

Features

- High Reverse Isolation: 22 dB
- High Output Power: 18 dBm

Description

The A180 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.



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

| 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 | 16.5 | 16.0 | 15.5 |
| Gain Flatness (max.) | dB | ±0.3 | ±0.7 | ±1.0 |
| Reverse Isolation | dB | 22 | — | — |
| Noise Figure (max.) | dB | 3.4 | 4.0 | 4.5 |
| Power Output @ 1 dB comp. (min.) | dBm | 18 | 16 | 15 |
| IP3 | dBm | 33 | — | — |
| IP2 | dBm | 45 | — | — |
| Second Order Harmonic IP | dBm | 51 | — | — |
| VSWR Input / Output (max.) | | 1.4:1 / 1.5:1 | 1.9:1 / 2.1:1 | 2.1:1 / 2.2:1 |
| DC Current @ 15 Volts (max.) | mA | 36 | 39 | 43 |

* Over temperature performance limits for part number CA180, guaranteed from 0°C to +50°C only.

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A180 | TO-8 |
| SMA180 | Surface Mount |
| CA180 ** | SMA Connectorized |

** The connectorized version is not RoHs compliant.

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

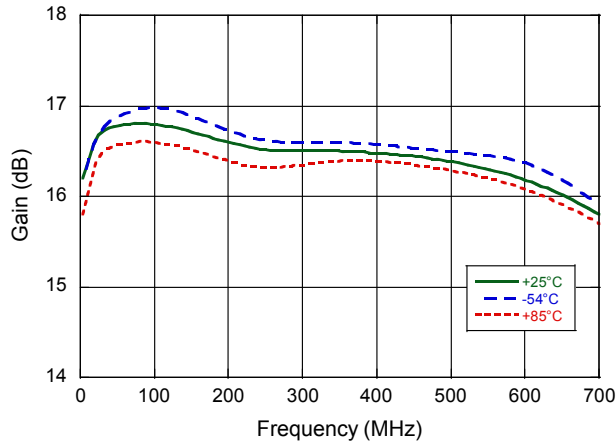
| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 45°C/W |
| Transistor Power Dissipation P_d | 0.509 W |
| Junction Temperature Rise Above Case T_{jc} | +22.9°C |

Absolute Maximum Ratings

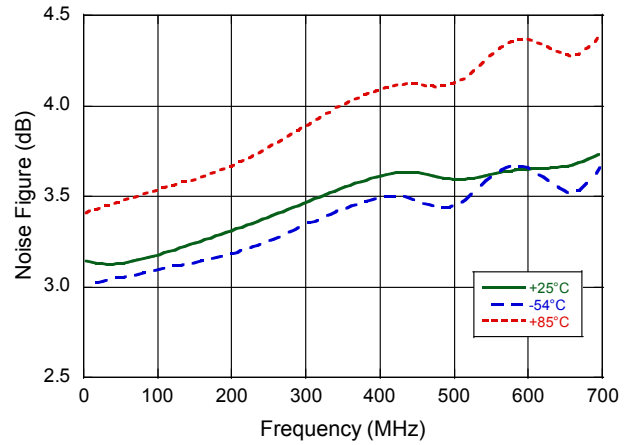
| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | +17 V |
| Continuous Input Power | +15 dBm |
| Short Term Input power (1 minute max.) | 100 mW |
| Peak Power (3 μ sec max.) | 0.5 W |
| "S" Series Burn-In Temperature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

Typical Performance Curves

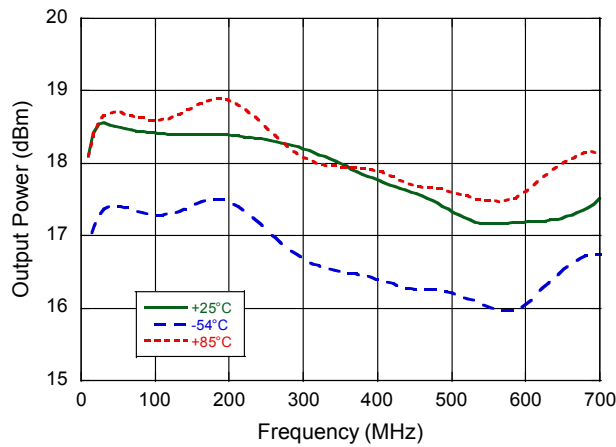
Gain



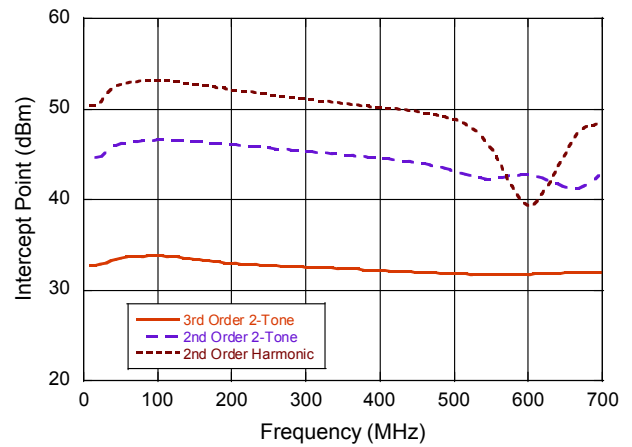
Noise Figure



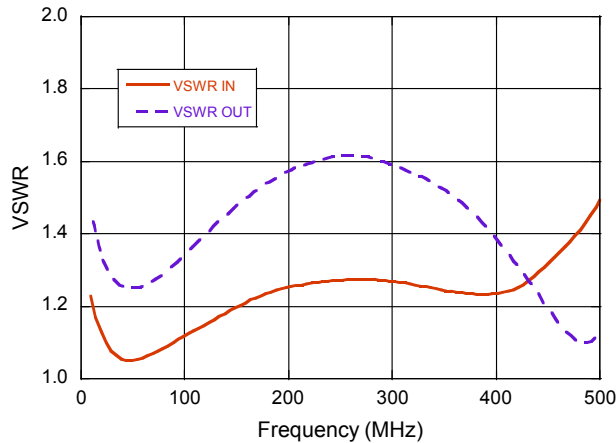
Output Power @ 1 dB Gain Compression



Intercept Point



VSWR

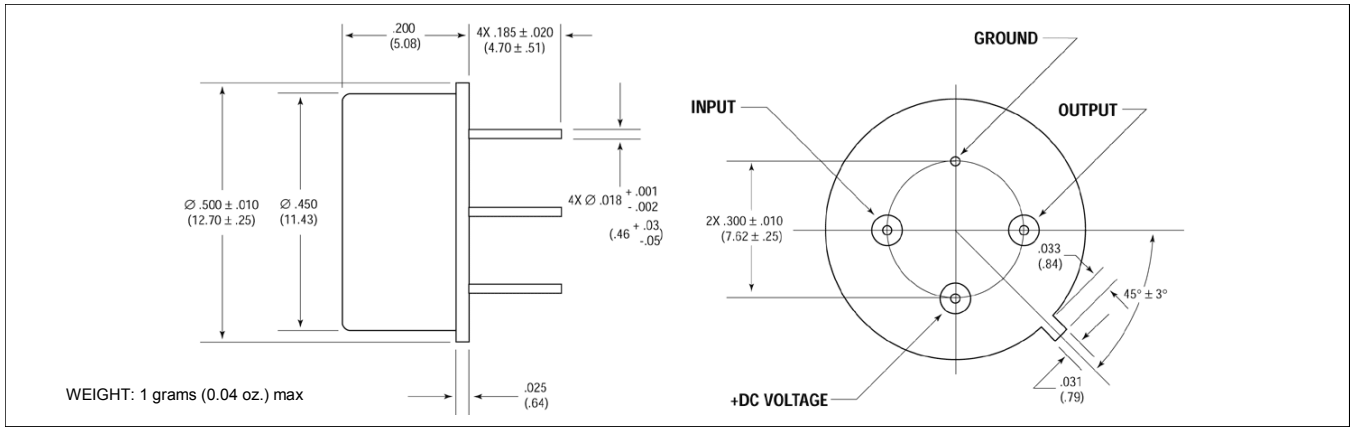


Cascadable Amplifier 10 to 500 MHz

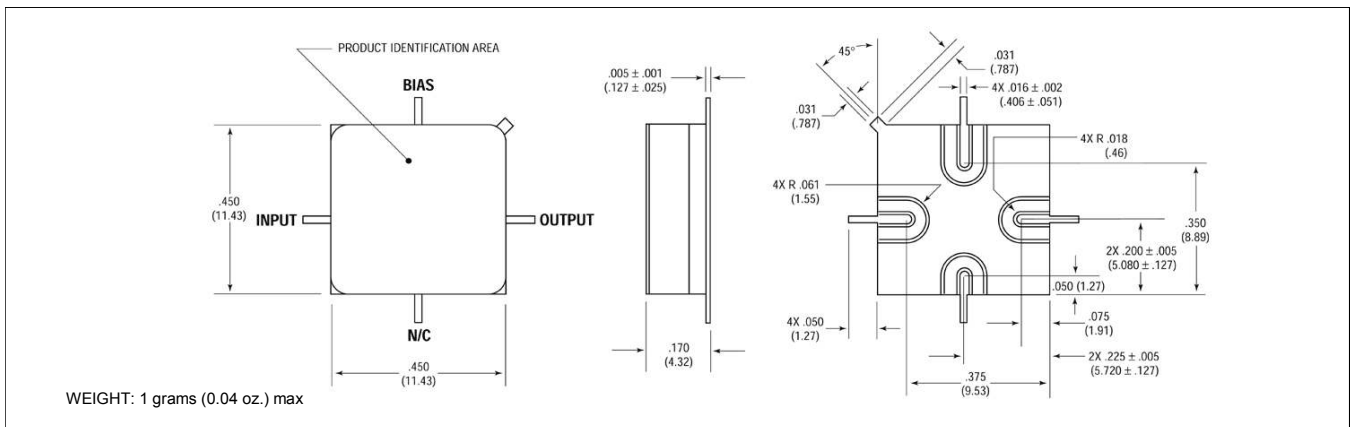
Rev. V3

Outline Drawings²:

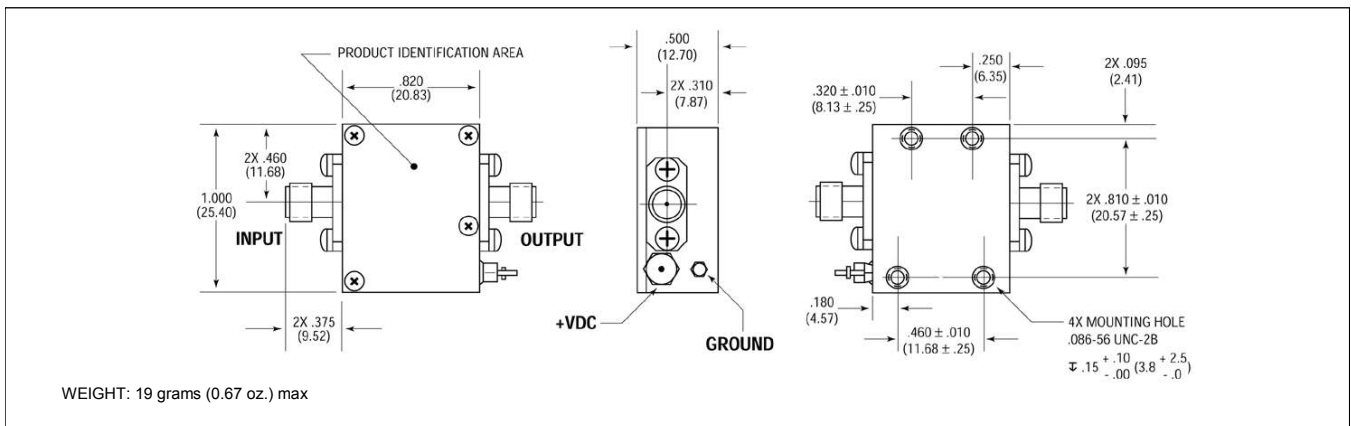
TO-8B



Surface Mount



SMA Connectorized



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

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