

LO Buffer Amplifier, 900 - 2000 MHz

V 1.00

MAAMSS0005

Features

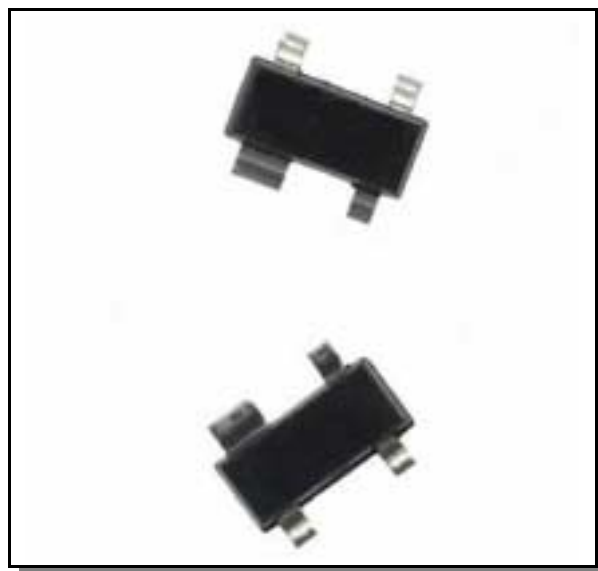
- High Gain 2-Stage Amplifier
- Single Supply, 3V Operation
- High Reverse Isolation
- Low Current
- Broadband Operation
- Miniature Plastic Package, SOT-143

Description

M/A-COM's MAAMSS0005 is a low current, high reverse isolation LO buffer amplifier in a low cost SOT-143 plastic package. The MAAMSS0005 is ideally suited for LO buffer handset applications in the Cellular, GPS and PCS frequency bands.

The MAAMSS0005 is fabricated using M/A-COM's 0.5 micron low noise E/D GaAs MESFET process. The process features full passivation for increased performance and reliability.

SOT-143



Electrical Specifications - Cellular Band (965 - 975 MHz):

 $T_A = 25^{\circ}\text{C}$, $V_{dd} = 3.0\text{ V}$, $Z_0 = 50\text{ Ohms}$

Parameter	Units	Min	Typ	Max
Gain	dB	13.0	15.5	17.0
Noise Figure	dB	—	2.8	—
VSWR In/Out	Ratio	—	1.4:1	—
Output P1dB	dBm	—	6	—
Reverse Isolation	dB	30	35	—
Output IP3	dBm	—	+17	—
I _{dd}	mA	—	5	7

Electrical Specifications - PCS Band (1580 - 1780 MHz):

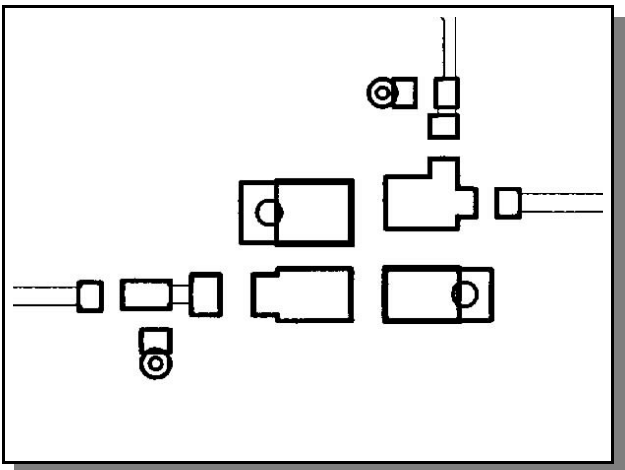
 $T_A = 25^{\circ}\text{C}$, $V_{dd} = 3.0\text{ V}$, $Z_0 = 50\text{ Ohms}$

Parameter	Units	Min	Typ	Max
Gain	dB	—	10.0	—
Noise Figure	dB	—	3.6	—
VSWR In/Out	Ratio	—	1.6:1	—
Output P1dB	dBm	—	4	—
Reverse Isolation	dB	—	36	—
Output IP3	dBm	—	+16	—
I _{dd}	mA	—	5	7

Pin Configuration

Pin No.	Function	Pin No.	Function
1	GND	3	GND
2	RF IN	4	RF OUT

Recommended PCB Configuration

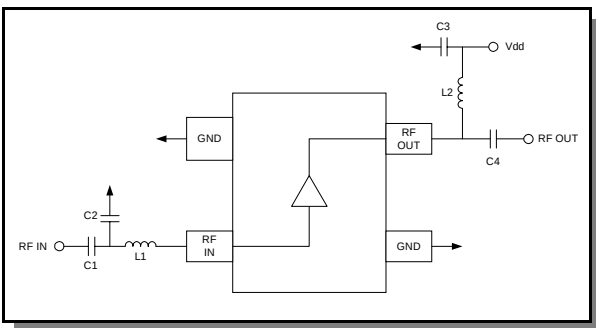


Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Vbias	6.0 V
Max Input Level	0 dBm
Operating Temperature	-30°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.

Sample Board Schematic



External Circuitry Parts List

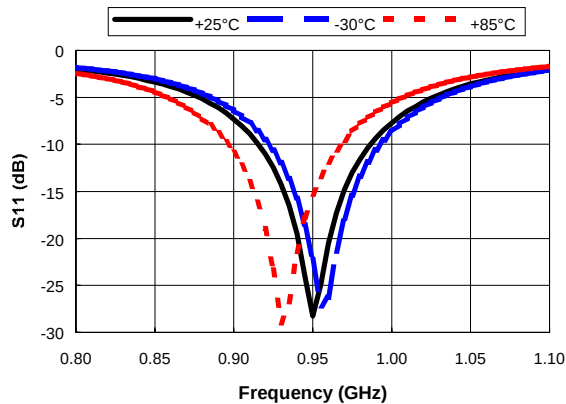
Part	Value (Cellular/PCS)	Purpose
C1	1000 pF	DC Block
C2	3.3 pF / 2.2 pF	RF Matching
C3	0.1 μ F	Bypass
C4	1.2 pF / 1.0 pF	RF Matching
L1	30 nH / 10 nH	RF Matching
L2	12 nH / 5.1 nH	RF Matching

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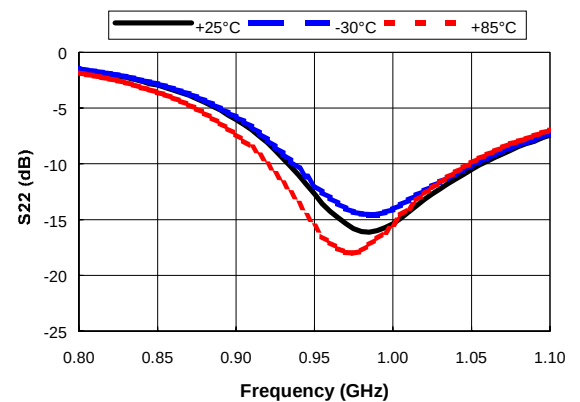
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Typical Performance Curves vs. Temperature - Cellular Frequency Band V_{dd} = 3 V

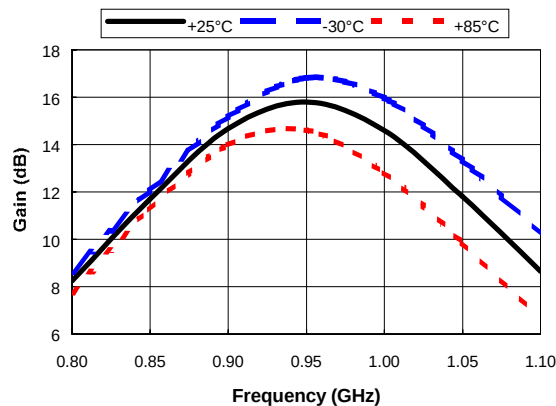
Input Return Loss



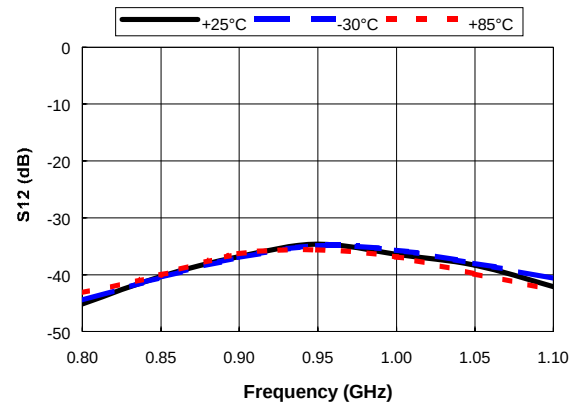
Output Return Loss



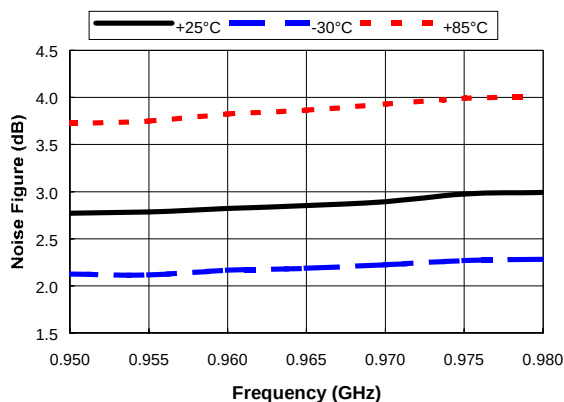
Gain



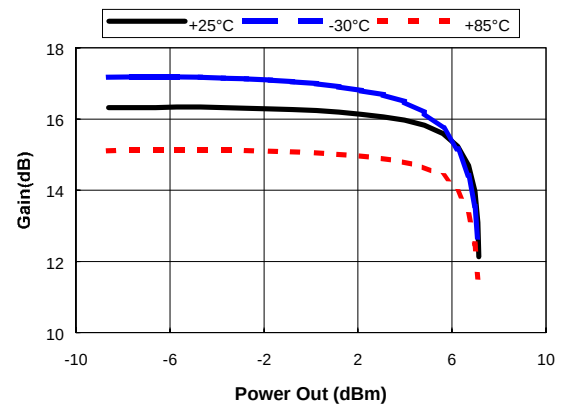
Reverse Isolation



Noise Figure



P_{1dB} @ 965 MHz



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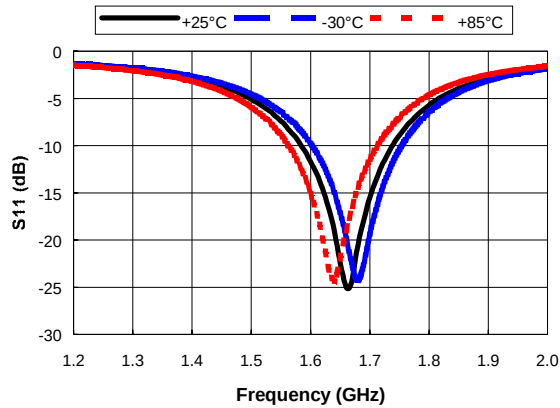
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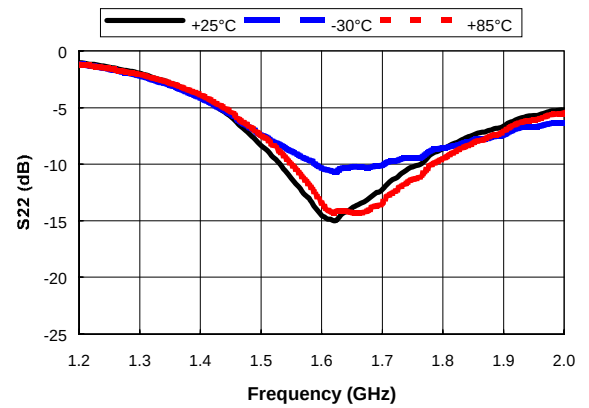
Typical Performance Curves vs. Temperature - PCS Frequency Band

V_{dd} = 3 V

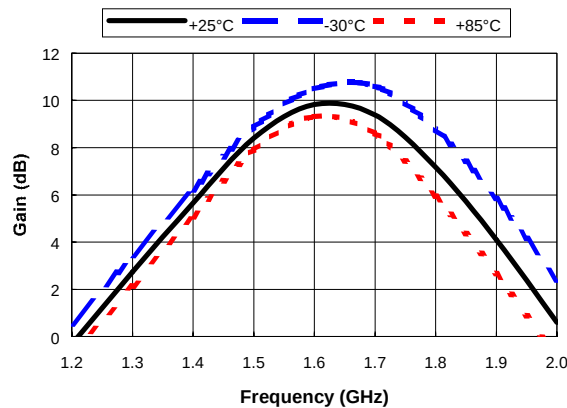
Input Return Loss



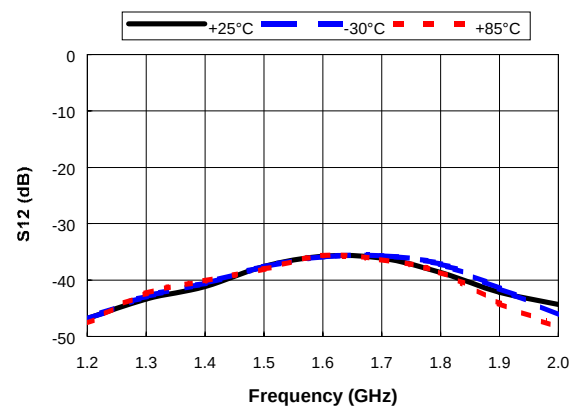
Output Return Loss



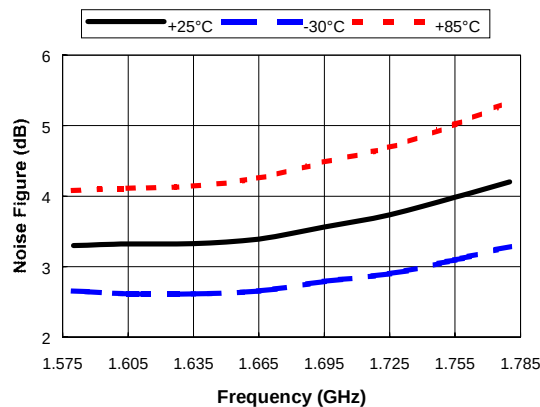
Gain



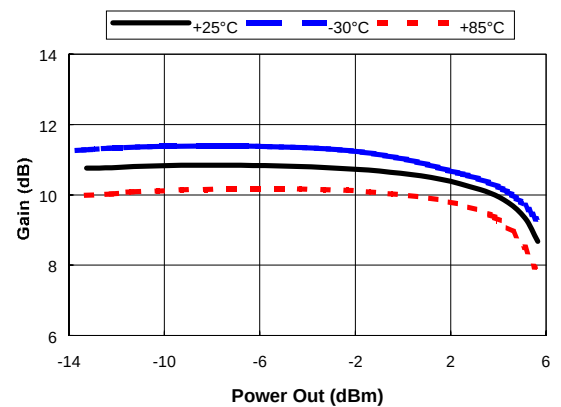
Reverse Isolation



Noise Figure



P1dB @ 1635 MHz

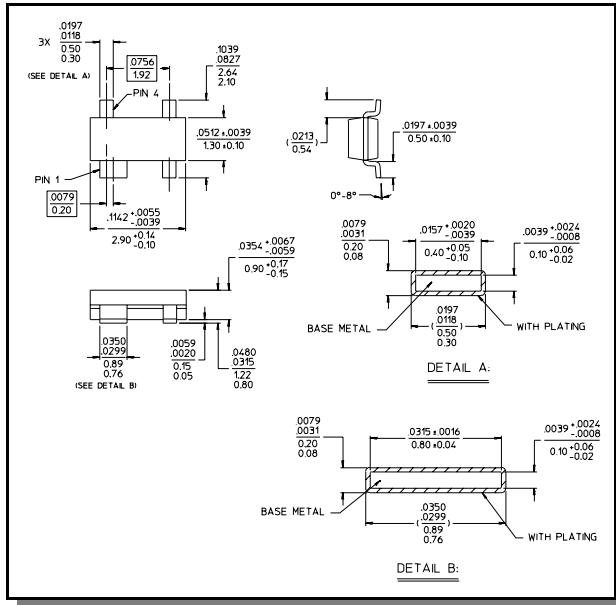


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SOT-143



Ordering Information ²

Part Number	Package
MAAMSS0005	SOT-143 Plastic Package
MAAMSS0005TR	Tape and Reel (1K Reel)
MAAMSS0005SMB	Sample Test Board

2. Reference Application Note M513 for reel size information.

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