## Ultra Low Noise pHEMT Dual <br> Channel Amplifier, 1.710-1.910 GHz

## Features

- 0.7 dB Typical Noise Figure
- 14 dB Typical Gain
- DC Decoupled RF Input and Output
- Single Bias Configuration
- SMT Construction
- Dual Channels for Balanced Designs
- Unconditionally Stable-No External Matching Circuit required


## Description

M/A-COM's AM40-0023 is a dual-channel, ultra low noise amplifier in a surface mount package. Very low noise figure is achieved by using discrete pHEMT devices combined with M/A-COM's glass technology. The AM40-0023 is designed specifically for use in DCS-1800 and PCS telecommunication applications where less than 1 dB noise figure is required.

## CR-5



## Electrical Specifications:

Bias Conditions: +7V @ 20 mA Typical (each channel,) $\mathrm{T}_{\mathrm{A}}=+25^{\circ} \mathrm{C}, \mathrm{Z}_{0}=50 \mathrm{Ohms}$

| Parameter | Test Conditions | Frequency | Units | Min. | Typ. | Max. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gain | $\mathrm{P}_{\mathrm{IN}}=-20 \mathrm{dBm}$ | $1.710-1.910 \mathrm{GHz}$ | dB | 11 | 14 | - |
| Gain Flatness | $\mathrm{P}_{\mathrm{IN}}=-20 \mathrm{dBm}$ | $1.710-1.910 \mathrm{GHz}$ | dB | - | $\pm 1.0$ | $\pm 1.5$ |
| Noise Figure | - | $1.710-1.910 \mathrm{GHz}$ | dB | - | 0.7 | 0.9 |
| VSWR Input | $\mathrm{P}_{\mathrm{IN}}=-20 \mathrm{dBm}$ | $1.710-1.910 \mathrm{GHz}$ | Ratio | - | $2.0: 1$ | $3.0: 1$ |
| VSWR Output | $\mathrm{P}_{\mathrm{IN}}=-20 \mathrm{dBm}$ | $1.710-1.910 \mathrm{GHz}$ | Ratio | - | $2.0: 1$ | $3.0: 1$ |
| 1 dB Compression | Input Power | $1.710-1.910 \mathrm{GHz}$ | dBm | -13 | -9 | - |
| Reverse Isolation | - | $1.710-1.910 \mathrm{GHz}$ | dB | 20 | 25 | - |
| Input Third Order <br> Intercept | - | $1.710-1.910 \mathrm{GHz}$ | dBm | 0 | 3 | - |

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## Typical Performance Curves

Gain vs. Frequency


Noise Figure vs. Frequency


## Absolute Maximum Ratings ${ }^{1}$

| Parameter | Absolute Maximum |
| :---: | :---: |
| Max. Input Power ${ }^{2}$ | +15 dBm |
| Operating Voltage $^{2}$ | +10.0 V |
| Operating Temperature | $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ |
| Storage Temperature | $-65^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$ |

1. Operation of this device above any one of these parameters may cause permanent damage.
2. Ambient Temperature $\left(T_{A}\right)=+25^{\circ} \mathrm{C}$

## Input \& Output Return Loss



Functional Schematic (Top View)


## Ordering Information

| Part Number | Package |
| :---: | :---: |
| AM40-0023 PIN | CR-5 |

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