

Cascadable Thin Film Amplifier, 28.5 dB Gain, 10 - 1000 MHz

Rev. V4

Features

- 28 dB Typical Gain
- +15 dBm Typical 1 dB Compression

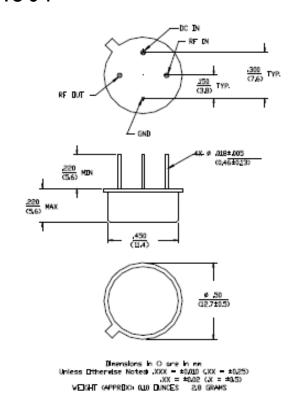
Description

M/A-COM's AM-183 is a feedback amplifier with high intercept and compression points. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise should be minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-183 is ideally suited for use where a high compression, high reliability amplifier is required.

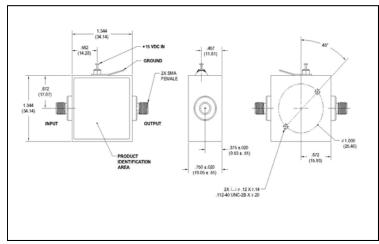
Ordering Information

| Part Number | Package | | | |
|-------------|---------------|--|--|--|
| AM-183 PIN | TO-8-1 | | | |
| AMC-183 SMA | Connectorized | | | |

TO-8-1



Outline Drawing: SMA Connectorized *



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

Absolute Maximum Ratings ¹

| Parameter | Absolute Maximum | | |
|-----------------------|------------------|--|--|
| Max. Input Power | +13 dBm | | |
| Vbias | +15.75 V | | |
| Operating Temperature | -55°C to +85°C | | |
| Storage Temperature | -65°C to +125°C | | |

1. Operation of this device above any one of these parameters may cause permanent damage.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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.

• North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400

India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588
 Visit www.macomtech.com for additional data sheets and product information.

AM-183 / AMC-183



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Electrical Specifications: ^{2,3} T_A = -55°C to +85°C Case Temperature

| Parameter | Test Conditions | Frequency | Units | Min. | Тур. | Max. |
|------------------------------------|-----------------------------|-------------------------------|----------|-------|-------|------------|
| Gain | @+25°C | 700 MHz | dB | 27.5 | 28.5 | 29.5 |
| Frequency Response | _ | 10 - 1000 MHz | dB | _ | _ | ±1.5 |
| Gain Variation with Temperature | _ | 10 - 1000 MHz | dB | _ | _ | ±1.2 |
| 1 dB Compression | Output Power | 10 - 1000 MHz | dBm | +13 | _ | _ |
| Noise Figure | | 10 - 500 MHz 10 - 1000 MHz | dB dB | | _ | 4.5 5.0 |
| Reverse Transmission | _ | 10 - 1000 MHz | dB | _ | -35 | -32 |
| VSWR | _ | 10 - 1000 MHz | Ratio | _ | _ | 2.0:1 |
| Output IP ₂ | Two-Tone inputs up to 0 dBm | 10 - 1000 MHz | dBm | +30 | _ | _ |
| Output IP ₃ | Two-Tone inputs up to 0 dBm | 10 - 1000 MHz | dBm | +20 | _ | _ |
| Vbias | _ | _ | VDC | +14.5 | +15.0 | +15.5 |
| Ibias | Vbias = +15.0 VDC | _ | mA | _ | 72 | 80 |
| Power Dissipation | @ +15 V Bias | _ | mW | _ | 1.1 | _ |

^{2.} All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

S-Parameter Data

| Frequency (MHz) | S11 MAG/ANG | S21 MAG/ANG | S12 MAG/ANG | S22 MAG/ANG | |
|--------------------|----------------|----------------|----------------|----------------|--|
| 5 | 0.14/-148.3 | 31.43/17.9 | 0.01/1.9 | 0.20/177.2 | |
| 10 | 0.13/170.1 | 32.36/6.3 | 0.01/1.6 | 0.12/92.7 | |
| 20 | 0.13/-178.3 | 32.65/-2.6 | 0.01/1.3 | 0.09/69.8 | |
| 50 | 0.12/179.2 | 33.31/-13.6 | 0.01/-0.5 | 0.06/-72.9 | |
| 100 | 0.11/-178.0 | 33.09/-29.3 | 0.01/-2.1 | 0.05/-98.1 | |
| 250 | 0.12/171.1 | 31.87/-71.9 | 0.01/-9.3 | 0.06/-123.4 | |
| 500 | 0.12/129.7 | 29.37/-144.8 | 0.01/-22.1 | 0.17/-153.9 | |
| 750 | 0.14/-44.0 | 27.01/145.8 | 0.01/-45.8 | 0.25/178.1 | |
| 1000 | 0.23/150.0 | 30.09/65.9 | 0.01/-97.1 | 0.28/80.0 | |

^{3.} Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 1.2 W must be provided in use.

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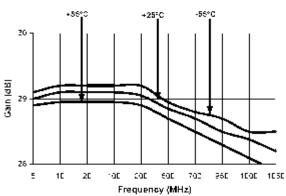


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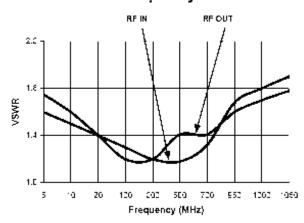
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Typical Performance Curves

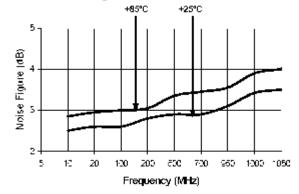
Gain vs. Frequency



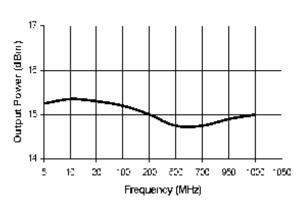
VSWR vs. Frequency



Noise Figure



1 dB Compression



Intermodulation Intercept

