

A514 / SMA514

Cascadable Amplifier
10 to 500 MHz

Rev. V1

Features

- HIGH GAIN: 28 dB (TYP.)
- LOW NOISE: 4.0 dB (TYP.)
- HIGH OUTPUT POWER: +19 dBm (TYP.)

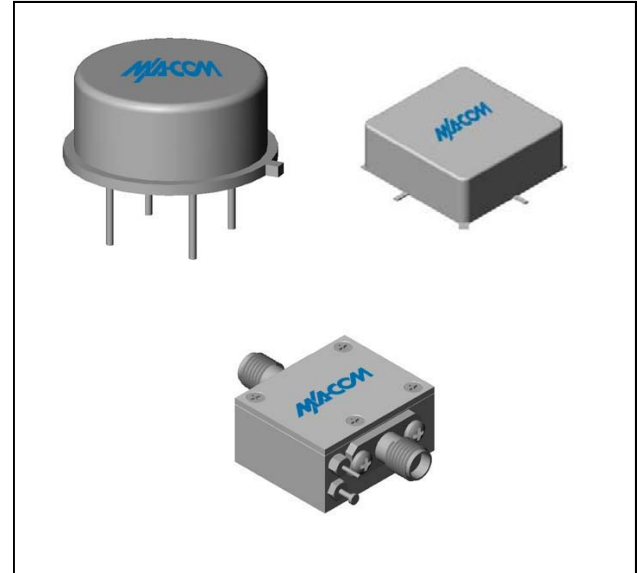
Description

The A514 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate 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 TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Product Image



Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A514 | TO-8 |
| SMA514 | Surface Mount |
| CA514 | SMA Connectorized |

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 | 3-600 | 5-500 | 5-500 |
| Small Signal Gain (min) | dB | 28.0 | 26.5 | 26.0 |
| Gain Flatness (max) | dB | ±0.3 | ±0.5 | ±0.8 |
| Reverse Isolation | dB | 36 | | |
| Noise Figure (max) | dB | 4.0 | 4.7 | 5.2 |
| Power Output @ 1 dB comp. (min) | dBm | 19.0 | 18.5 | 17.0 |
| IP3 | dBm | +32 | | |
| IP2 | dBm | +50 | | |
| Second Order Harmonic IP | dBm | +55 | | |
| VSWR Input / Output (max) | | 1.4:1 / 1.4:1 | 1.7:1 / 1.7:1 | 1.8:1 / 1.8:1 |
| DC Current @ 15 Volts (max) | mA | 96 | 103 | 110 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|----------------------------------------|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +110°C |
| DC Voltage | +17 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} | 150°C/W |
| Transistor Power Dissipation P_d | 0.36W |
| Junction Temperature Rise Above Case T_{jc} | +55°C |

* Over temperature performance limits for part number CA514, guaranteed from 0°C to +50°C only.

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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 data may be available. Commitment to produce in volume is not guaranteed.

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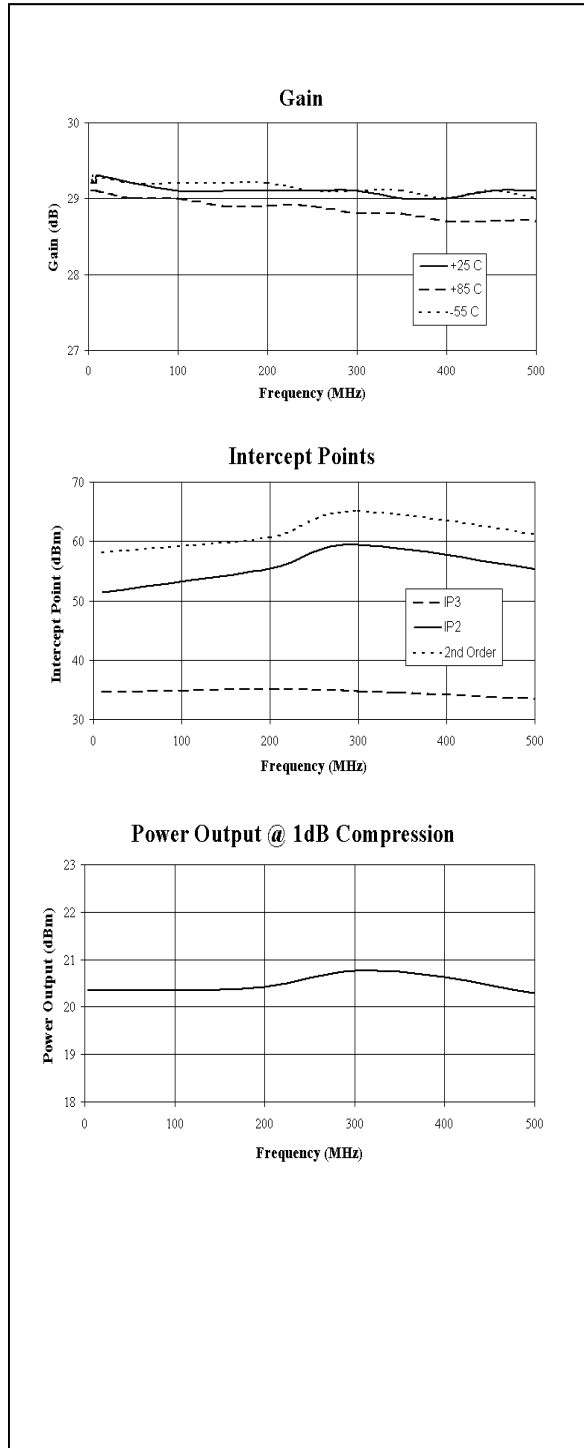
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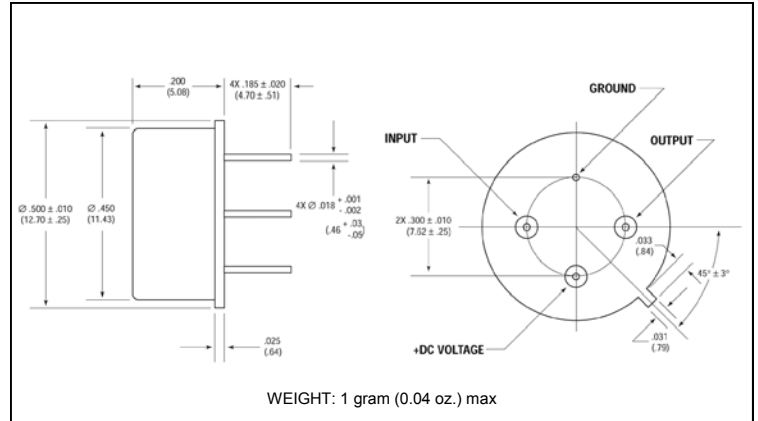
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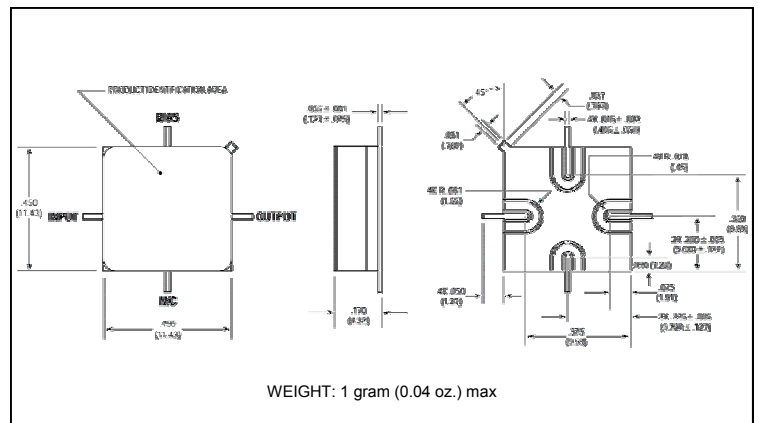
Typical Performance Curves at +25°C



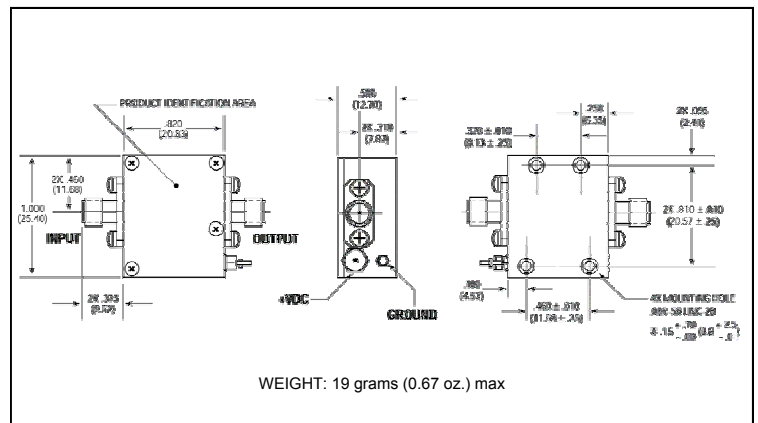
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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