

## Features

- AVAILABLE IN SURFACE MOUNT
- LOW NOISE: 3.0 dB (TYP.)
- MEDIUM THIRD ORDER I.P.: +16 dBm (TYP.)
- MEDIUM GAIN 15 dB (TYP.)

## Description

The A53 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

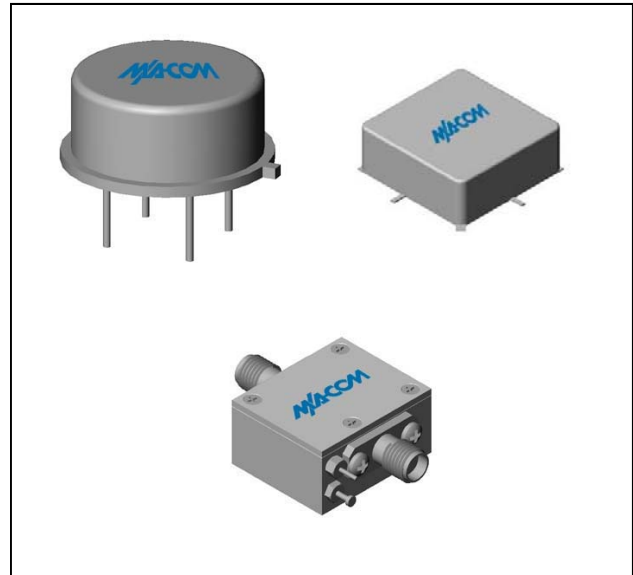
This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Both TO-8 and Surface Mount packages are Hermetically sealed, and MIL-STD-883 environmental screening is available.

## Ordering Information

| Part Number        | Package              |
|--------------------|----------------------|
| A53                | TO-8                 |
| SMA53              | Surface Mount        |
| MAAM-008722-00CA53 | SMA Connectorized ** |

\*\* The connectorized version is not RoHs compliant.

## Product Image



## Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15 V_{DC}$

| Parameter                       | Units | Typical       | Guaranteed    |                |
|---------------------------------|-------|---------------|---------------|----------------|
|                                 |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| Frequency                       | MHz   | 5-600         | 10-500        | 10-500         |
| Small Signal Gain (min)         | dB    | 15.0          | 14.0          | 13.5           |
| Gain Flatness (max)             | dB    | ±0.5          | ±0.8          | ±1.0           |
| Reverse Isolation               | dB    | 20            |               |                |
| Noise Figure (max)              | dB    | 3.0           | 3.5           | 4.0            |
| Power Output @ 1 dB comp. (min) | dBm   | 3.5           | 2.0           | 1.5            |
| IP3                             | dBm   | +16           |               |                |
| IP2                             | dBm   | +22           |               |                |
| Second Order Harmonic IP        | dBm   | +28           |               |                |
| VSWR Input / Output (max)       |       | 1.5:1 / 1.5:1 | 2.0:1 / 2.0:1 | 2.1:1 / 2.1:1  |
| DC Current @ 15 Volts (max)     | mA    | 12            | 15            | 17             |

## Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | 125°C            |
| DC Voltage                             | +17 V            |
| Continuous Input Power                 | +13 dBm          |
| Short Term Input power (1 minute max.) | 50 mW            |
| Peak Power (3 µsec max.)               | 0.5 W            |
| "S" Series Burn-In Temperature (case)  | 125°C            |

## Thermal Data: $V_{CC} = +15 V_{DC}$

| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 45°C/W  |
| Transistor Power Dissipation $P_d$            | 0.111 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 5°C     |

\* Over temperature performance limits for part number CA53, guaranteed from 0°C to +50°C only.

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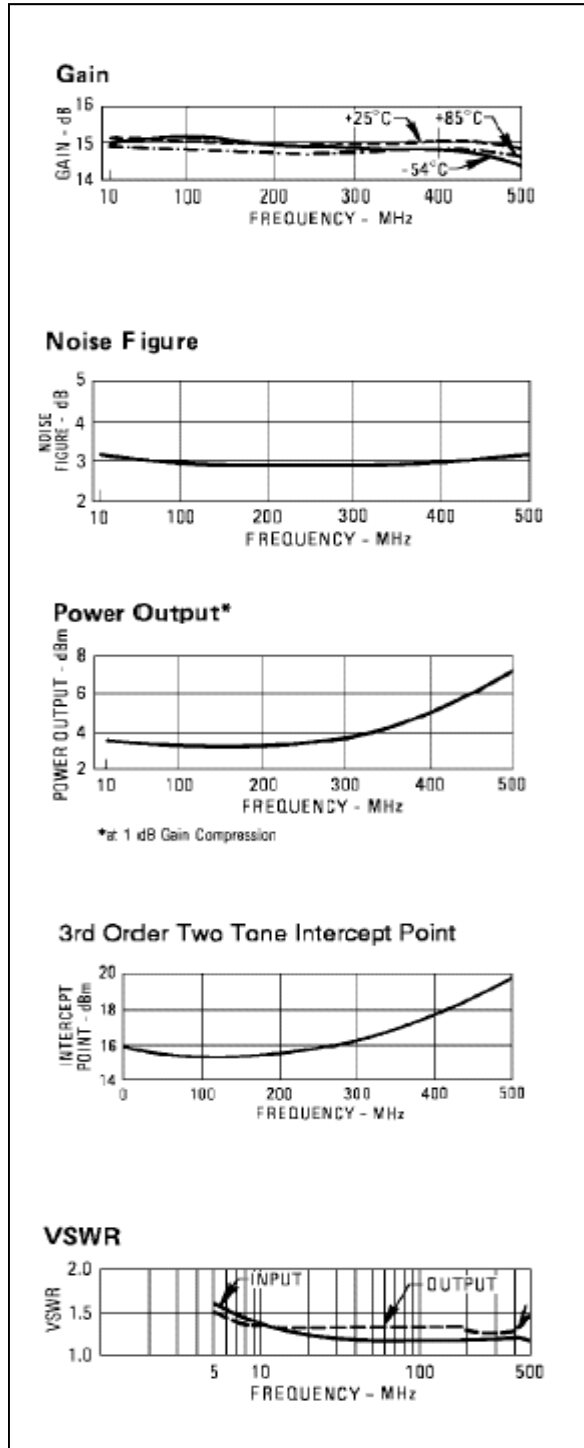
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# A53 / SMA53

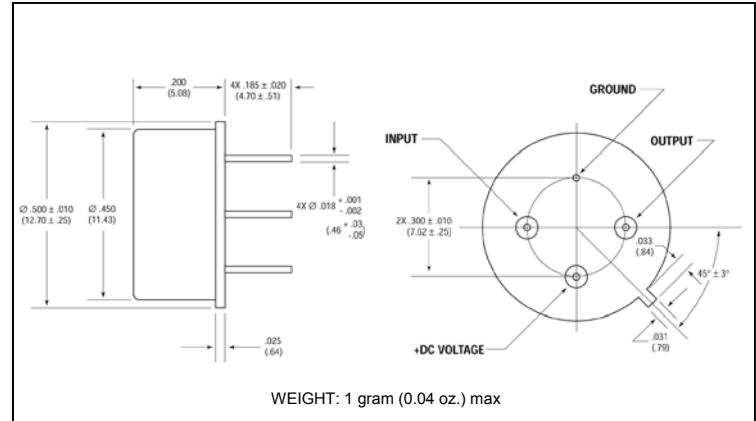
Cascadable Amplifier  
10 to 500 MHz

Rev. V2

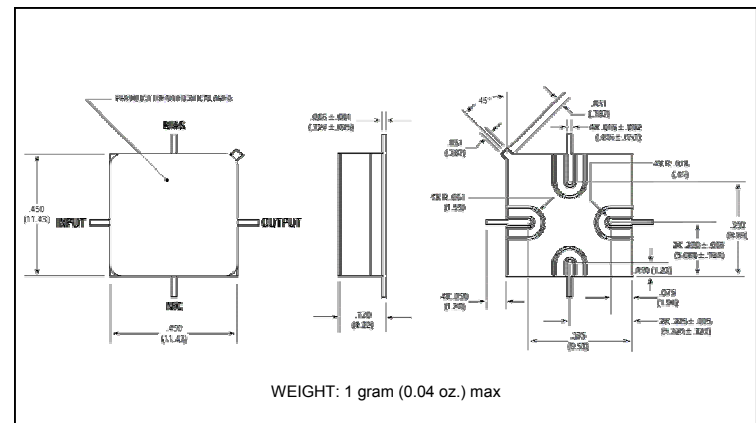
## Typical Performance Curves at +25°C



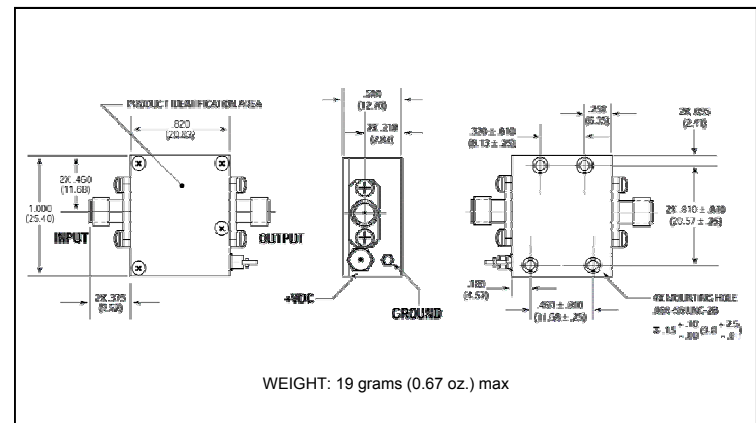
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.

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