

PRELIMINARY DATA SHEET

NEC

**GaAs INTEGRATED CIRCUIT
L-BAND PA DRIVER AMPLIFIER**

UPG173TA

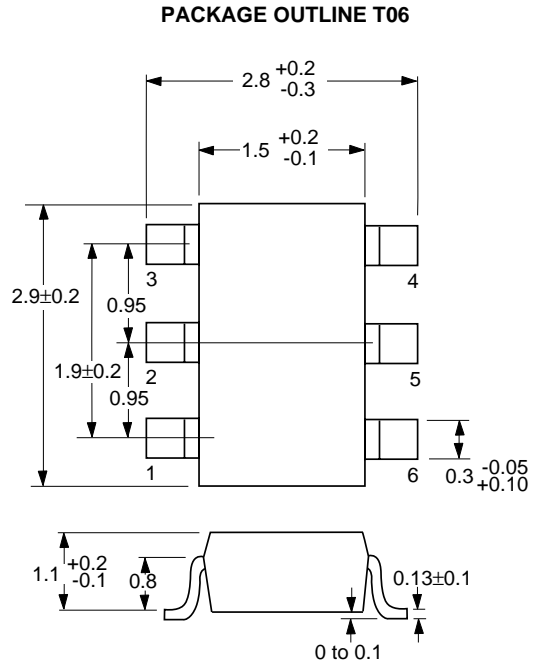
FEATURES

- **LOW VOLTAGE OPERATION:**
V_{DD} = 3.3 V
- **LOW CURRENT OPERATION :**
I_{DD} = 25 mA TYP @ V_{DD} = 3.3 V, f_{RF} = 824 to 849 MHz,
P_{OUT} = +8 dBm
- **LOW DISTORTION:**
PADJ1 = -38 dBc TYP @ V_{DD} = 3.3V,
f_{RF} = 824 to 849 MHz, P_{OUT} = +8 dBm
- **6 PIN MINI-MOLD PACKAGE**

DESCRIPTION

The UPG173TA is an L-Band PA driver amplifier developed for digital cellular telephone and PCS TDMA applications. This device features high output power and low distortion with 3.3 V, 25 mA operation. It is housed in a very small 6 pin mini-mold package available on tape-and-reel.

OUTLINE DIMENSIONS (Units in mm)



ELECTRICAL CHARACTERISTICS

(T_A = -35 to +75 °C, V_{DD1,2} = +3.3 V, π/4DQPSK modulated signal input, external input and output matching unless otherwise specified)

| PART NUMBER PACKAGE OUTLINE | | | UPG173TA T06 | | | |
|--------------------------------|----------------------------------|--|-----------------|-----|-----|-----|
| SYMBOLS | PARAMETERS AND CONDITIONS | | UNITS | MIN | TYP | MAX |
| f | Operating Frequency | | MHz | 824 | | 849 |
| GP | Power Gain | P _{IN} = -22 dBm | dB | 27 | 30 | |
| I _{DD} | Total Current | P _{IN} = -22 dBm | mA | | 25 | 32 |
| PADJ1 | Adjacent Channel Power Leakage 1 | P _{OUT} = +8 dBm Δf = ± 30 KHz | dBc | | -38 | -32 |
| PADJ2 | Adjacent Channel Power Leakage | P _{OUT} = +8 dBm Δf = ± 60 KHz | dBc | | -60 | -54 |
| RLIN | Input Return Loss | | dB | | 10 | |
| RL OUT | Output Return Loss | Off-chip matching | dB | | 10 | |

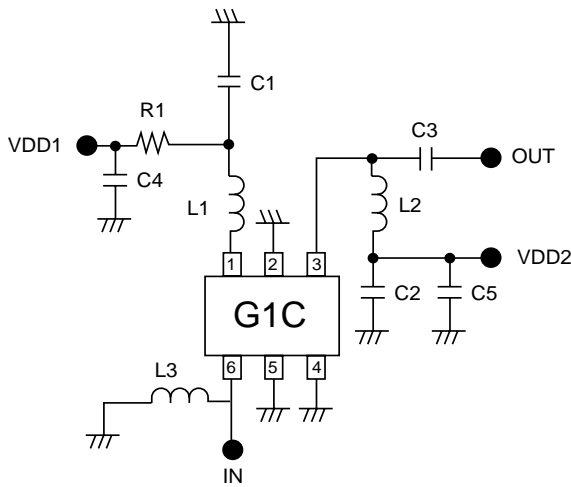
ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

| SYMBOLS | PARAMETERS | UNITS | RATINGS |
|--------------------|-------------------------|-------|------------------|
| V _{DD1,2} | Supply Voltage 1, 2 | V | 6.0 |
| P _{IN} | Input Power | dBm | -8 |
| P _T | Total Power Dissipation | mW | 170 ² |
| T _{OP} | Operating Temperature | °C | -35 to +75 |
| T _{STG} | Storage Temperature | °C | -35 to +150 |

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. Mounted on a 50 x 50 x 1.6mm double copper clad epoxy glass PWB, T_A = +85 °C

TYPICAL APPLICATION EXAMPLE

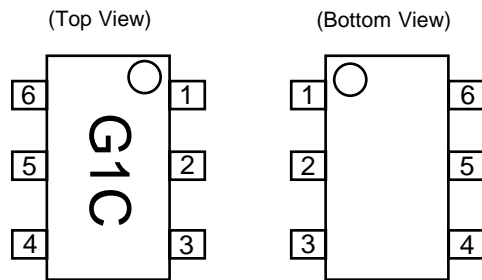


| | |
|----------------|---------|
| C1, C2, C4 ,C5 | 1000 pF |
| C3 | 2.2 pF |
| R1 | 10 Ω |
| L1 | 12 nH |
| L2, L3 | 10 nH |

RECOMMENDED OPERATING CONDITIONS

| SYMBOLS | PARAMETERS | UNITS | MIN | TYP | MAX |
|--------------------|--------------------|-------|------|------|------|
| V _{DD1,2} | Supply Voltage 1,2 | V | +3.0 | +3.3 | +3.6 |
| P _{IN} | Input Power | dBm | | -22 | |

PIN CONNECTIONS AND INTERNAL BLOCK DIAGRAM



1. V_{DD1}
2. GND
3. V_{DD2} & Output
4. GND
5. GND
6. Input

ORDERING INFORMATION

| PART NUMBER | QTY |
|-------------|--------------|
| UPG173TA-E3 | 3 K Per Reel |