



# Cascadable Amplifier 1000 to 4000 MHz

**PA48 / SMPA48** 

V1

#### **Features**

- ULTRAWIDE BANDWIDTH: 0.8-4.2 GHz (TYP.)
- HIGH OUTPUT LEVEL: +24 dBm (TYP.)
- HIGH GAIN: 16.0 dB (TYP.)
- GaAs FET AMPLIFIER

#### Description

The PA48 power amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

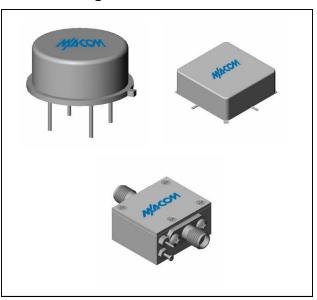
This two stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range.

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

#### **Ordering Information**

| Part Number | Package           |  |  |
|-------------|-------------------|--|--|
| PA48        | TO-8B             |  |  |
| SMPA48      | Surface Mount     |  |  |
| CPA48       | SMA Connectorized |  |  |
|             |                   |  |  |

#### **Product Image**



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

| Parameter                          | Units | Typical       | Guaranteed    |                |
|------------------------------------|-------|---------------|---------------|----------------|
| Parameter                          |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| Frequency                          | GHz   | 0.8-4.2       | 1.0-4.0       | 1.0-4.0        |
| Small Signal Gain (min)            | dB    | 16.0          | 14.0          | 13.5           |
| Gain Flatness (max)                | dB    | ±0.4          | ±0.7          | ±0.8           |
| Reverse Isolation                  | dB    | 33            |               |                |
| Noise Figure (max)                 | dB    | 5.5           | 7.0           | 7.5            |
| Power Output<br>@ 1 dB comp. (min) | dBm   | 24.0          | 22.5          | 21.5           |
| IP3                                | dBm   | +34           |               |                |
| IP2                                | dBm   | +45           |               |                |
| Second Order Harmonic IP           | dBm   | +55           |               |                |
| VSWR Input / Output (max)          |       | 1.7:1 / 1.6:1 | 2.0:1 / 1.9:1 | 2.2:1 / 2.1:1  |
| DC Current @ 15 Volts (max)        | mA    | 225           | 235           | 245            |

#### **Absolute Maximum Ratings**

| Parameter                                | Absolute<br>Maximum |  |
|--|---------------------|--|
| Storage Temperature                      | -62°C to +125°C     |  |
| Case Temperature                         | +85°C               |  |
| DC Voltage                               | +16 V               |  |
| Continuous Input Power                   | +17 dBm             |  |
| Short Term Input power (1 minute max.)   | 100 mW              |  |
| Peak Power (3 µsec max.)                 | 0.25 W              |  |
| "S" Series Burn-In<br>Temperature (case) | +85°C               |  |

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

| Parameter                                     | Rating |  |
|---|--------|--|
| Thermal Resistance θ <sub>jc</sub>            | 75°C/W |  |
| Transistor Power Dissipation $P_{\text{d}}$   | 1.264W |  |
| Junction Temperature Rise Above Case $T_{jc}$ | +95°C  |  |

<sup>\*</sup> Over temperature performance limits for part number CPA48, guaranteed from 0°C to +50°C only.

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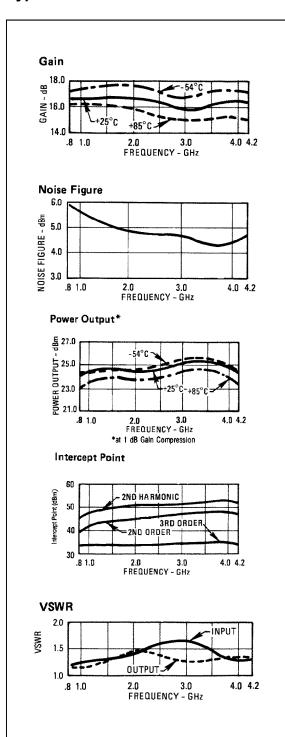




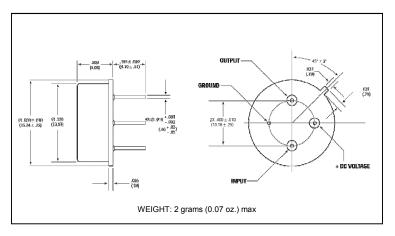
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**PA48 / SMPA48** 

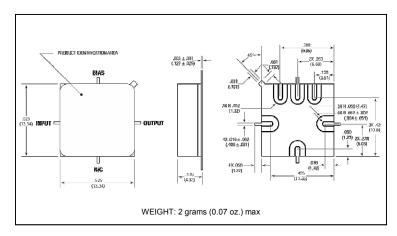
### Typical Performance Curves at +25°C



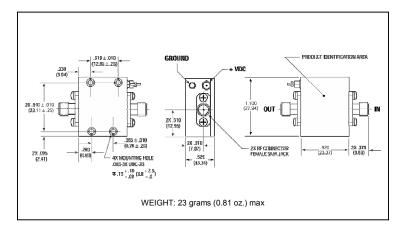
## Outline Drawing: TO-8B \*



## Outline Drawing: Surface Mount



## Outline Drawing: SMA Connectorized \*



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