

## Cascadable Amplifier 5 to 1500 MHz

Rev. V3

### Features

- HIGH GAIN - TWO STAGES: 20.0 dB (TYP.)
- ULTRA LOW PHASE DEVIATION FROM LINEARITY:  $<\pm 2.5^\circ$ , 100-1500 MHz
- LOW VSWR:  $<1.4:1$  (TYP.)

### Description

The A24 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.

This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

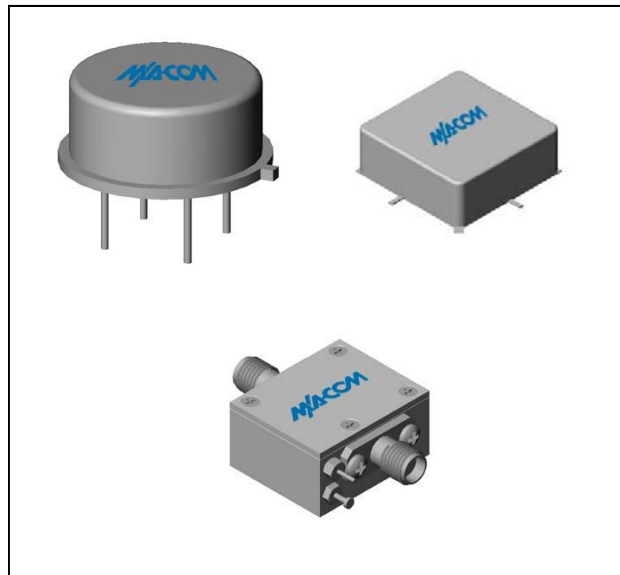
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

| Part Number | Package              |
|-------------|----------------------|
| A24         | TO-8                 |
| SMA24       | Surface Mount        |
| CA24        | 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   | 2-1700        | 5-1500        | 5-1500         |
| Small Signal Gain (min)         | dB    | 20.0          | 19.0          | 18.0           |
| Gain Flatness (max)             | dB    | $\pm 0.4$     | $\pm 0.8$     | $\pm 1.0$      |
| Reverse Isolation               | dB    | 30            |               |                |
| Noise Figure (max)              | dB    | 4.2           | 5.3           | 5.8            |
| Power Output @ 1 dB comp. (min) | dBm   | 8.0           | 7.0           | 6.5            |
| IP3                             | dBm   | +20.5         |               |                |
| IP2                             | dBm   | +42           |               |                |
| Second Order Harmonic IP        | dBm   | +47           |               |                |
| VSWR Input / Output (max)       |       | 1.4:1 / 1.4:1 | 2.0:1 / 2.0:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)     | mA    | 34            | 38            | 40             |

### Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|----------------------------------------|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | +125°C           |
| DC Voltage                             | +20 V            |
| Continuous Input Power                 | 7 dBm            |
| Short Term Input power (1 minute max.) | 32 mW            |
| Peak Power (3 $\mu$ sec max.)          | 0.5 W            |
| "S" Series Burn-In Temperature (case)  | +125°C           |

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

| Parameter                                     | Rating  |
|-----------------------------------------------|---------|
| Thermal Resistance $\theta_{jc}$              | 141°C/W |
| Transistor Power Dissipation $P_d$            | 0.185 W |
| Junction Temperature Rise Above Case $T_{jc}$ | +26°C   |

\* Over temperature performance limits for part number CA24, guaranteed from 0°C to +50°C only.

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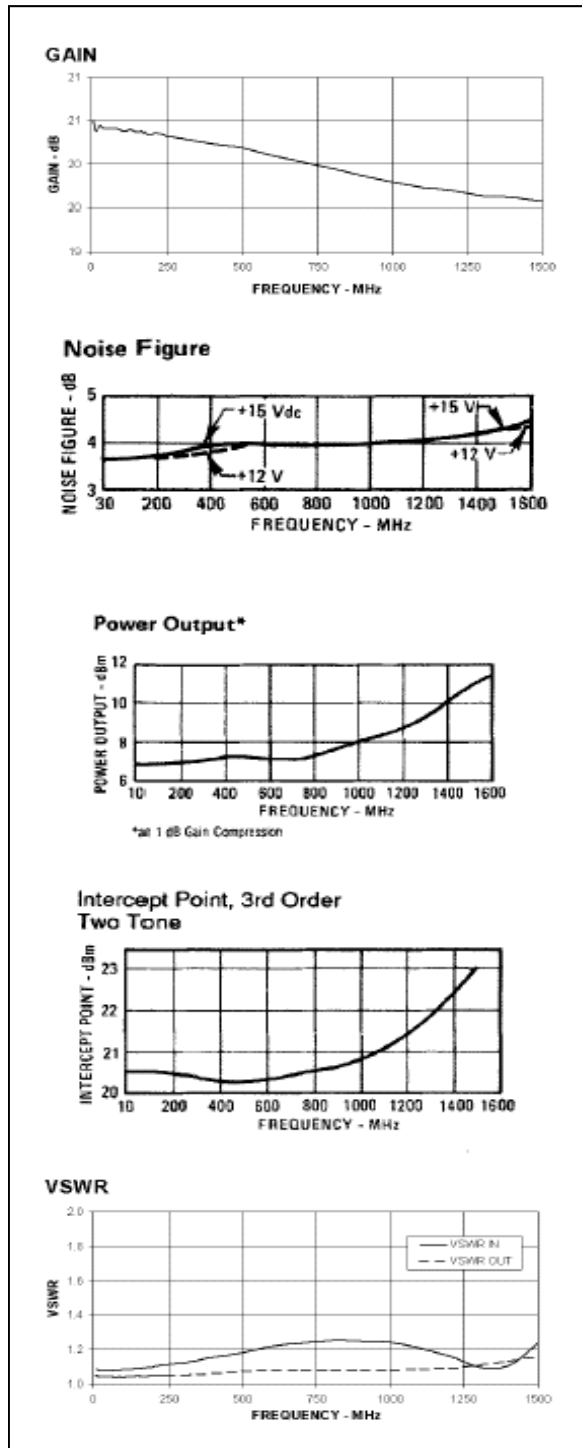
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
 • **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
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### Typical Performance Curves at +25°C



### Outline Drawing: TO-8 \*

