

Broadband IF Driver Amplifier, 50 - 450 MHz

MAAMSS0017

Features

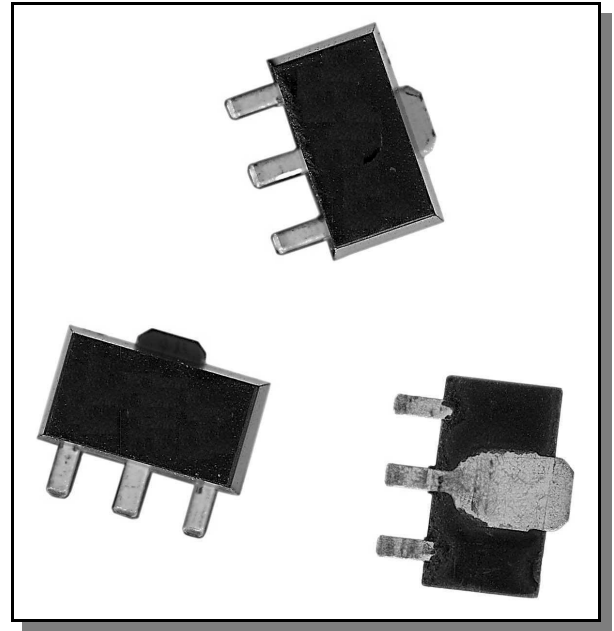
- Low Cost Plastic SOT-89 Package
- Broadband Operation
- +40 dBm Output Intercept Point
- +22 dBm Output P1dB
- High Efficiency
- 50-Ohm Input/Output Match
- 18 dB Typical Gain

Description

M/A-COM's MAAMSS0017 IF driver amplifier is a GaAs MMIC which exhibits high OIP3 as well as high gain and low power consumption in a low-cost miniature SOT-89 surface mount plastic package. The MAAMSS0017 employs a monolithic single stage design featuring a convenient 50-ohm input/output impedance that minimizes the number of external components required. The device runs off a single +5 volt supply and draws 70 mA typically. The design provides excellent performance from 50 to 450 MHz.

The MAAMSS0017 is fabricated using M/A-COM's new iHBT process to realize low current and high power functionality. The process features full passivation for increased performance and reliability.

SOT-89 Plastic Package

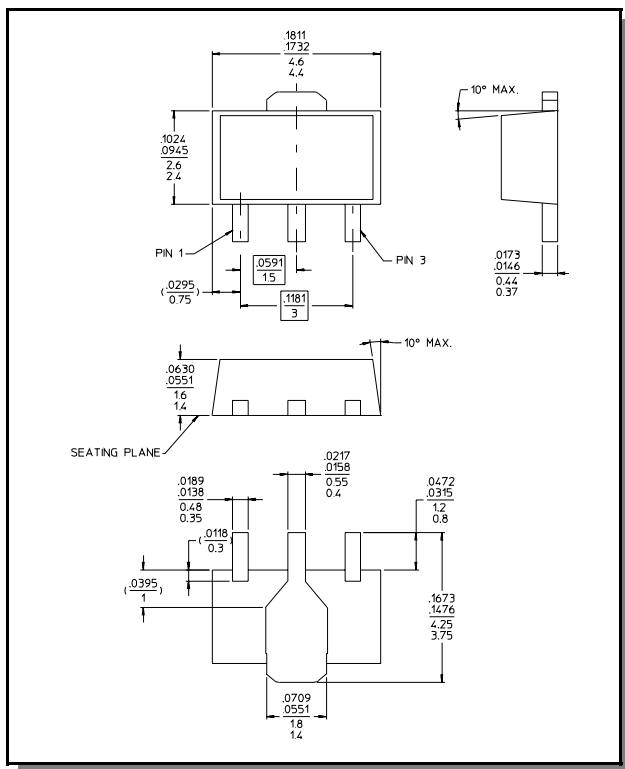


Electrical Specifications¹: $T_A = 25^\circ\text{C}, V_{cc} = 5\text{ V}$

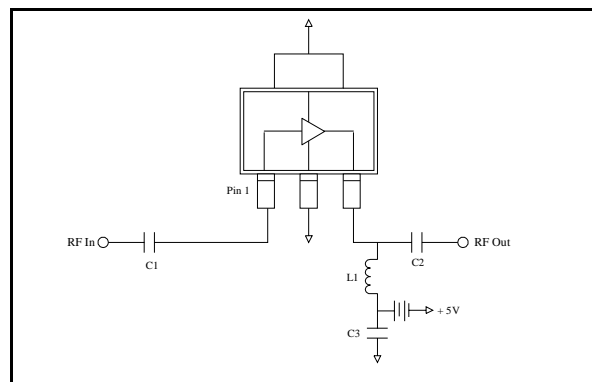
Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Gain ²	—	50 - 450 MHz	dB	15.5	18.0	—
Noise Figure ³	—	50 - 450 MHz	dB	—	4.4	—
Input Return Loss	—	50 - 450 MHz	dB	—	12	—
Output Return Loss	—	50 - 450 MHz	dB	—	15	—
1 dB Compression	—	50 - 450 MHz	dBm	—	22	—
Output IP3	OIP3 measured with Pout/Tone = +5 dBm, Tone spacing = 10 MHz	50 - 450 MHz	dBm	35	40	—
Current	V _{cc} = 5 V	—	mA	—	70	100

1. All measurements taken in a 50-ohm system.
2. Gain varies at $-0.008\text{ dB}/^\circ\text{C}$ typical.
3. Noise figure varies at $0.007\text{ dB}/^\circ\text{C}$ typical.

SOT-89 Plastic Package



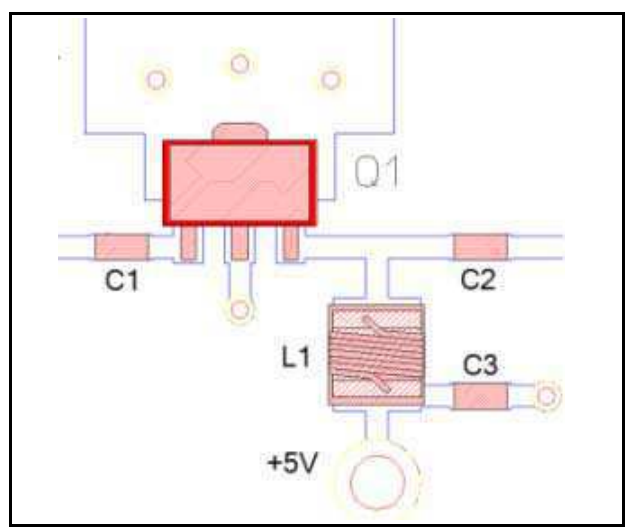
Schematic Including Off-Chip Components



Off-Chip Component Values

Part	Value	Package
C1	1000 pF	0603
C2	150 pF	0603
C3	0.1 μF	0603
L1	180 nH	1008

PCB Configuration



Absolute Maximum Ratings⁴

Parameter	Absolute Maximum
RF Input Power	15 dBm
Voltage	6.0 volts
Operating Temperature	-40° C to +85° C
Storage Temperature	-65° C to +150° C

4. Exceeding any one or combination of these limits may cause permanent damage to this device.

Pin Configuration

Pin No.	Function	Pin No.	Function
1	RF In	3	RF Out/Bias
2	GND		

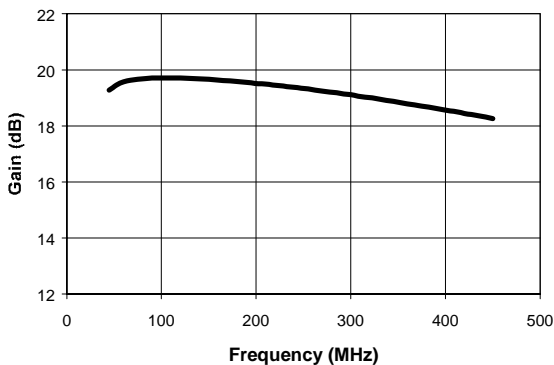
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Visit www.macom.com for additional data sheets and product information.

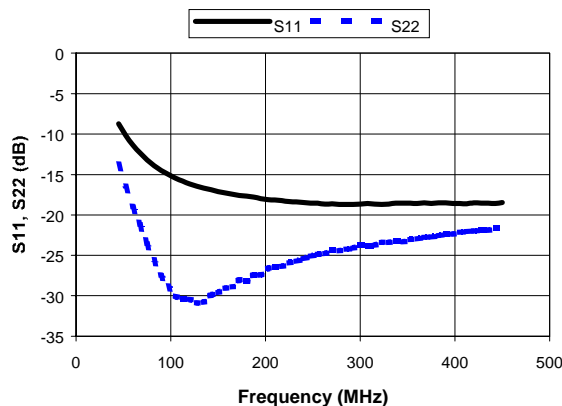
- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

Typical Performance Curves

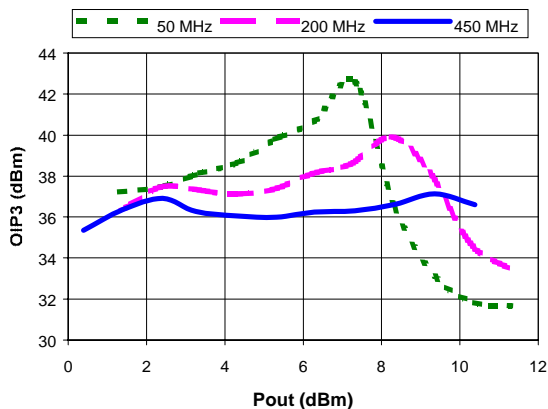
Gain



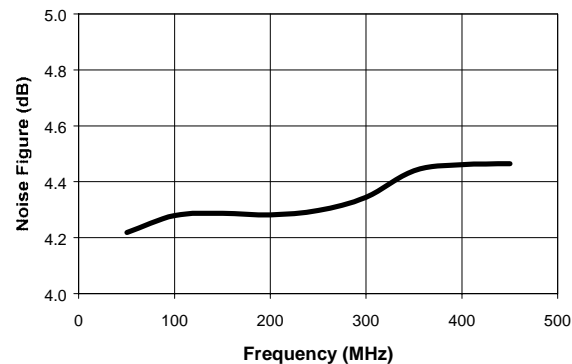
Return Loss



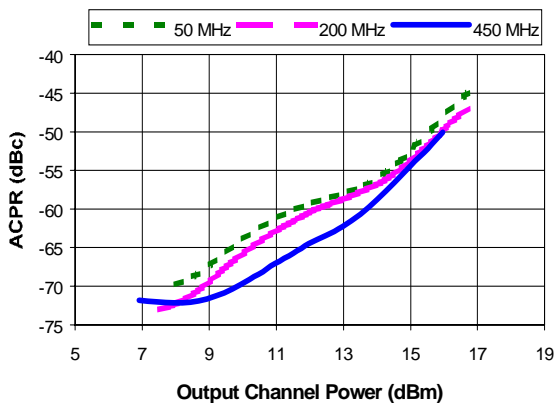
OIP3 vs. Pout



Noise Figure



ACPR Measurement, 9 Channels Forward



Ordering Information

Part Number	Package
MAAMSS0017TR	1000 Piece Tape and Reel*
MAAMSS0017TR-3000	3000 Piece Tape and Reel*
MAAMSS0017SMB	Sample Kit

* Reference Application Note M513 for reel size information.

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