

Features

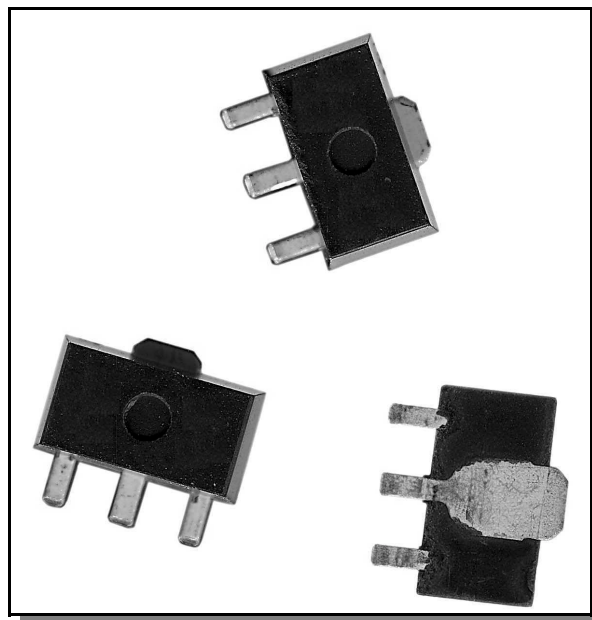
- Low Cost Plastic SOT-89 Package
- Broadband Operation
- 18 dBm Pout at -50 dBc ACPR
- 24 dBm P1dB

Description

M/A-COM's MAAMSS0014 RF driver amplifier is a GaAs MMIC which exhibits excellent ACPR performance as well as high gain and low power consumption in a low-cost miniature SOT-89 surface mount plastic package. The MAAMSS0014 employs a monolithic single stage design featuring a convenient 50-ohm input/output impedance. This device runs off a single +5 volt supply and draws 110 mA typically. The design provides excellent performance from 500 to 2400 MHz.

The MAAMSS0014 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



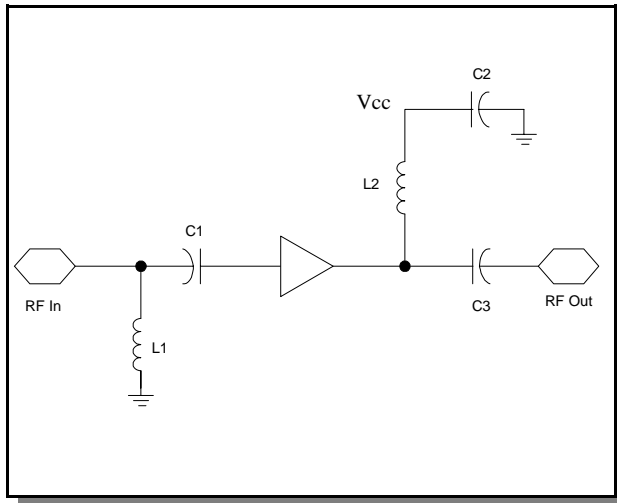
Cellular Band Electrical Specifications: $T_a=25^\circ\text{C}$, $Z_o=50\ \Omega$, $V_{cc}=5\ \text{V}$

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Gain	—	900 MHz	dB	17	19	21
S11/S22	—	800 - 1000 MHz	dB	—	-8/-11	—
Output IP3	Two tones, 0.3 MHz spacing Pout = +8 dBm per tone	900 MHz	dBm	35	38	—
Pout	ACPR=-50 dBc, 9 Channels Forward	880 MHz	dBm	—	18	—
P1dB	—	800 - 1000 MHz	dBm	—	24	—
Noise Figure	—	800 - 1000 MHz	dB	—	5	—
Current	—	—	mA	—	110	130

PCS Band Electrical Specifications: $T_a=25^\circ\text{C}$, $Z_o=50\ \Omega$, $V_{cc}=5\ \text{V}$

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Gain	—	1800 - 2200 MHz	dB	—	14.5	—
S11/S22	—	1800 - 2200 MHz	dB	—	-8/-20	—
Output IP3	Two tones, 0.3 MHz spacing Pout = +8 dBm per tone	1800 - 2200 MHz	dBm	—	38	—
Pout	ACPR=-50 dBc, 9 Channels Forward	1960 MHz	dBm	—	19	—
P1dB	—	1800 - 2200 MHz	dBm	—	24	—
Noise Figure	—	1800 - 2200 MHz	dB	—	5	—
Current	—	—	mA	—	110	130

Schematic

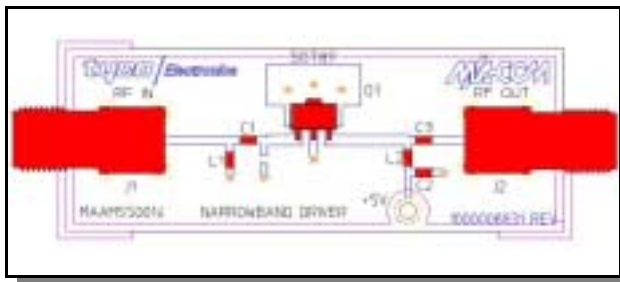


Component List

Cellular Configuration	Value	Style
C1	5 pF	0603
C2	3300 pF	0603
C3	8 pF	0603
L1	7.5 nH	0603
L2	120 nH	0603

PCS Configuration	Value	Style
C1	1.5 pF	0603
C2	2200 pF	0603
C3	4 pF	0603
L1	5.1 nH	0603
L2	47 nH	0805

Sample Board Layout



Pin Configuration

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

Absolute Maximum Ratings¹

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

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

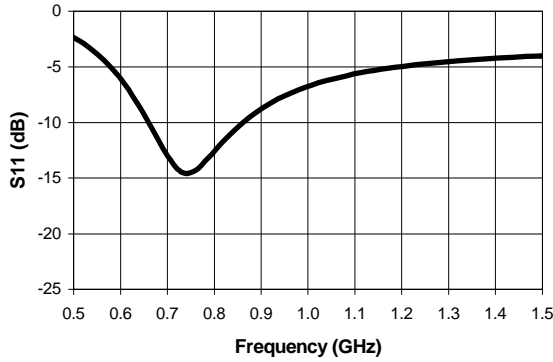
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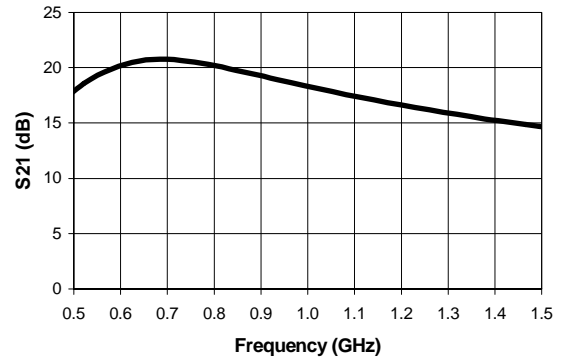
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- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1908) 574200, Fax+44 (1908) 574300

Typical Performance Curves - Cellular Band

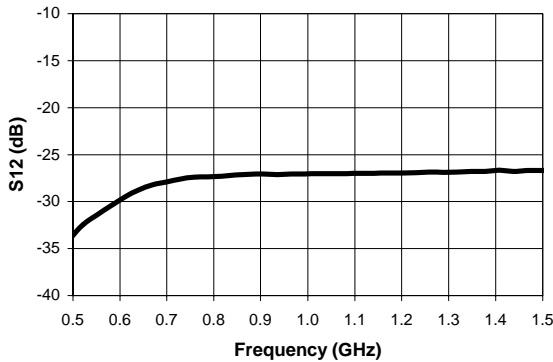
S11 vs. Frequency



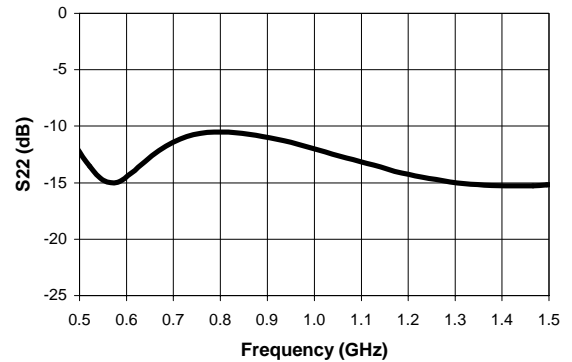
S21 vs. Frequency



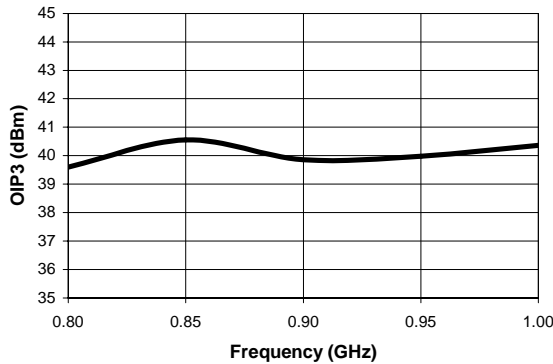
S12 vs. Frequency



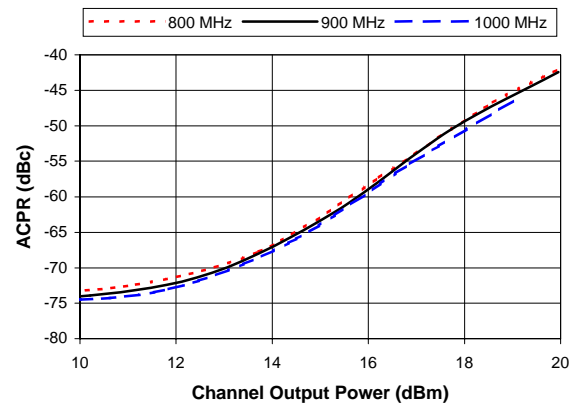
S22 vs. Frequency



OIP3 vs. Frequency



ACPR vs. Frequency (9 channels Forward)



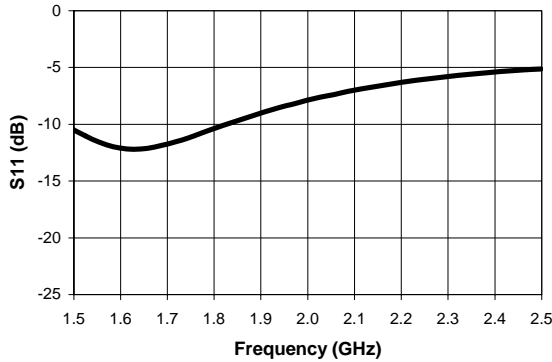
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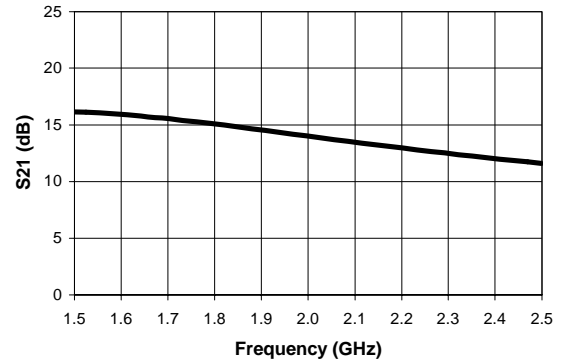
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Typical Performance Curves - PCS Band

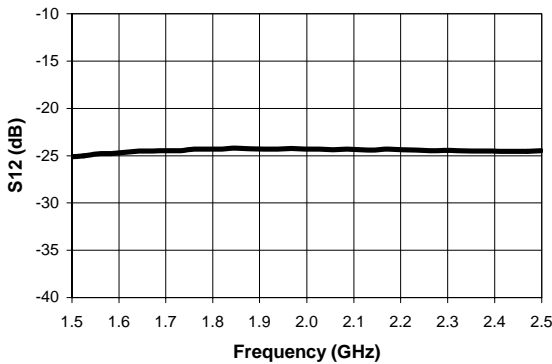
S11 vs. Frequency



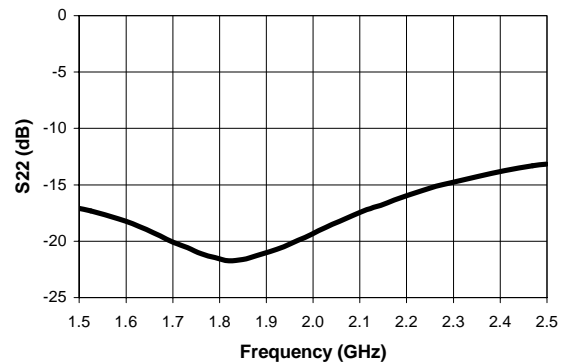
S21 vs. Frequency



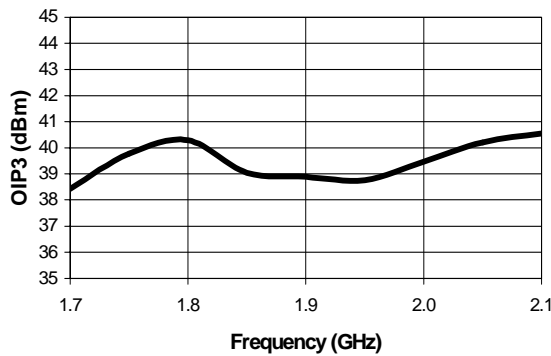
S12 vs. Frequency



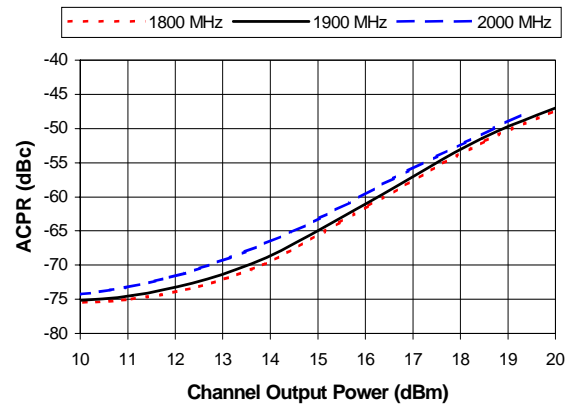
S22 vs. Frequency



OIP3 vs. Frequency



ACPR vs. Frequency (9 Channels Forward)

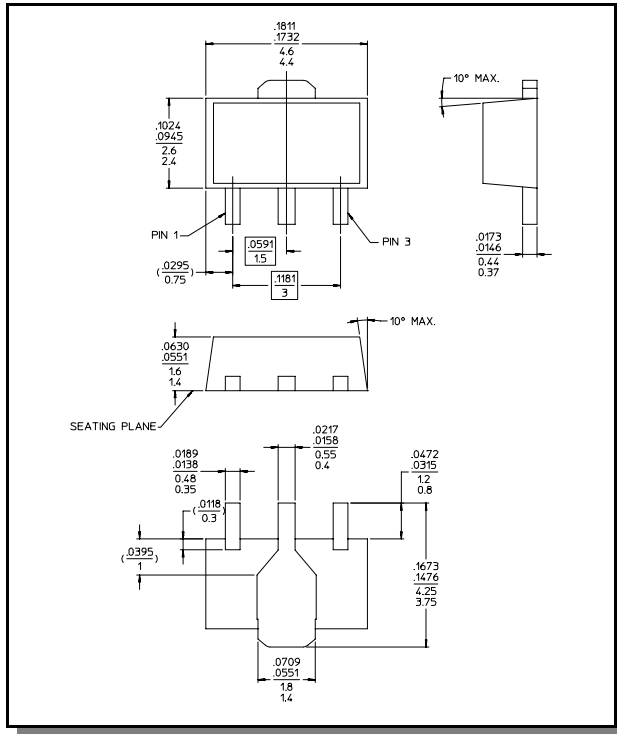


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SOT-89 Plastic Package



Ordering Information

Part Number	Package
MAAMSS00014SMB-01	900 MHz Standard Sample Kit
MAAMSS00014SMB-02	1900 MHz Standard Sample Kit
MAAMSS00014SMB-03	900 MHz High Gain Sample Kit
MAAMSS00014SMB-04	1900 MHz High Gain Sample Kit
MAAMSS0014TR	1000 Piece Tape and Reel*
MAAMSS0014TR-3000	3000 Piece Tape and Reel*

* Reference Application Note M513 for reel size information.

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