TJ1001

ADVANCE INFORMATION

General Description

TChip's TJ1001 is a low cost, low noise amplifier for the 1.2-2GHz band. It is designed primarily for application in the first stage of L-band RF receivers, such as GPS, cellular or DECT receivers, as well as in active antenna applications. Its low current consumption and wide operating voltage range make it an ideal building block for portable, battery-operated equipment.

The low noise amplifier features a high gain of 18dB with a reasonably low noise figure of 3dB under impedance matched conditions. A minimum of off-chip matching parts is required, which allows for various optimizations of gain and noise figure. In applications where the LNA is physically located near to the antenna, noise matching can be used to improve the noise figure to 2.5dB.

The TJ1001 may be operated from an unregulated 2.0 to 3.6V power supply over the -40 to $+85^{\circ}$C temperature range, consuming only 2mA. Supply voltage can be applied either to the VDD pin or to the RF output for Phantom powering in active antenna applications.

The chip is manufactured in a 0.8μm SiGe technology and is offered in a miniature 6 pin plastic package or as bare die. A self contained evaluation board, fitted with 50Ω SMA connectors, is available to enable full RF characterization of the TJ1001 .

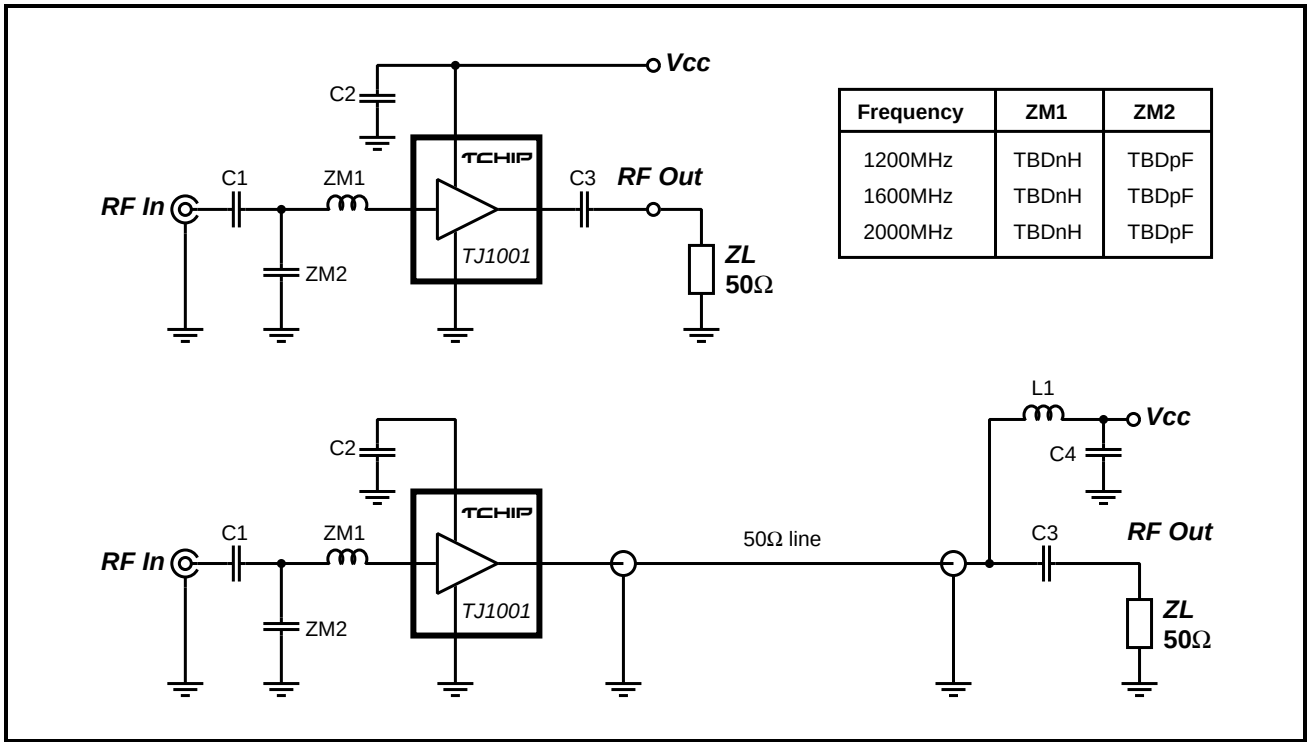
Features

- High gain - 18dB at 1.6GHz
- Low noise figure - 2.5dB
- Good dynamic range - iCP = -25dBm
- Unregulated supply voltage - 2.0 to 3.6V
- Ultra low power - 2mA at 2.5V
- Low off-chip parts count
- Miniature leadless plastic package
- Evaluation board available

Applications

- GPS receivers
- Active antennas
- Cellular handsets (GSM1800/1900)
- Cordless phones (DECT)
- Personal communications systems
- Battery operated L-band receivers

Typical Operating Circuits



Frequency	ZM1	ZM2
1200MHz	TBDnH	TBDpF
1600MHz	TBDnH	TBDpF
2000MHz	TBDnH	TBDpF