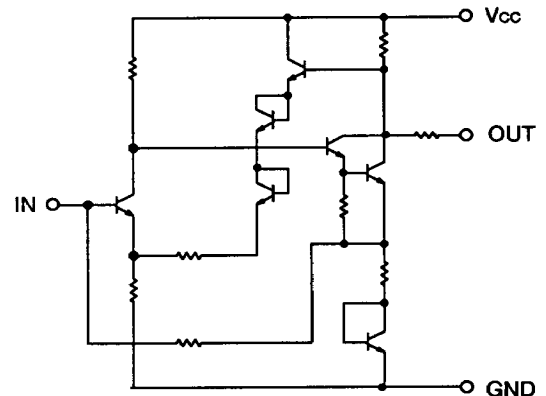
### ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

| SYMBOLS          | PARAMETERS              | UNITS | RATINGS     |
|------------------|-------------------------|-------|-------------|
| V <sub>cc</sub>  | Supply Voltage          | V     | 6           |
| P <sub>T</sub>   | Total Power Dissipation | mW    | 250         |
| T <sub>OP</sub>  | Operating Temperature   | °C    | -20 to +75  |
| T <sub>STG</sub> | Storage Temperature     | °C    | -40 to +125 |

### OUTLINE DIMENSIONS (Units in mm)



### EQUIVALENT CIRCUIT

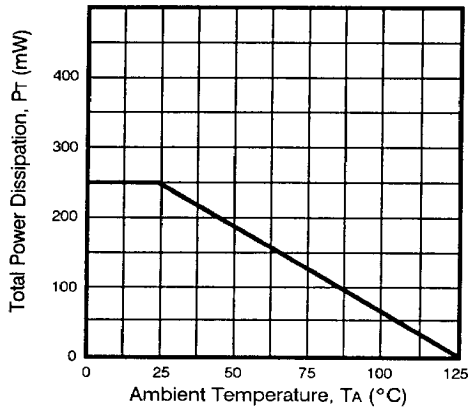


### ELECTRICAL CHARACTERISTICS (TA = 25°C)

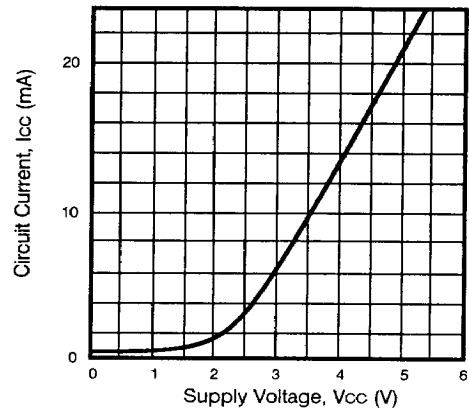
| PART NUMBER<br>PACKAGE OUTLINE |  |       | UPC1651G<br>37 |      |     |
|--------------------------------|--|-------|----------------|------|-----|
| SYMBOLS                        | PARAMETERS AND CONDITIONS                                  | UNITS | MIN            | TYP  | MAX |
| I <sub>cc</sub>                | Circuit Current at V <sub>cc</sub> = 5 V                   | mA    | 15             | 20   | 25  |
| NF                             | Noise Figure at V <sub>cc</sub> = 5 V, f = 500 MHz         | dB    |                | 5.5  | 6.5 |
| BW                             | Bandwidth at V <sub>cc</sub> = 5 V, 3 dB down              | MHz   | 1000           | 1200 |     |
| P <sub>OUT</sub>               | Maximum Output Level at V <sub>cc</sub> = 5 V, f = 500 MHz | dBm   | 3              | 5    |     |
| S <sub>21</sub>                | Power Gain at V <sub>cc</sub> = 5 V, f = 500 MHz           | dB    | 16             | 19   |     |
| S <sub>11</sub>                | Input Return Loss at V <sub>cc</sub> = 5 V, f = 500 MHz    | dB    |                | 15   |     |
| S <sub>22</sub>                | Output Return Loss at V <sub>cc</sub> = 5 V, f = 500 MHz   | dB    |                | 10   |     |
| S <sub>12</sub>                | Isolation at V <sub>cc</sub> = 5 V, f = 500 MHz            | dB    | 20             | 24   |     |

TYPICAL PERFORMANCE CHARACTERISTICS (TA = 25°C)

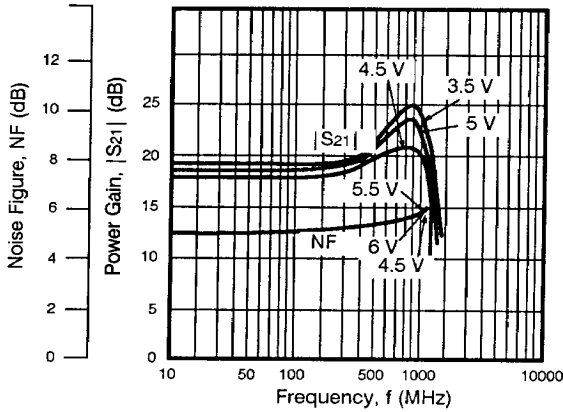
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



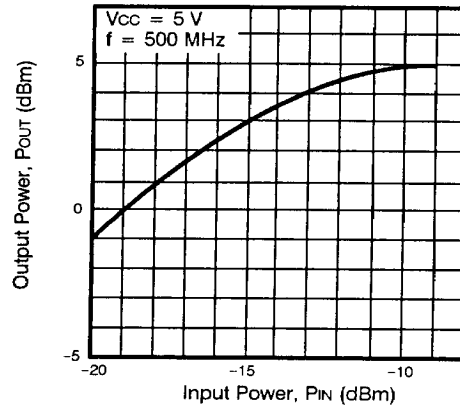
CIRCUIT CURRENT vs. SUPPLY VOLTAGE



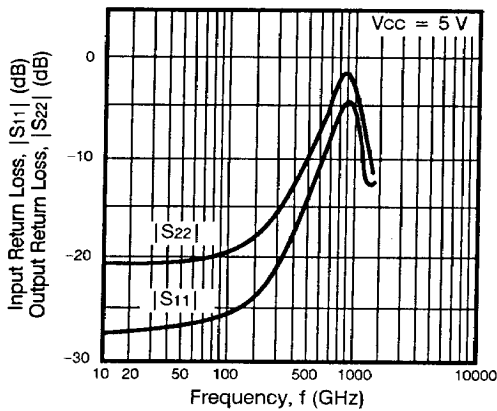
NOISE FIGURE AND POWER GAIN vs. FREQUENCY



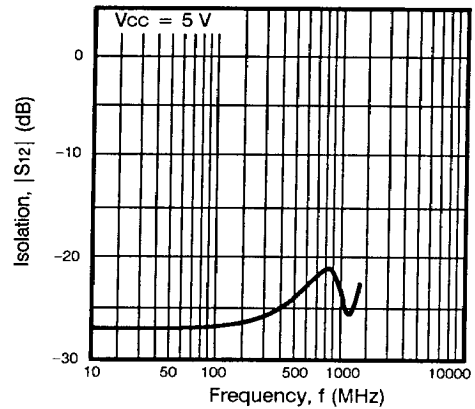
INPUT POWER vs. OUTPUT POWER



INPUT AND OUTPUT RETURN LOSS vs. FREQUENCY



ISOLATION vs. FREQUENCY



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