

Cascadable Amplifier 10 to 400 MHz

Rev. V3

Features

- HIGH OUTPUT LEVEL: +17 dBm (TYP.)
- HIGH EFFICIENCY: 33 mA @ +15 Vdc (TYP.)
- HIGH THIRD ORDER IP: +31 dBm (TYP.)
- WIDE POWER SUPPLY RANGE: +5 TO +15 VOLTS

Description

The A87-1 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. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

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

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A87-1 | TO-8 |
| SMA87-1 | Surface Mount |
| CA87-1 ** | 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 | 5-450 | 10-400 | 10-400 |
| Small Signal Gain (min) | dB | 16.0 | 15.0 | 14.5 |
| Gain Flatness (max) | dB | ±0.1 | ±0.6 | ±0.8 |
| Reverse Isolation | dB | 20 | | |
| Noise Figure (max) | dB | 3.4 | 4.0 | 4.5 |
| Power Output @ 1 dB comp. (min) | dBm | 17.0 | 15.5 | 15.0 |
| IP3 | dBm | +31 | | |
| IP2 | dBm | +46 | | |
| Second Order Harmonic IP | dBm | +52 | | |
| VSWR Input / Output (max) | | 1.4:1 / 1.4:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max) | mA | 33 | 35 | 37 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°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} | 185°C/W |
| Transistor Power Dissipation P_d | 0.273 W |
| Junction Temperature Rise Above Case T_{jc} | 51°C |

1 * Over temperature performance limits for part number CA87-1, guaranteed from 0°C to +50°C only.

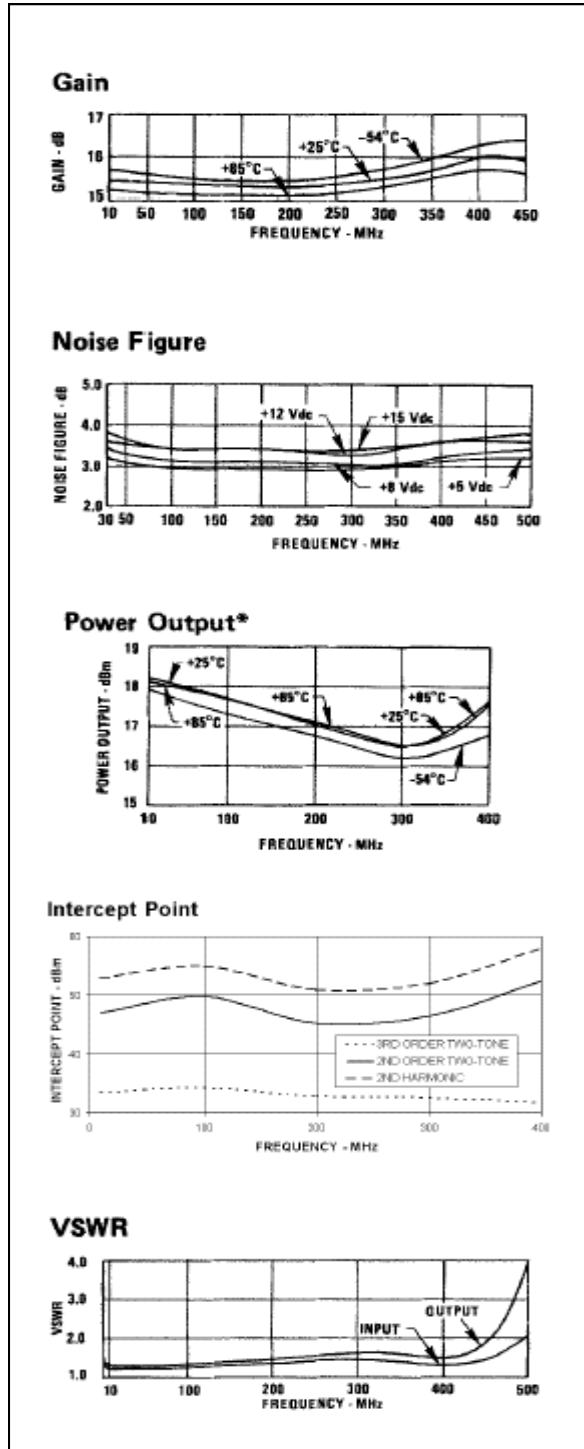
A87-1 / SMA87-1



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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.