

Features

- Available in Surface Mount
- High Gain: 26.0 dB
- Medium Output Level: +14 dBm @ +5 Vdc
- High Efficiency: 60 mA @ +5 Vdc
- Low VSWR .1.4:1
- Flat Bandwidth \pm 0.5 dB
- RoHS* Compliant



Applications

- Aerospace & Defense
- ISM

Description

The A1021 / SMA1021 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 the TO-8 and the surface mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package |
|---------------------|--|
| A1021 | TO-8 |
| SMA1021 | Surface Mount |
| CA1021 ¹ | SMA Connectorized (non *RoHS Compliant) |

1. The connectorized version is not *RoHS compliant.

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Electrical Specifications: $V_{CC} = +5 \text{ V}_{DC}$, $Z_0 = 50 \Omega$

| Parameter | Units | Typical | Guaranteed | |
|---------------------------------|-------|---------------|---------------|----------------------------|
| | | 25°C | 0° to 50°C | -54° to +85°C ² |
| Frequency | MHz | 5 - 1000 | 10 - 1000 | 10 - 1000 |
| Small Signal Gain (min) | dB | 26 | 25 | 24 |
| Gain Flatness (max) | dB | ±0.5 | ±0.7 | ±0.9 |
| Reverse Isolation | dB | 35 | — | — |
| Noise Figure (max) | dB | 3.8 | 4.5 | 5.0 |
| Power Output @ 1 dB comp. (min) | dBm | 14.5 | 14.0 | 13.0 |
| IP3 | dBm | 26 | — | — |
| IP2 | dBm | 50 | — | — |
| Second Order Harmonic IP | dBm | 55 | — | — |
| VSWR Input / Output (max) | - | 1.4:1 / 1.3:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1 |
| DC Current @ 5 Volts (max) | mA | 60 | 60 | 62 |

2. Over temperature performance limits for part number CA1021, guaranteed from 0°C to +50°C only.

Thermal Data: $V_{CC} = +5 \text{ V}_{DC}$

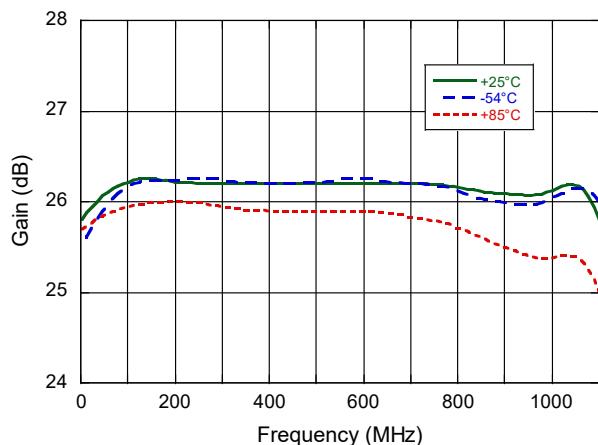
| Parameter | Rating |
|---|----------|
| Thermal Resistance (θ_{JC}) | 126 °C/W |
| Transistor Power Dissipation (P_d) | 0.159 W |
| Junction Temperature Rise Above Case (T_{JC}) | 20 °C |

Absolute Maximum Ratings

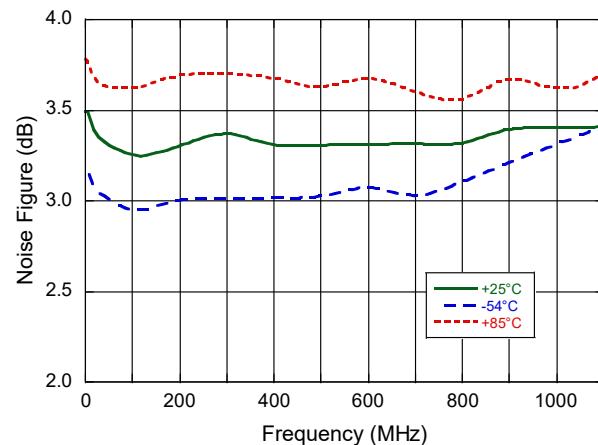
| Parameter | Absolute Maximum |
|---------------------------------------|-----------------------|
| DC Voltage | 8 V |
| Continuous Input Power | 10 dBm |
| Short Term Input Power | 50 mW (1 minute max.) |
| Peak Power | 0.5 W (3 µs max.) |
| "S" Series Burn-In Temperature (case) | 125°C |
| Case Temperature | 125°C |
| Storage Temperature | -62°C to +150°C |

Typical Performance Curves

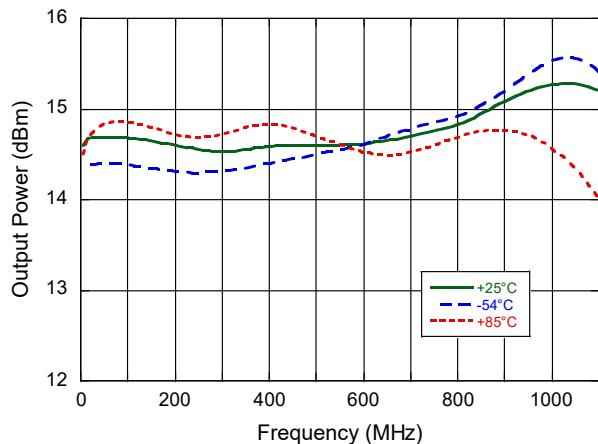
Gain



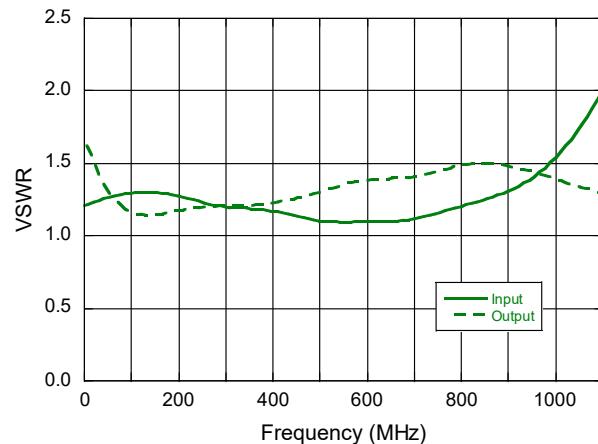
Noise Figure



Output Power @ 1 dB Gain Compression

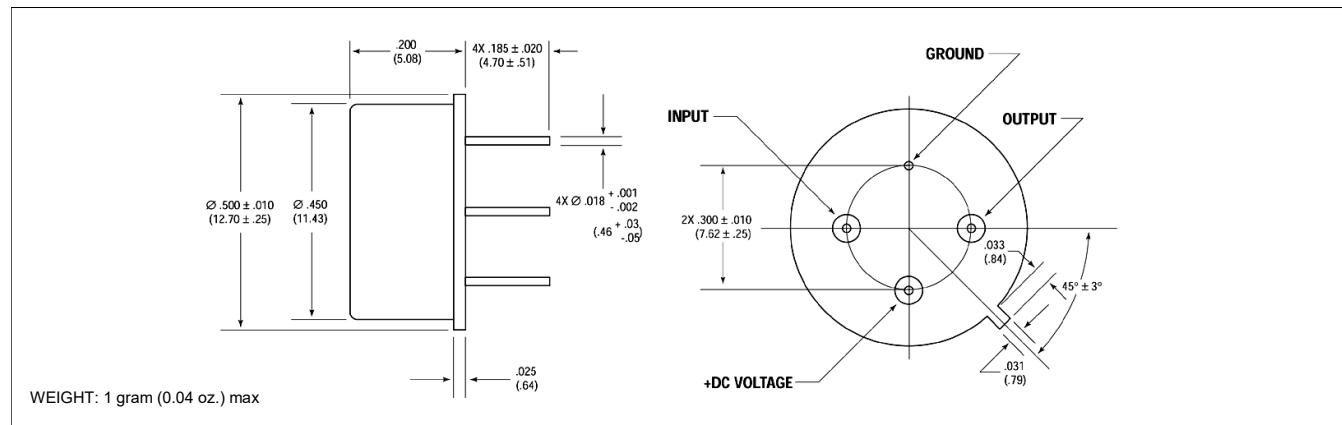


VSWR

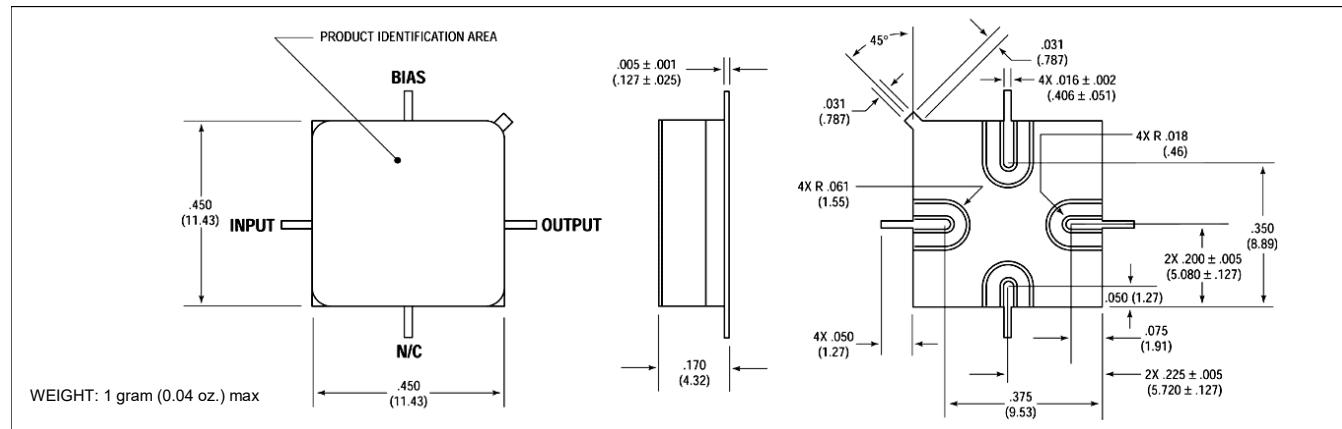


Outline Drawings³:

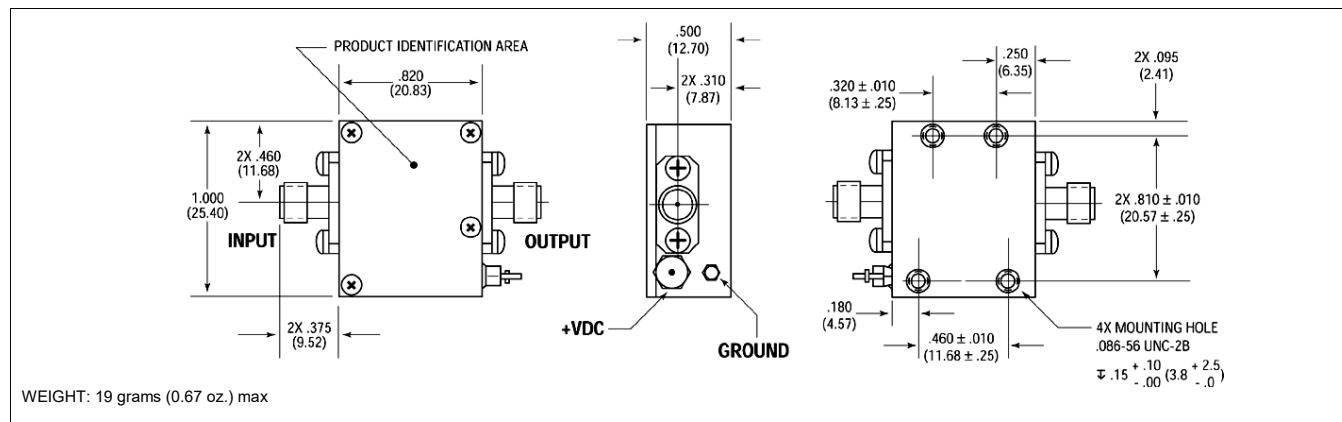
TO-8



Surface Mount



SMA Connectorized



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

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