

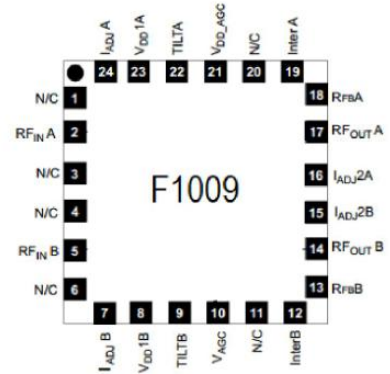
FEATURES

- -10dBm to +2 dBm Optical Input Range
- Single +5V Bias
- 29dB Gain at 55MHz; 33dB Gain at 1.2GHZ
- 24dB Gain Control Range
- Lead-Free 4mm PQFN-24LD Plastic Package

Description

The AVG1009 provides high gain, low noise and low Distortion amplification for optical node applications

Functional Schematic



Product Performance: VDD=+5Volts, TA=25°C, Z0=75 Ω

Parameter	Test Conditions	Units	Min	Typ	Max
Trans-Impedance Gain	50MHz	dB	26.5	29.0	30.5
	870MHz		31.0	32.0	34.0
	1.2GHz		31.5	33.0	35.0
Gain Tilt	V _{AGC} =+3V	dB		5	
	V _{AGC} =0V			7	
Gain Control Range	50MHz	dB	25.5	29.0	32.0
	870MHz		23.0	26.0	29.0
	1.2GHz		24.0	27.0	30.0
AGC Control Voltage Range	50MHz-1.2GHz	V	0		+3
EIN(1)	50MHz-1.2GHz	pA/rtHz	-	3.2	-
Output Return Loss	50MHz-1.2GHz	dB	-	16	-
Current	VDD=+5V	mA	205	230	250

(1)、 Specified at maximum gain(VAGC=+3V),



GaAs MMIC F1009

50-1.2GHz Optical Node RF Amplifier

Absolute Maximum Ratings

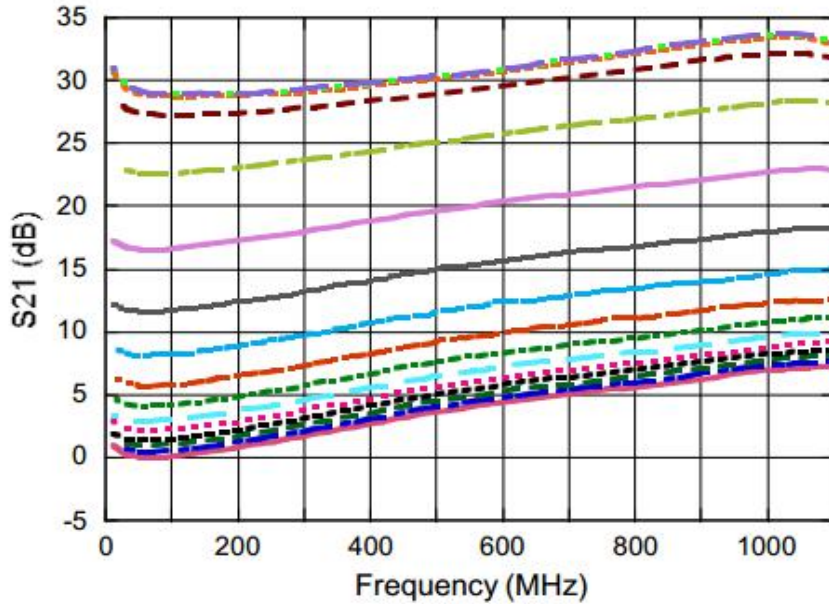
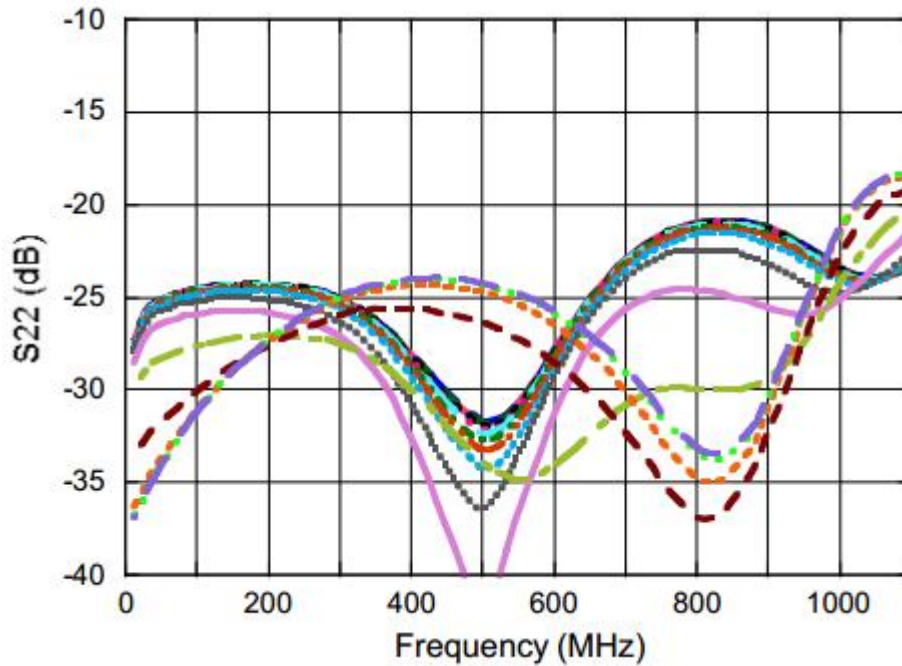
parameter	Absolute Maximum
Input Power	+3dBmOptical
Operating Voltage	+5volts
AGC Voltage	+5volts
Operating Temperature	-40°C to +85°C
Junction Temperature	+150°C
Storage Temperature	-65°C to +150°C

Pin Configuration

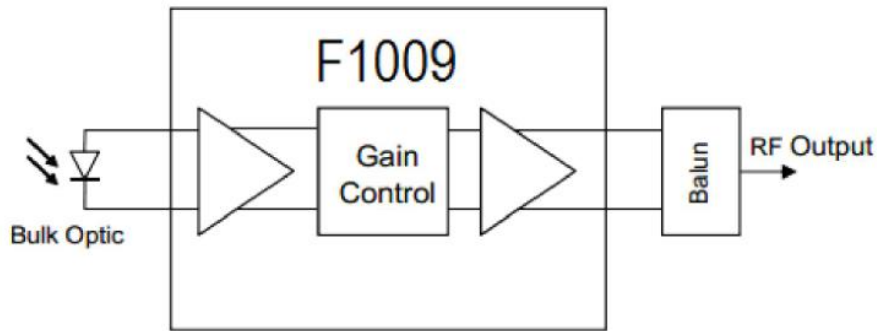
Pin No	Pin Name	Description
1	N/C	No Connection
2	RF IN A	RF Input A
3	N/C	No Connection
4	N/C	No Connection
5	RF IN B	RF Input B
6	N/C	No Connection
7	IADJB	Current Adjust
8	VDD1B	+5V Bias Voltage
9	TiltB	Tilt Connection
10	VAGC	AGC Control Voltage:0V to 3V
11	N/C	No Connection
12	InterB	Interstage Pin
13	RFB B	Feedback Resistor
14	RFOUT B	RF Output B
15	IADJ2B	Current Adjust
16	IADJ2A	Current Adjust
17	RFOUT A	RF Output A
18	RFBA	Feedback Resistor
19	InterA	Interstage Pin
20	N/C	No Connection
21	VDD-AGC	+5V agc Bias Voltage
22	TiltA	Tilt Connection
23	VDD1A	+5V Bias Voltage
24	IADJA	Current Adjust

Typical Performance

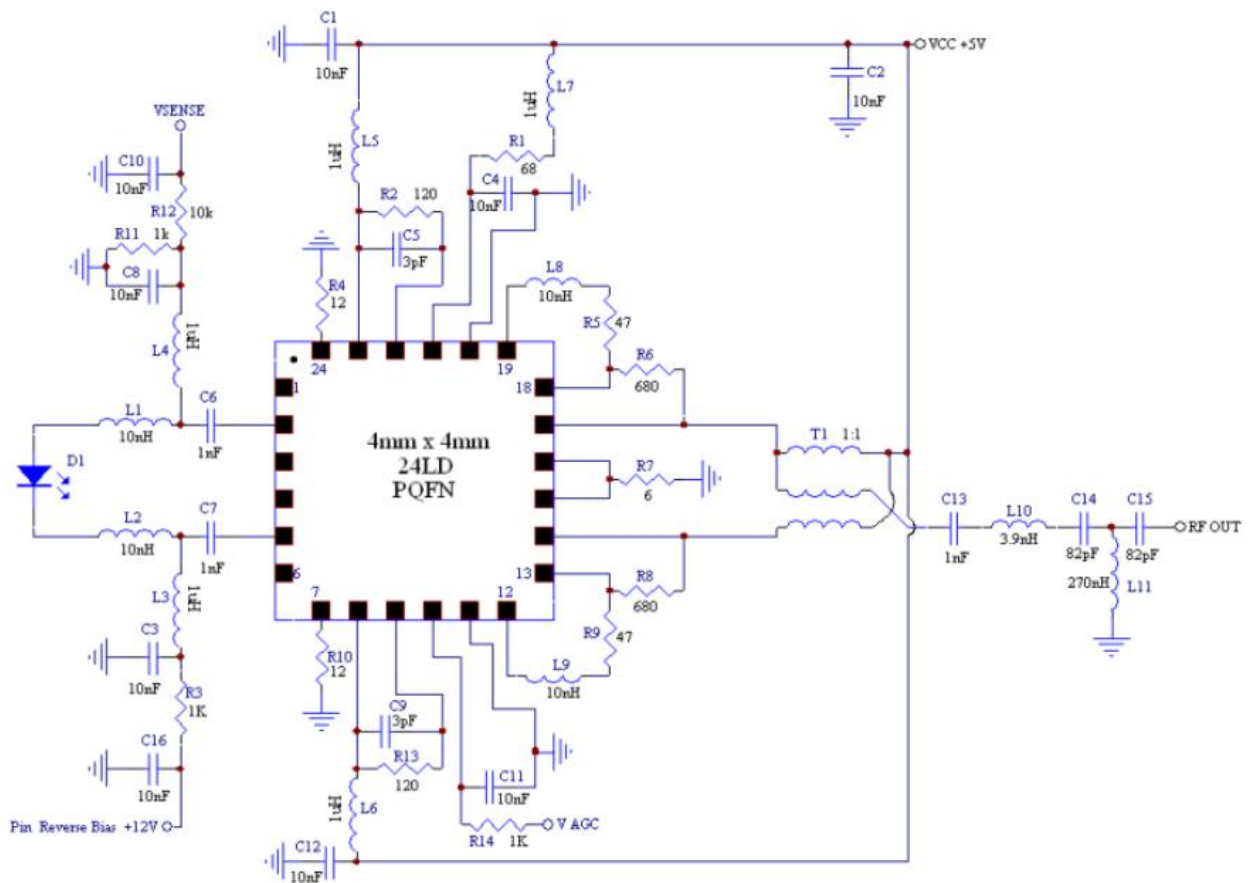
Receiver Gain vs.Frequency to 1GHz , +25°C、VAGC=0to3V in 0.2V Steps

**Output Return Loss vs Frequency**

Application Schematic



Schematic Including off-Chip Components





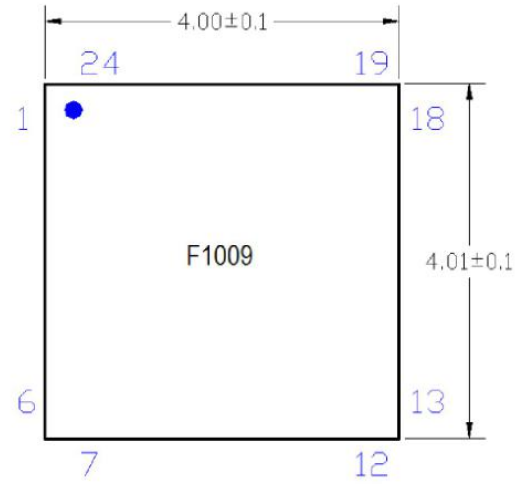
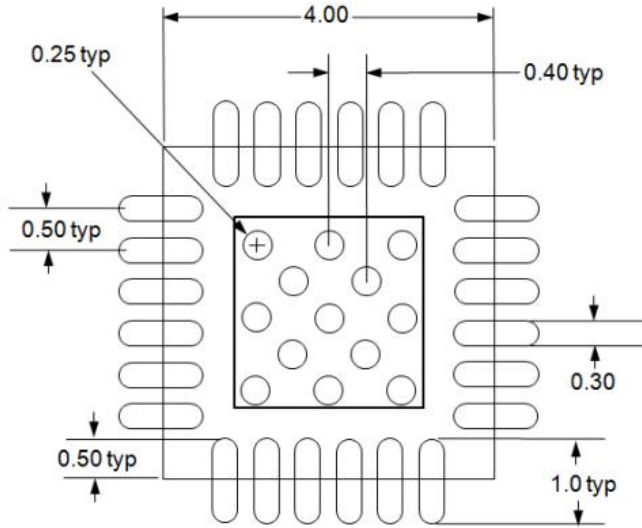
GaAs MMIC F1009

50-1.2GHz Optical Node RF Amplifier

Parts List

N#	Description	Case Style
C1、 C2、 C3、 C4、	10nF	0402
C8、 C10、 C11、 C12、 C16	10nF	0402
C6、 C7、 C13	1nF	0402
C14、 C15	82pF	0402
C5、 C9	3pF	0402
L10	3.9nH	0402
L1、 L2、 L8、 L9	10nH	0402
L11	270nH	0603
L3、 L4、 L5、 L6、 L7	1uH	0603
R7	6ohm	0402
R4、 R10	12ohm	0402
R5、 R9	47ohm	0402
R1	68ohm	0402
R2、 R13	120ohm	0402
R6、 R8	680ohm	0402
R3、 R11、 R14	1Kohm	0402
R12	10Kohm	0402
TI	1:1 Balun	

PCB Land Pattern



All dimension are in mm

BOTTOM VIEW

