

Cascadable Amplifier 1000 to 4000 MHz

Rev. V3

Features

- WIDE BANDWIDTH
- HIGH GAIN 17.5 dB (TYP.)
- LOW NOISE: 4.1 dB (TYP.)
- GaAs FET DESIGN

Description

The A45-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. An RF choke is used for DC power supply decoupling.

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

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A45-1 | TO-8 |
| SMA45-1 | Surface Mount |
| CA45-1 ** | SMA Connectorized |

** The connectorized version is not RoHs compliant.

Product Image



Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +5 V_{DC}$

| Parameter | Units | Typical | Guaranteed | |
|---------------------------------|-------|---------------|---------------|----------------|
| | | 25°C | 0° to 50°C | -54° to +85°C* |
| Frequency | MHz | 80-4200 | 1000-4000 | 1000-4000 |
| Small Signal Gain (min) | dB | 17.5 | 16.5 | 15.5 |
| Gain Flatness (max) | dB | ±0.6 | ±0.8 | ±1.0 |
| Reverse Isolation | dB | 36 | | |
| Noise Figure (max) | dB | 4.0 | 5.0 | 5.5 |
| Power Output @ 1 dB comp. (min) | dBm | 13.0 | 12.5 | 12.0 |
| IP3 | dBm | +26 | | |
| IP2 | dBm | +33 | | |
| Second Order Harmonic IP | dBm | +40 | | |
| VSWR Input / Output (max) | | 1.8:1 / 1.8:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1 |
| DC Current @ 5 Volts (max) | mA | 65 | 75 | 80 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | 125°C |
| DC Voltage | +6 V |
| Continuous Input Power | +13 dBm |
| Short Term Input power (1 minute max.) | 100 mW |
| Peak Power (3 µsec max.) | 0.25 W |
| "S" Series Burn-In Temperature (case) | 125°C |

Thermal Data: $V_{CC} = +5 V_{DC}$

| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 132°C/W |
| Transistor Power Dissipation P_d | 0.171 W |
| Junction Temperature Rise Above Case T_{jc} | 23°C |

1 * Over temperature performance limits for part number CA45-1, guaranteed from 0°C to +50°C only.

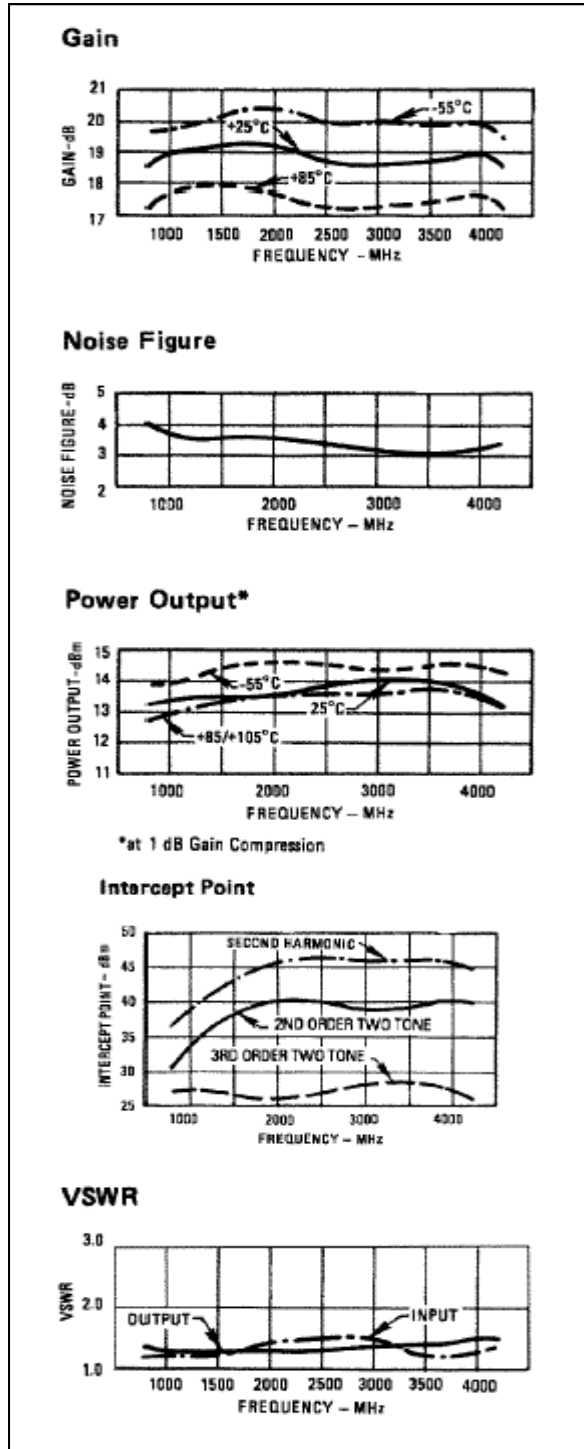
A45-1 / SMA45-1



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Typical Performance Curves at +25°C



Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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