

A181 / SMA181

Cascadable Amplifier 10 to 250 MHz

Rev. V4

Features

- HIGH REVERSE ISOLATION: 22 dB (TYP.)
- HIGH OUTPUT POWER: +22 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +35 dBm (TYP.)

Description

The A181 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. An active DC biasing network insures temperature-stable performance.

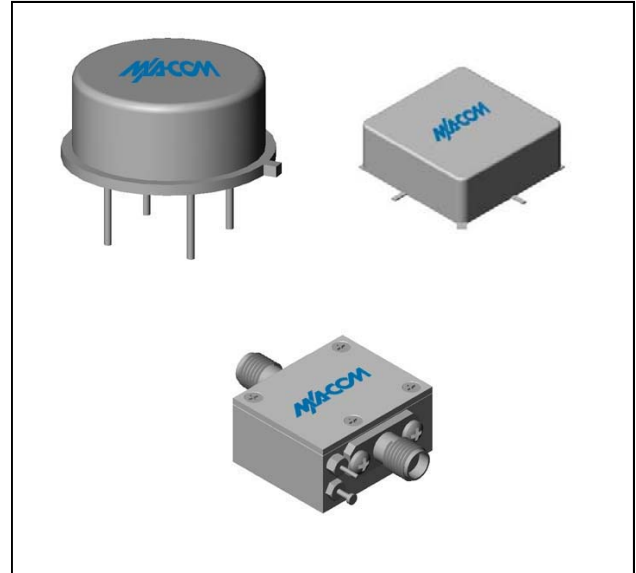
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A181 | TO-8 |
| SMA181 | Surface Mount |
| CA181 ** | 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 | 5-400 | 10-250 | 10-250 |
| Small Signal Gain (min) | dB | 16.5 | 15.5 | 14.5 |
| Gain Flatness (max) | dB | ±0.3 | ±0.7 | ±0.8 |
| Reverse Isolation | dB | 22 | | |
| Noise Figure (max) | dB | 3.8 | 4.5 | 5.0 |
| Power Output @ 1 dB comp. (min) | dBm | 22.0 | 20.0 | 19.5 |
| IP3 | dBm | +35 | | |
| IP2 | dBm | +48 | | |
| Second Order Harmonic IP | dBm | +54 | | |
| VSWR Input / Output (max) | | 1.4:1 / 1.4:1 | 1.9:1 / 1.9:1 | 2.1:1 / 2.1:1 |
| DC Current @ 15 Volts (max) | mA | 95 | 104 | 113 |

* Over temperature performance limits for part number CA181, guaranteed from 0°C to +50°C only.

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | 85°C |
| DC Voltage | +17 V |
| Continuous Input Power | +15 dBm |
| Short Term Input power (1 minute max.) | 100 mW |
| Peak Power (3 µsec max.) | 0.5 W |
| "S" Series Burn-In Temperature (case) | 85°C |

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

| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 148°C/W |
| Transistor Power Dissipation P_d | 0.622 W |
| Junction Temperature Rise Above Case T_{jc} | 92°C |

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test units may be available. Commitment to produce in volume is not guaranteed.

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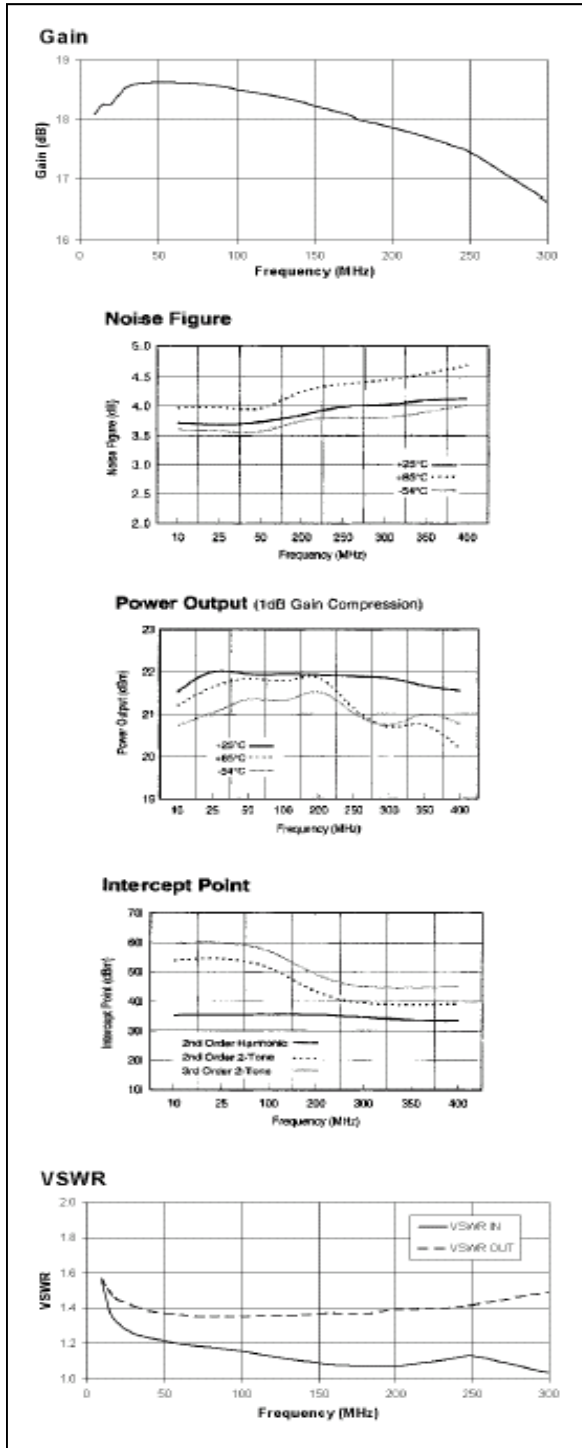
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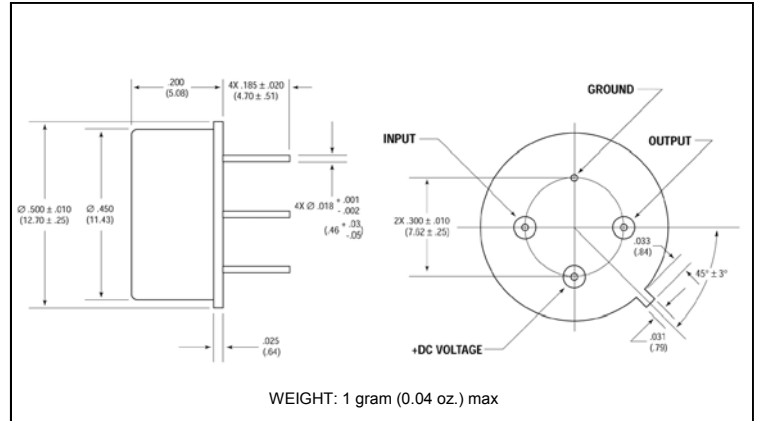
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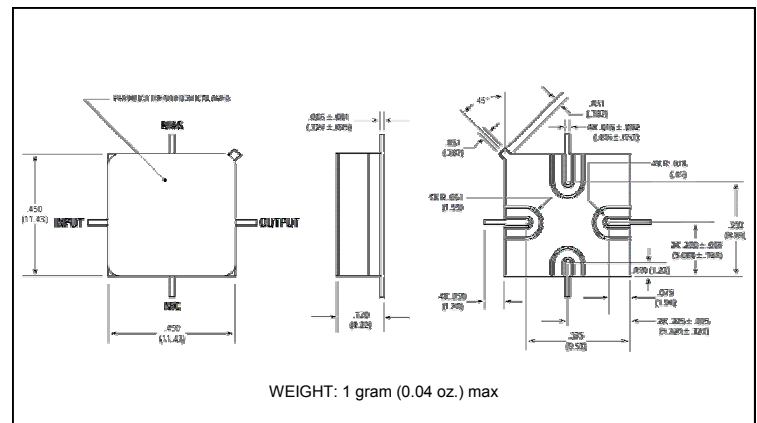
Typical Performance Curves at +25°C



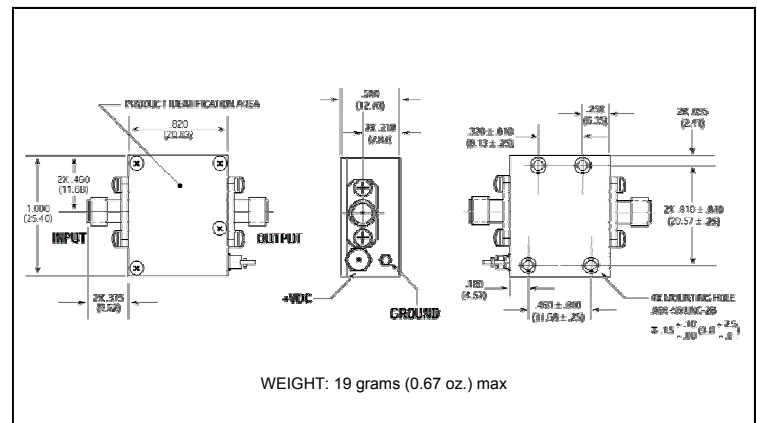
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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