



Broadband IF Driver Amplifier 50 - 450 MHz

V 1.00

Advanced

MAAMSS0017

Features

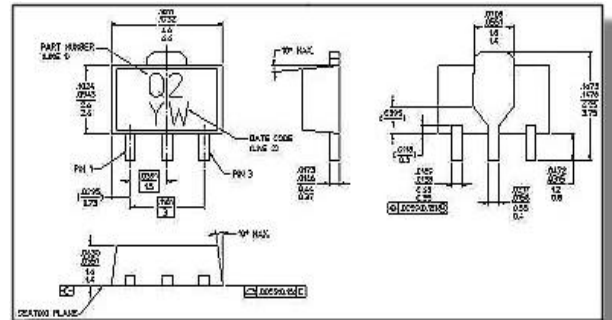
- Low Cost Plastic SOT-89 Package
- Broadband Operation
- Output Intercept Point of +40 dBm
- Output P1dB of +22 dBm
- High Efficiency
- 50 ohm Input /Output match
- Typical Gain of 18 dB

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 SOT89 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 iHBT process to realize low current and high power functionality. The process features full passivation for increased performance and reliability.

SOT-89 Plastic Package



Part Number	Package
MAAMSS0017TR	1000 Piece Tape and Reel ¹
MAAMSS0017TR3000	3000 Piece Tape and Reel ¹

1. Reference Application Note M513 for reel size information.

Electrical Specifications¹: $T_A = +25^\circ\text{C}$, $V_s = 5\text{ V}$, $I_s = 70\text{ mA}$

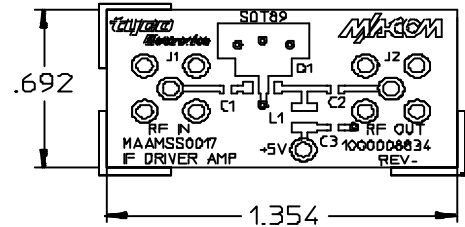
Parameter	Test Conditions	Units	Min	Typ	Max
Gain ²	F = 50-450 MHz	dB		18	
Noise Figure ³	F = 50-450 MHz	dB		4.4	
Input Return Loss	F = 50-450 MHz	dB		12	
Output Return Loss	F = 50-450 MHz	dB		15	
1dB Compression	F = 50-450 MHz	dBm		22	
Output IP3 ⁴	F = 50-450 MHz	dBm		40	
Current	$V_s = 5\text{ V}$	mA		70	

1. All measurements taken in a 50 ohm system unless otherwise specified.
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
4. OIP3 measured with $P_{out}/\text{Tone} = +5\text{ dBm}$, Tone spacing = 10 MHz

Pin Configuration

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

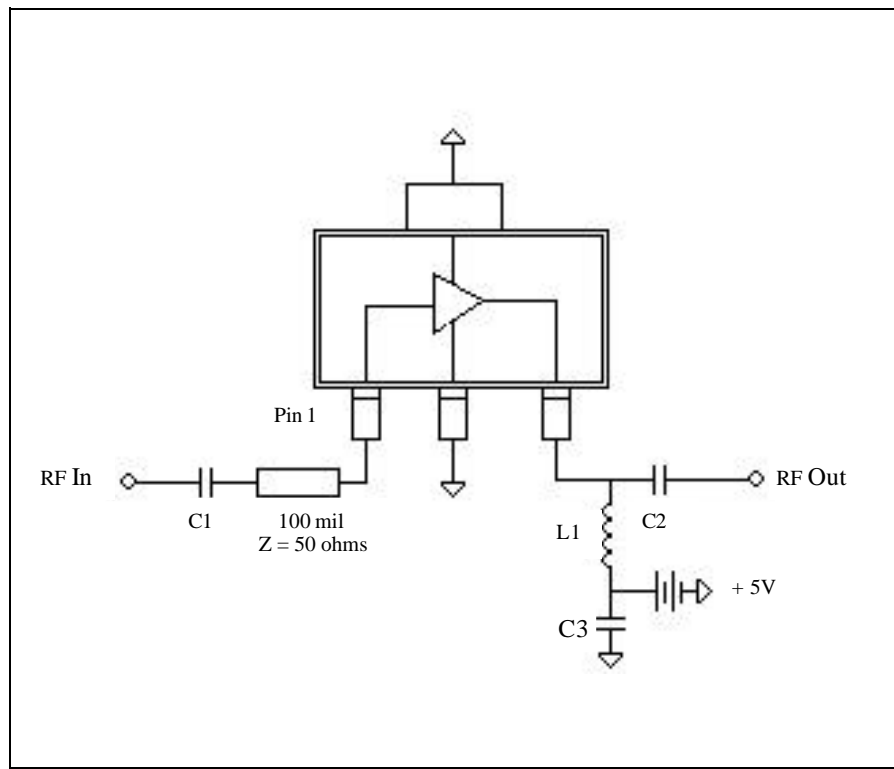
Board Lay-out



Off-Chip Component Values

Part	Value	Package
C1	100 pF	0603
C2	150 pF	0603
C3	10000 pF	0603
L1	180 nH	1008

Schematic Including Off-Chip Components



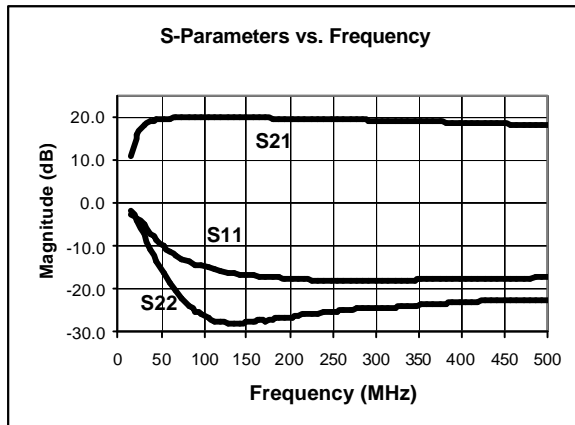
Specifications subject to change without notice.

- 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

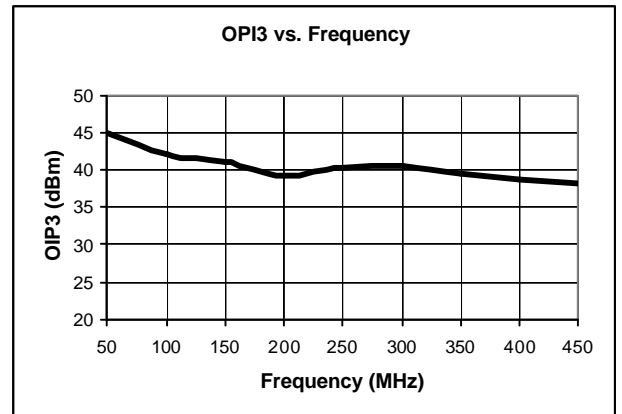
Visit www.macom.com for additional data sheets and product information.

Typical Performance Curves

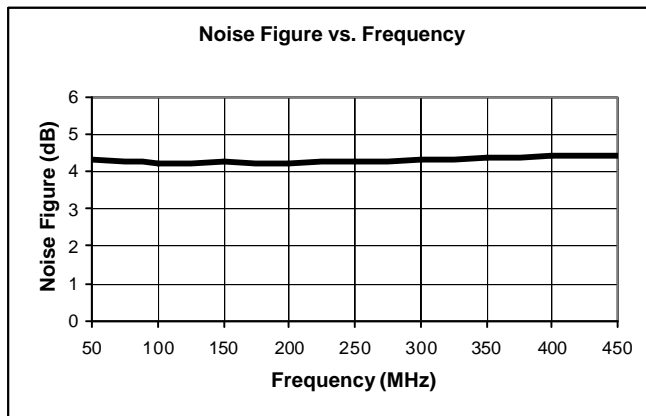
S Parameters, $V_s = 5V$, $I_s = 70\text{ mA}$



OIP3 vs. Frequency



Noise Figure vs. Frequency $V_s = 5V$, $I_s = 70\text{ mA}$



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