

LO Buffer Amplifier
900 - 2000 MHz

MAAMSS0005
V2

Features

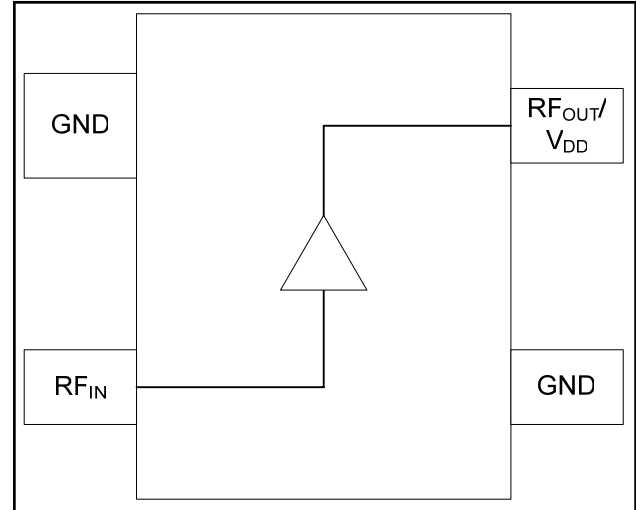
- High Gain 2-Stage Amplifier
- Single Supply, 3V Operation
- High Reverse Isolation
- Low Current
- Broadband Operation
- Miniature Plastic Package, SOT-143

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.

Block Diagram



Pin Configuration

Pin No.	Function	Pin No.	Function
1	GND	3	GND
2	RF _{IN}	4	RF _{OUT} /V _{DD}

Ordering Information¹

Part Number	Package
MAAMSS0005	Bulk Packaging
MAAMSS0005TR	1000 piece reel
MAAMSS0005TR-3000	3000 piece reel
MAAMSS0005SMB-01	Sample Test Board PCS
MAAMSS0005SMB-02	Sample Test Board CEL

1. Reference Application Note M513 for reel size information.

Absolute Maximum Ratings²

Parameter	Absolute Maximum
V _{DD}	6.0 V
Max Input Level	0 dBm
Operating Temperature	-30°C to +85°C
Storage Temperature	-65°C to +150°C

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

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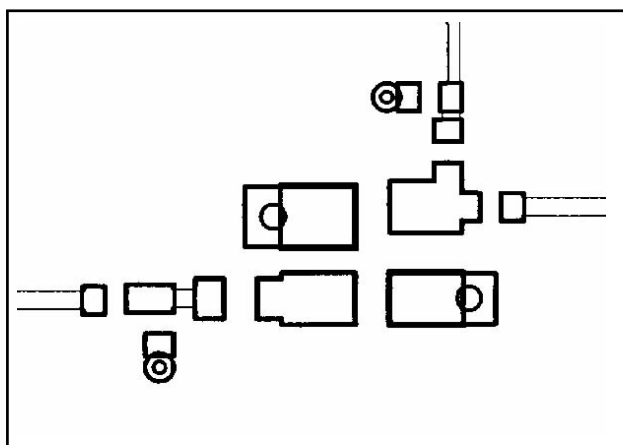
Electrical Specifications - Cellular Band (965 - 975 MHz): $T_A = 25^\circ\text{C}$, $V_{DD} = 3.0\text{ V}$, $Z_0 = 50\ \Omega$

Parameter	Test Conditions	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

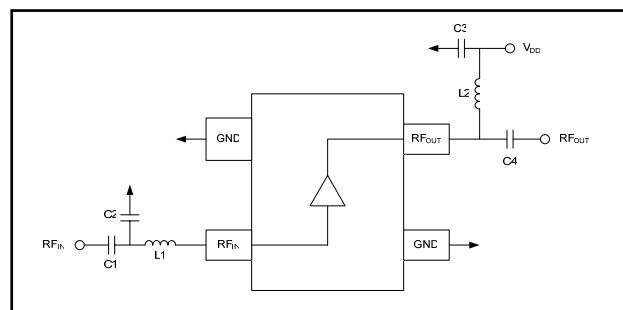
Electrical Specifications - PCS Band (1580 - 1780 MHz): $T_A = 25^\circ\text{C}$, $V_{DD} = 3.0\text{ V}$, $Z_0 = 50\ \Omega$

Parameter	Test Conditions	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

Recommended PCB Configuration



Sample Board Schematic

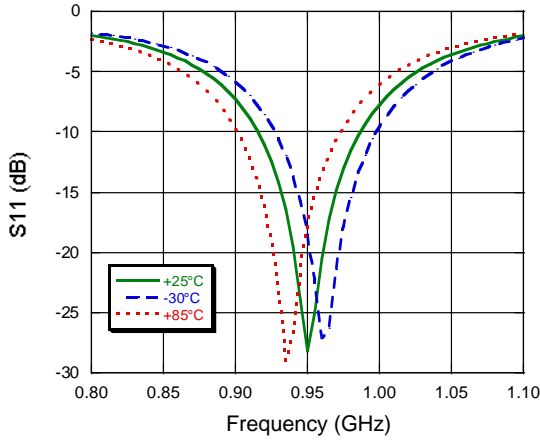


External Circuitry Parts List

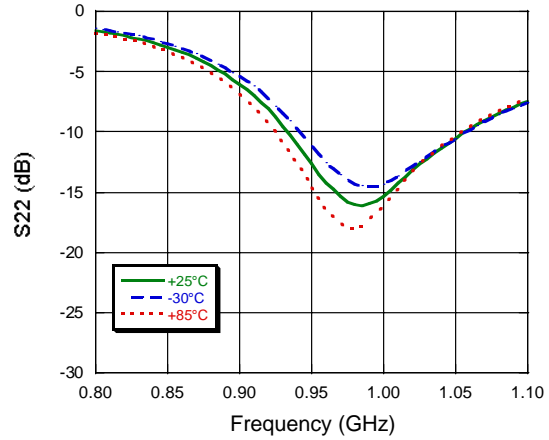
Part	Value (Cellular/PCS)	Purpose
C1	1000 pF	DC Block
C2	3.3 pF / 2.2 pF	RF Matching
C3	0.1 μF	Bypass
C4	1.2 pF / 1.0 pF	RF Matching
L1	30 nH / 10 nH	RF Matching
L2	12 nH / 5.1 nH	RF Matching

Typical Performance Curves vs. Temperature - Cellular Frequency Band $V_{DD} = 3\text{ V}$

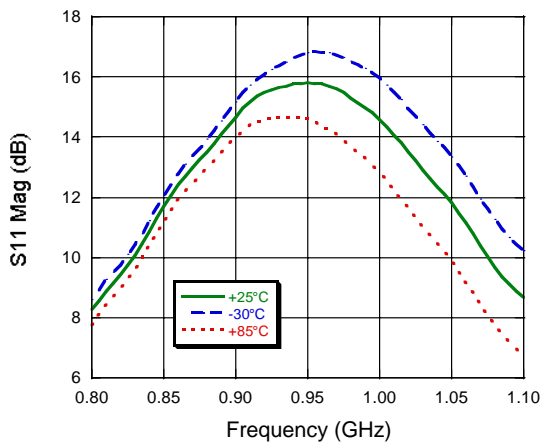
Input Return Loss



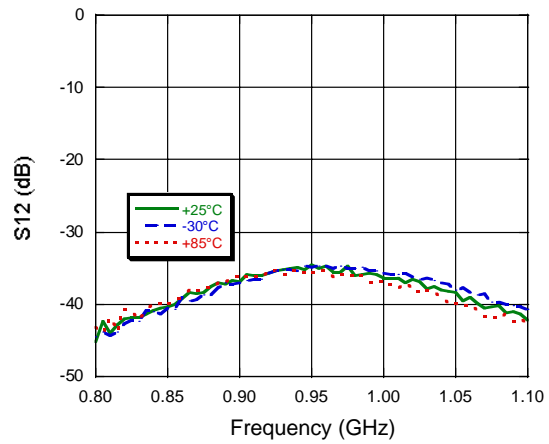
Output Return Loss



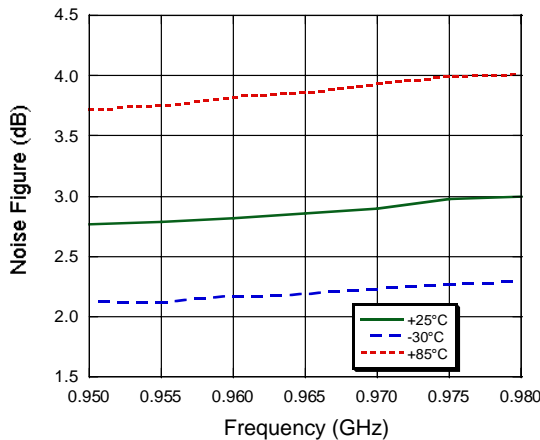
Gain



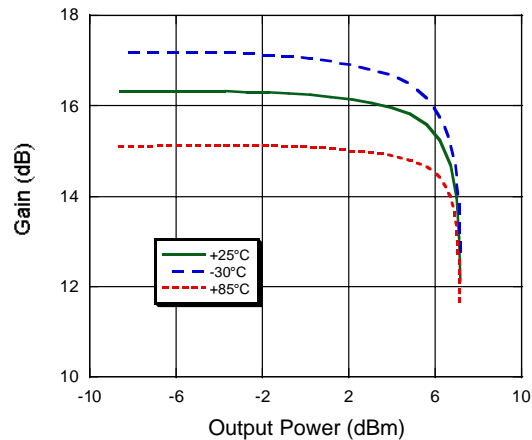
Reverse Isolation



Noise Figure

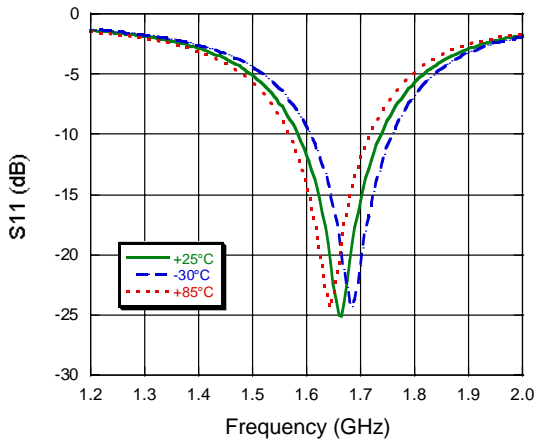


P1dB @ 965 MHz

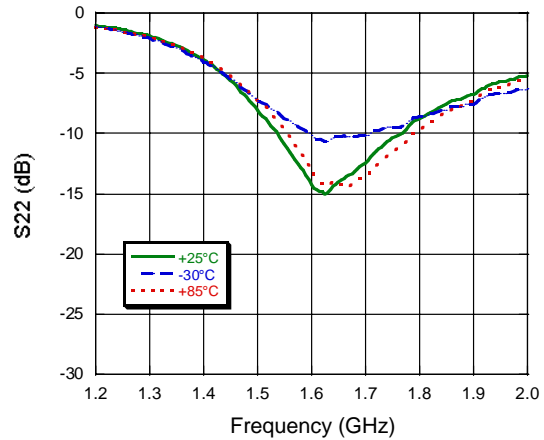


Typical Performance Curves vs. Temperature - PCS Frequency Band $V_{DD} = 3\text{ V}$

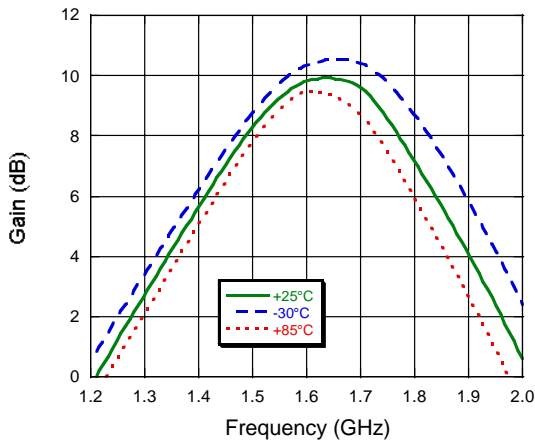
Input Return Loss



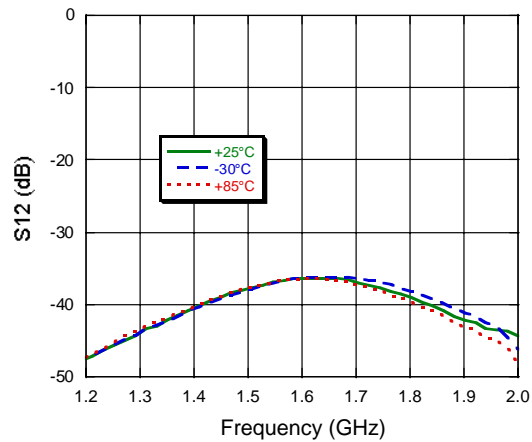
Output Return Loss



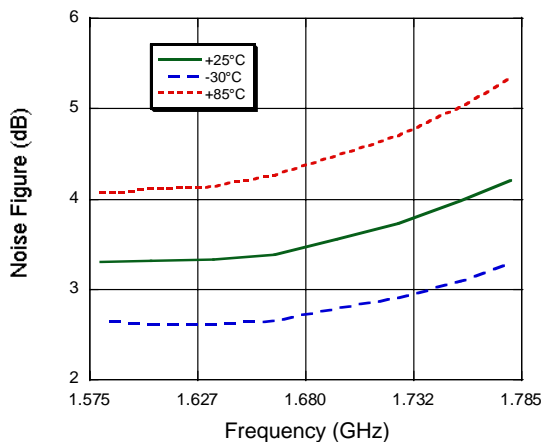
Gain



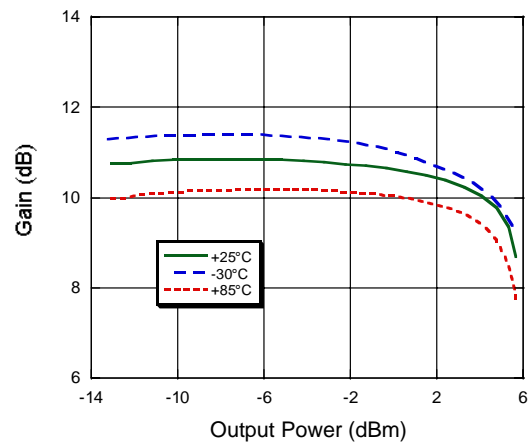
Reverse Isolation



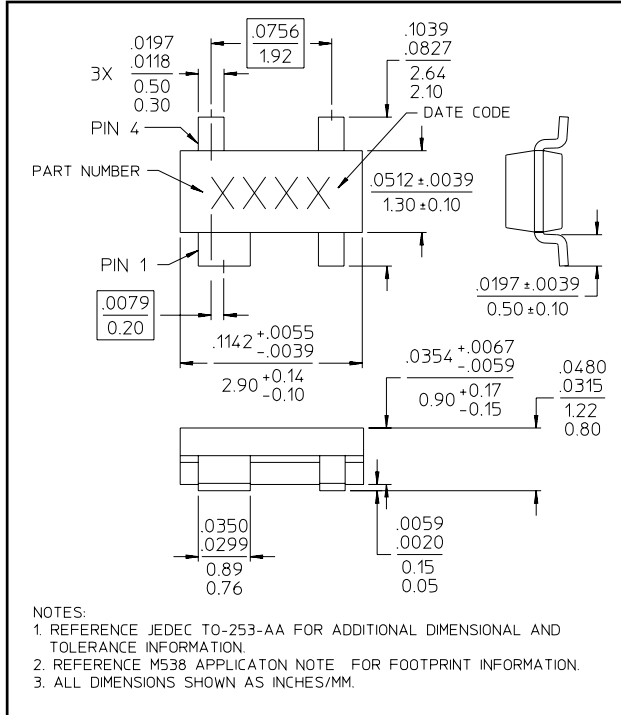
Noise Figure



P1dB @ 1635 MHz



SOT-143



Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.