

## 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            |

### 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 $\theta_{jc}$              | 148°C/W |
| Transistor Power Dissipation $P_d$            | 0.622 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 92°C    |

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



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