

**RF Driver Amplifier,
50 - 5000 MHz**

**MAAMSS0026
V6P**

Features

- Low Cost Plastic SOT-89 Package
- Broadband Operation
- Output Intercept Point of up to +45 dBm
- Excellent ACPR performance
- High Efficiency

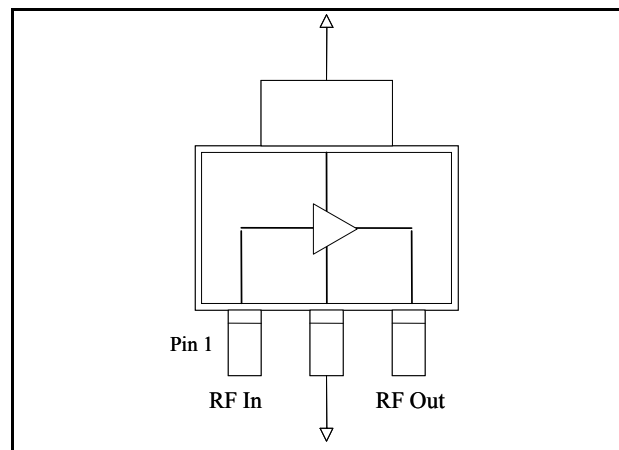
Description

M/A-COM's MAAMSS0026 RF driver amplifier is a GaAs MMIC which exhibits exceptional linearity performance as well as featuring high gain in a low-cost miniature SOT-89 surface mount plastic package. The device runs off a single +5 volt supply and draws 160 mA typically.

The MAAMSS0026 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.

The MAAMSS0026 has been designed to be a functional driver amplifier from 50 MHz to 5.0 GHz.

Functional Schematic



Pin Configuration

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

Ordering Information ¹

Part Number	Package
MAAMSS0026	Bulk Packaging
MAAMSS0026SMB-01	800-1000 MHz Configuration
MAAMSS0026SMB-02	1800-2000 MHz Configuration
MAAMSS0026SMB-03	2100-2200 MHz Configuration
MAAMSS0026TR	1000 piece reel
MAAMSS0026TR-3000	3000 piece reel

1. Reference Application Note M513 for reel size information.

Absolute Maximum Ratings ^{2,3}

Parameter	Absolute Maximum
RF Input Power	+2 dBm
Voltage	6.5 volts
Operating Temperature	-40 °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.
3. This amplifier has been designed to operate optimally in linear mode and will not function reliably in compressed or saturated mode.

This PRELIMINARY Data Sheet contains information regarding a product M/A-COM has under development. Performance is based on measured results and target specifications. Commitment to produce in volume is not guaranteed.

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Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50\ \Omega$ s ^{4,5,6,7}

Parameter	Test Conditions	Units	Min	Typ	Max
Gain	800 - 1000 MHz	dB	—	18.5	—
	1800 - 2200 MHz	dB	—	15.5	—
Return Loss	800 - 1000 MHz	dB	—	-15	—
	1800 - 2200 MHz	dB	—	-14	—
Output IP3 ⁴	900 MHz	dBm	—	43	—
	1900 MHz	dBm	—	44	—
ACPR IS-95 ⁵ ACPR IS-95 ⁶ ACPR UMTS ⁷	900 MHz P_{OUT} @ ACPR = 45 dBc	dBm	—	21	—
	1960 MHz P_{OUT} @ ACPR = 45 dBc	dBm	—	22	—
	2150 MHz P_{OUT} @ ACPR = 45 dBc	dBm	—	22	—
Output P1dB	800 - 1000 MHz	dBm	—	24	—
	1800 - 2200 MHz	dBm	—	24	—
Noise Figure	800 - 2200 MHz	dB	—	4	—
Supply Voltage	—	V	—	5	—
Supply Current	No RF Applied	mA	—	160	—

4. Output IP3 measured at a P_{OUT} of +16 dBm per tone and 1 MHz tone spacing.

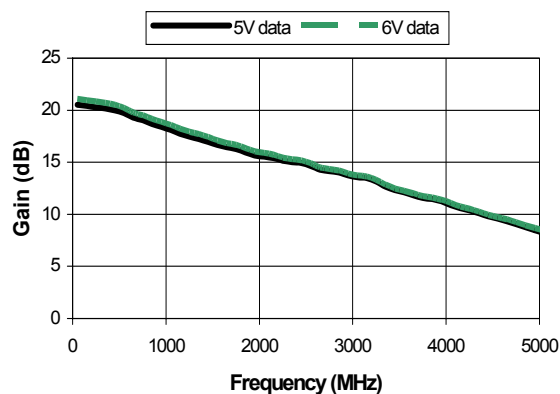
5. IS-95A, 9 Channels Forward (1.23 MHz Channel Bandwidth, 30 KHz Adjacent Channel Bandwidth, 900 KHz Offset)

6. IS-95A, 9 Channels Forward (1.23 MHz Channel Bandwidth, 30 KHz Adjacent Channel Bandwidth, 1.25 MHz Offset)

7. UMTS 3GPP, Test Model 1, 64 DPCH (3.84 MHz Channel Bandwidth, 5 MHz Channel Spacing)

Shown in the plot below is the available gain of the device without any matching circuitry.

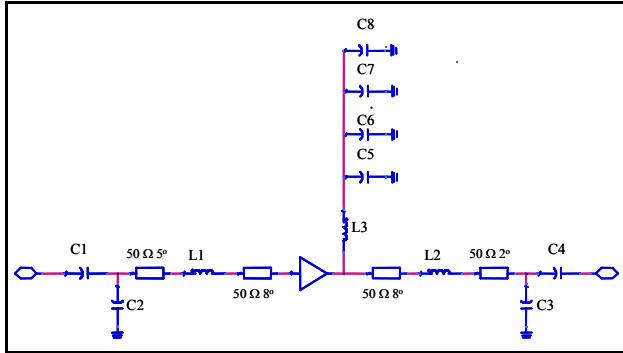
Available Gain



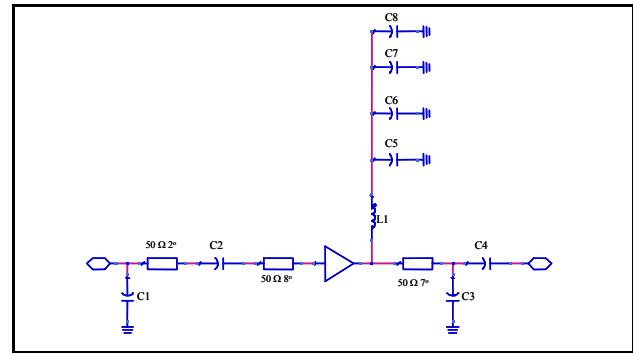
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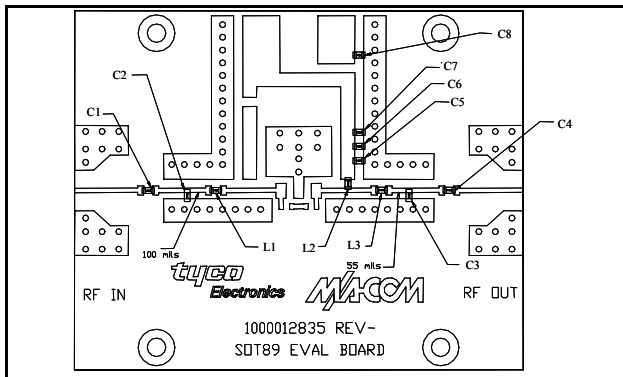
800 - 1000 MHz Schematic



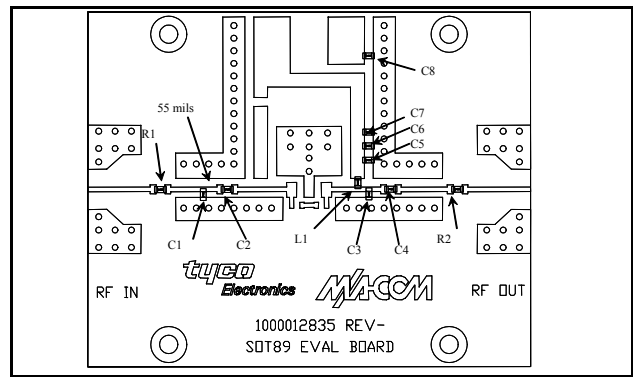
1700 - 2050 MHz Schematic



800-1000 MHz PCB Layout



1700 - 2050 MHz PCB Layout



800-1000 MHz Component List

Part	Value	Case Size	Manufacturer
C1, C4, C6	1000 pF	0402	Murata
C2, C3	6 pF	0402	Murata
C5	100 pF	0402	Murata
C7, C8	0.1 μF	0402	Murata
L1	3.9 nH	0402	Coilcraft
L2	5.6 nH	0402	Coilcraft
L3	1 nH	0402	Coilcraft

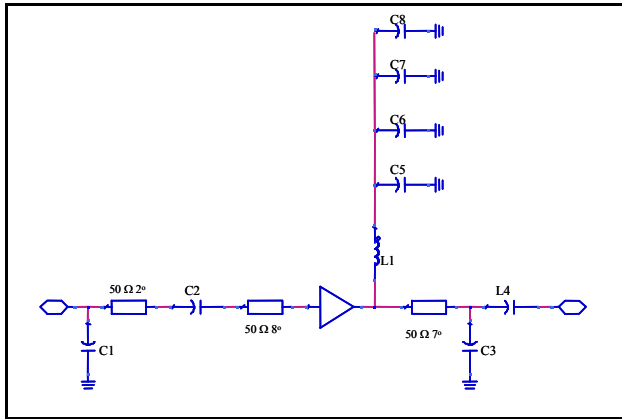
1700 - 2050 MHz Component List

Part	Value	Case Size	Manufacturer
C1	2 pF	0402	Murata
C2	12 pF	0402	Murata
C3	1.8 pF	0402	Murata
C4	39 pF	0402	Murata
C5	15 pF	0402	Murata
C6	1000 pF	0402	Murata
C7, C8	0.1 μF	0402	Murata
L1	7.5 nH	0402	Coilcraft
R1, R2	0 Ohms	0402	Panasonic

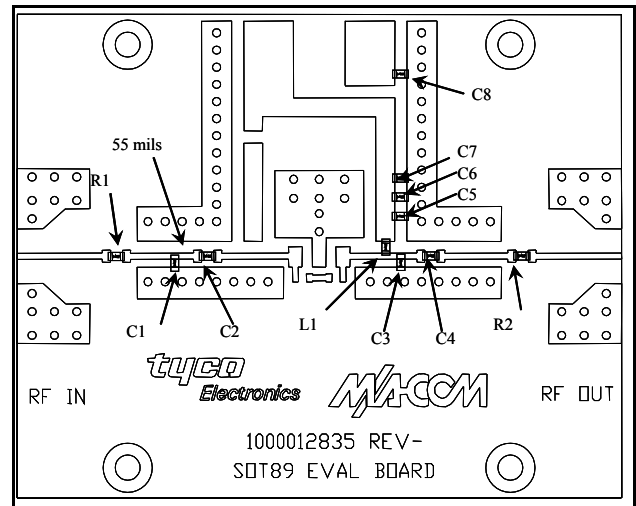
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2100 - 2200 MHz Schematic



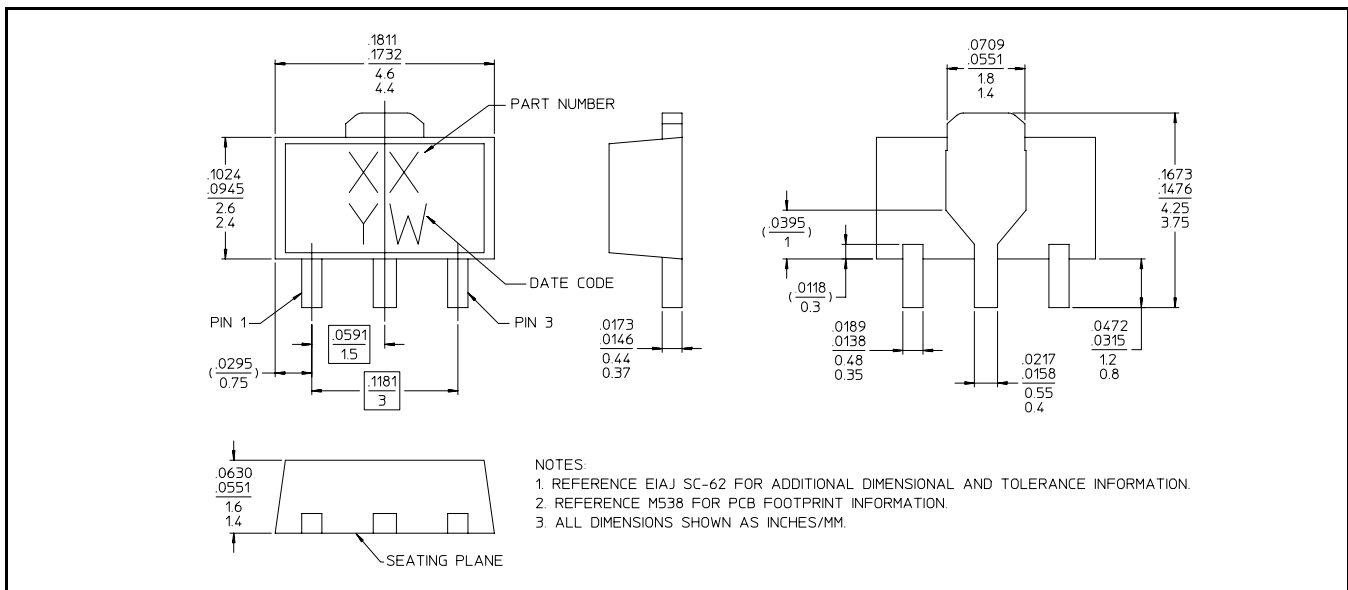
2100 - 2200 MHz PCB Layout



2100 - 2200 MHz Component List

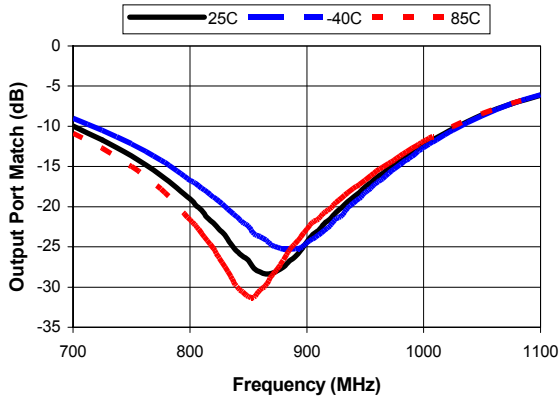
Part	Value	Case Size	Manufacturer
C1	1.5 pF	0402	Murata
C2	5 pF	0402	Murata
C3	1.8 pF	0402	Murata
C4	39 pF	0402	Murata
C5	15 pF	0402	Murata
C6	1000 pF	0402	Murata
C7,C8	0.1 μF	0402	Murata
L1	7.5 nH	0402	Coilcraft

SOT-89 Plastic Package

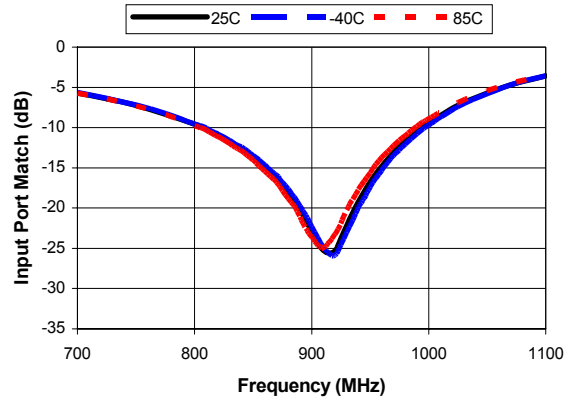


Typical Performance Curves, 800 - 1000 MHz Configuration

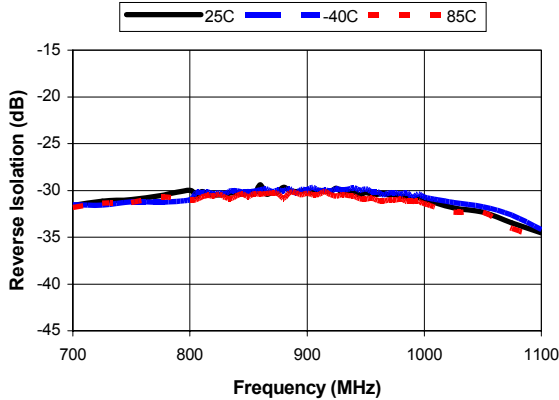
Output Return Loss



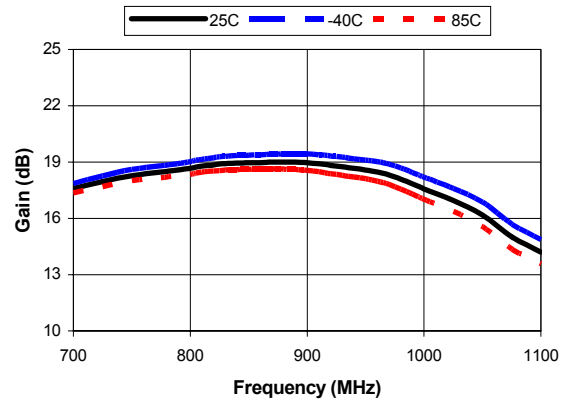
Input Return Loss



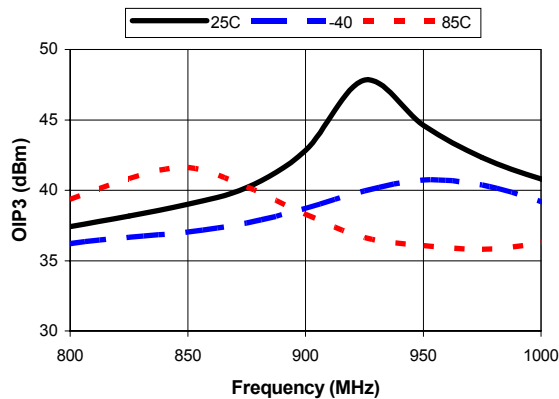
Reverse Isolation



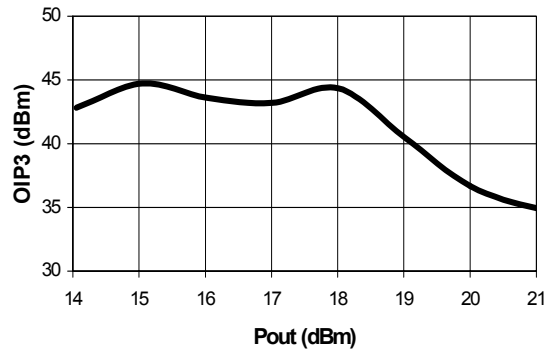
Gain



OIP3 (Pin = -2 dBm)

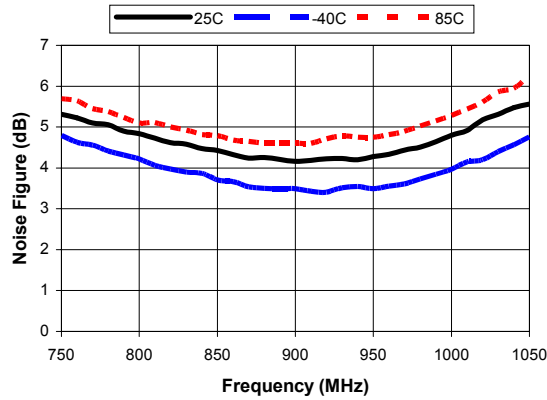


OIP3 vs. Pout at 25°C, 900 MHz

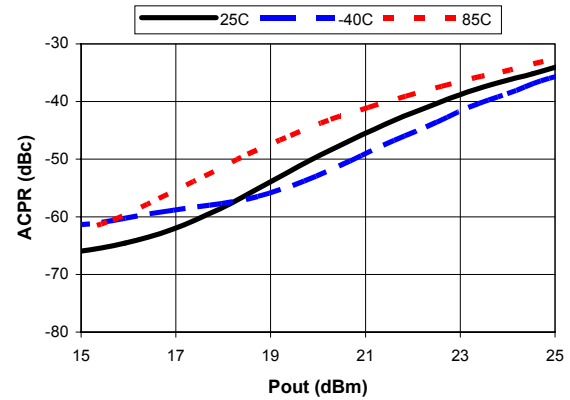


Typical Performance Curves, 800 - 1000 MHz Configuration

Noise Figure

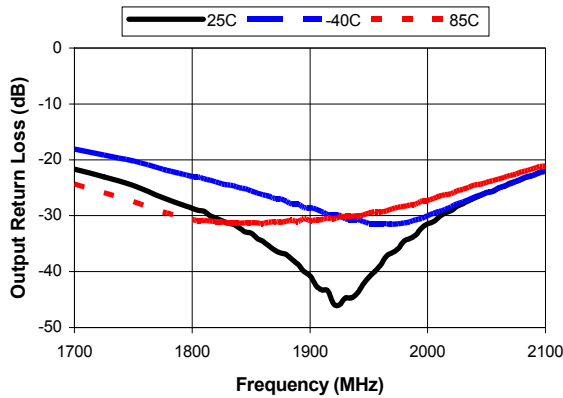


ACPR (IS-95, 9 channels forward)

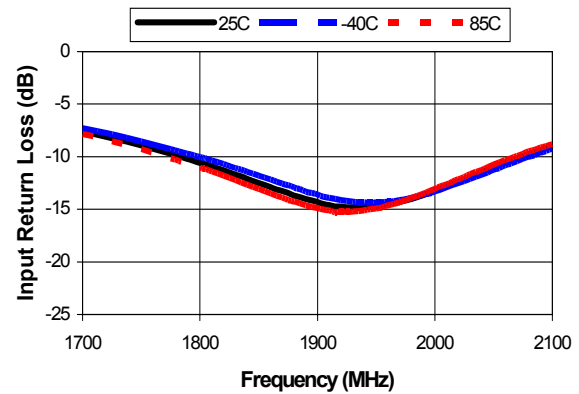


Typical Performance Curves, 1700 - 2050 MHz Configuration

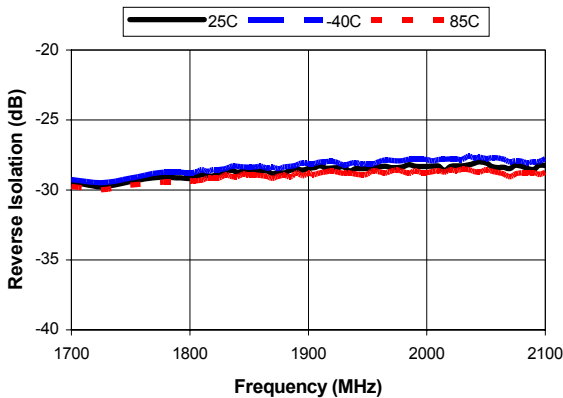
Output Return Loss



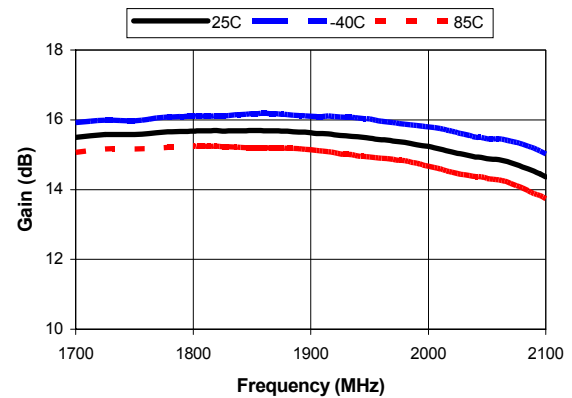
Input Return Loss



Reverse Isolation

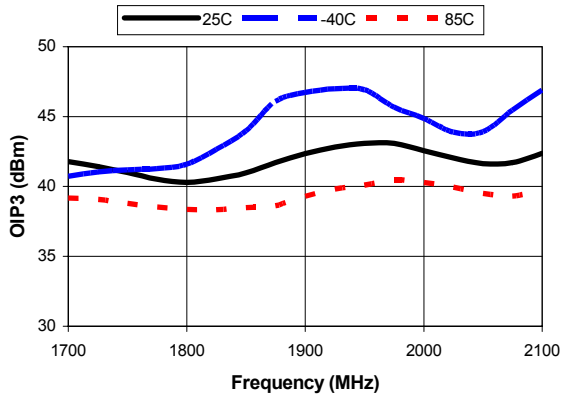


Gain

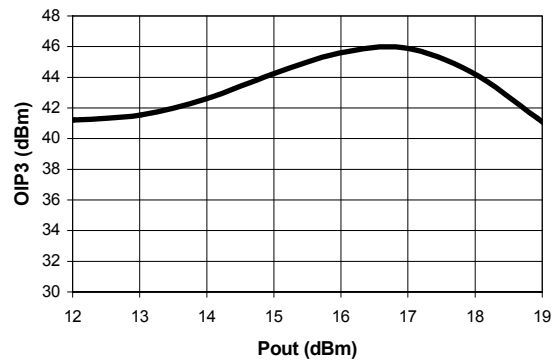


Typical Performance Curves, 1700 - 2050 MHz Configuration

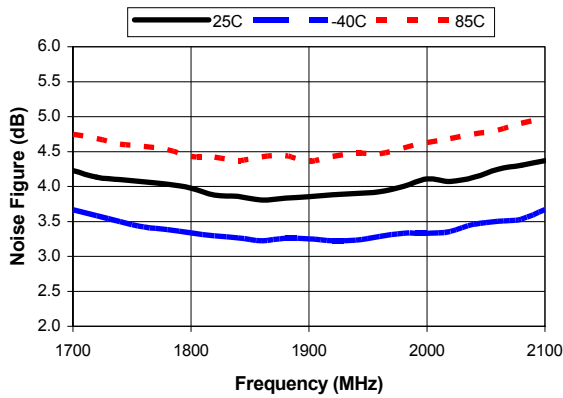
OIP3 (Pin = -2 dBm)



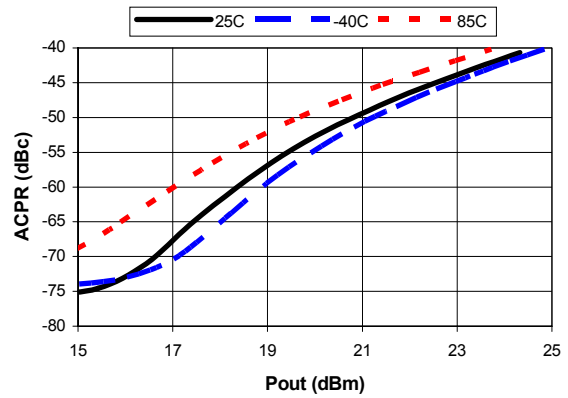
OIP3 vs. Pout at 25°C, 1900 MHz



Noise Figure

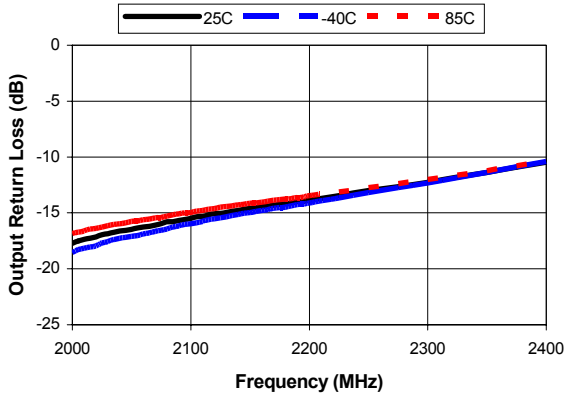


ACPR (IS-95, 9 channels forward)

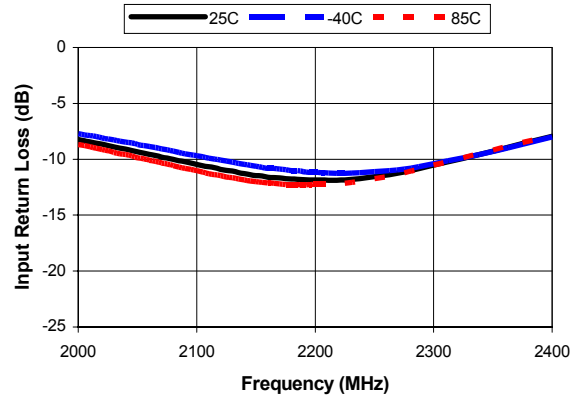


Typical Performance Curves, 2100 - 2200 MHz Configuration

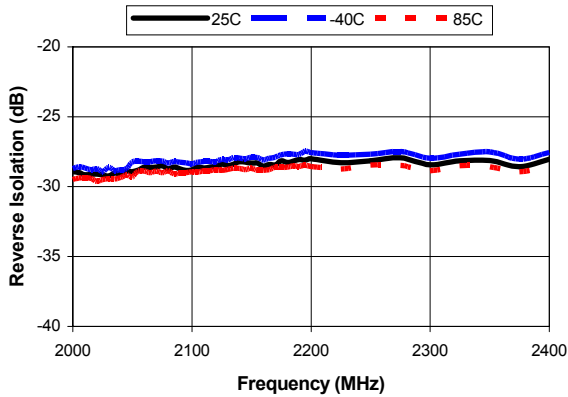
Output Return Loss



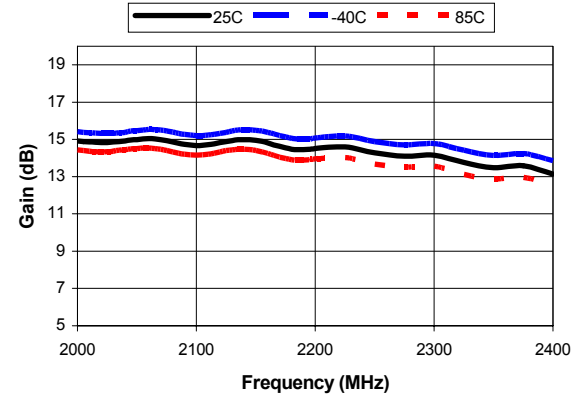
Input Return Loss



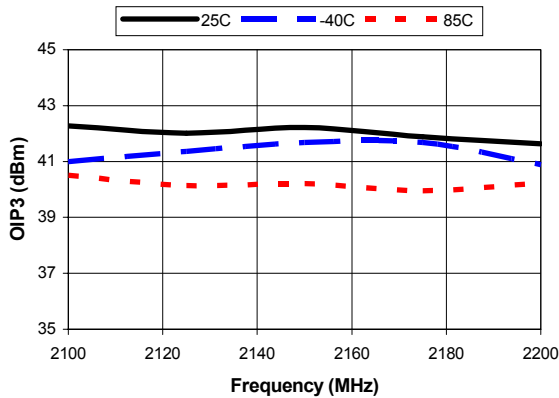
Reverse Isolation



Gain



OIP3 (Pin = -2 dBm)



Noise Figure

