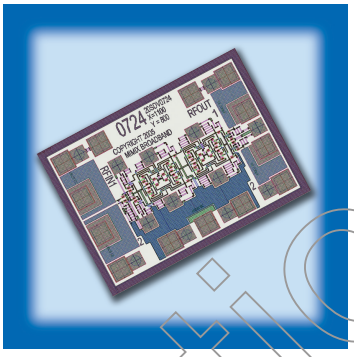
# 2.0-19.0 GHz GaAs MMIC Frequency Divider

December 2007 - Rev 04-Dec-07

**E1001-BD**
**RoHS**

## Features

- Divide-by-Four
- +0.0 dBm Output Power
- 35 dBc Fundamental Leakage
- Single-ended or Differential Input & Output
- 100% On-Wafer, DC and Output Power Testing
- 100% Visual Inspection to MIL-STD-883 Method 2010



## General Description

Mimix Broadband's 2.0-19.0 GHz GaAs MMIC freqency divider is an ECL (Emitter Coupled Logic) static frequency divider (divide-by-four) consisting of two cascaded divide-by-two circuits. Even-order harmonic levels are minimized by driving the inputs with a balanced input signal, and by taking the output differentially, but the circuit can be operated in a single-ended fashion with unused inputs & outputs open circuit. This MMIC uses Mimix Broadband's 2 um GaAs HBT device model technology to ensure high reliability and uniformity. The chip has surface passivation to protect and provide a rugged part with backside via holes and gold metallization to allow either a conductive epoxy or eutectic solder die attach process. This device is well suited for Millimeter-wave Point-to-Point Radio, LMDS, SATCOM and VSAT applications.

## Absolute Maximum Ratings

| | |
|---|---|
| Supply Voltage (Vcc) | +7.0 VDC |
| Supply Current (Icc) | 150 mA |
| Input Power (Pin) | +15 dBm |
| Storage Temperature (Tstg) | -65 to +165 °C |
| Operating Temperature (Ta) | -55 to MTTF Table[1] |
| Junction Temperature (Tch) | MTTF Table[1] |

(1) Junction temperature affects a device's MTTF. It is recommended to keep channel temperature as low as possible for maximum life.

## Electrical Characteristics (Ambient Temperature T = 25 °C)

| Parameter | Units | Min. | Typ. | Max. |
|---|---|---|---|---|
| Input Frequency Range (f) | GHz | 2.0 | - | 19.0 |
| Output Frequency Range (f) | GHz | 0.5 | - | 4.75 |
| Input Power (Pin) | dBm | -20.0 | - | +5.0 |
| Output Power (Pout) | dBm | - | +0.0 | - |
| Fin Suppression | dBc | - | 35.0 | - |
| Fin/2 Suppression | dBc | - | 25.0 | - |
| 3*Fin/4 Suppression | dBc | - | 15.0 | - |
| 2*Fin Suppression | dBc | - | 30.0 | - |
| Supply Voltage (Vcc) | VDC | +4.75 | +5.0 | +5.5 |
| Supply Current (Icc) (Vcc=5.0V Typical) | mA | 70.0 | 80.0 | 100.0 |





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