

Cascadable Amplifier 5 to 500 MHz

Rev. V3

Features

- LOW NOISE: 2.4 dB (TYP.)
- LOW VSWR: 1.3:1 (TYP.)
- HIGH GAIN: 16 dB (TYP.)

Description

The A1 RF amplifier is a discrete hybrid design, which uses thin film RF 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 |
|--------------------|----------------------|
| A1 | TO-8 |
| SMA1 | Surface Mount |
| MAAM-008712-000CA1 | 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 | 1-600 | 5-500 | 5-500 |
| Small Signal Gain (min) | dB | 16.0 | 15.0 | 14.5 |
| Gain Flatness (max) | dB | ±0.2 | ±0.7 | ±1.0 |
| Reverse Isolation | dB | 19 | | |
| Noise Figure (max) | dB | 2.4 | 3.0 | 3.5 |
| Power Output @ 1 dB comp. (min) | dBm | -1.0 | -2.0 | -3.0 |
| IP3 | dBm | +11 | | |
| IP2 | dBm | +10 | | |
| Second Order Harmonic IP | dBm | +15 | | |
| VSWR Input / Output (max) | | 1.3:1 / 1.3:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max) | mA | 9 | 11 | 12 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | +18 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 θ_{jc} | 130°C/W |
| Transistor Power Dissipation P_d | 0.057 W |
| Junction Temperature Rise Above Case T_{jc} | 7°C |

1 * Over temperature performance limits for part number CA1, guaranteed from 0°C to +50°C only.

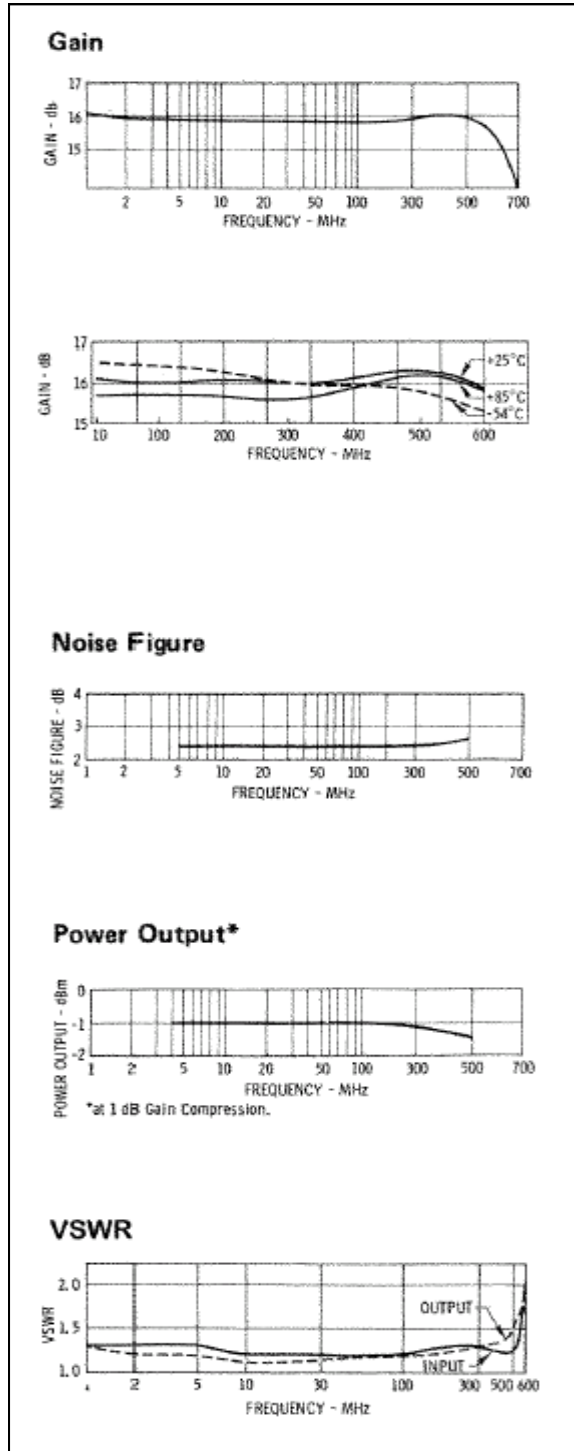
A1 / SMA1



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Typical Performance Curves at +25°C



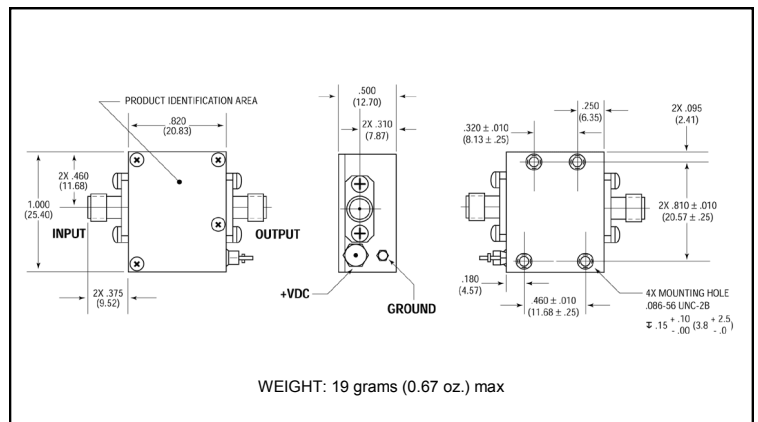
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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