

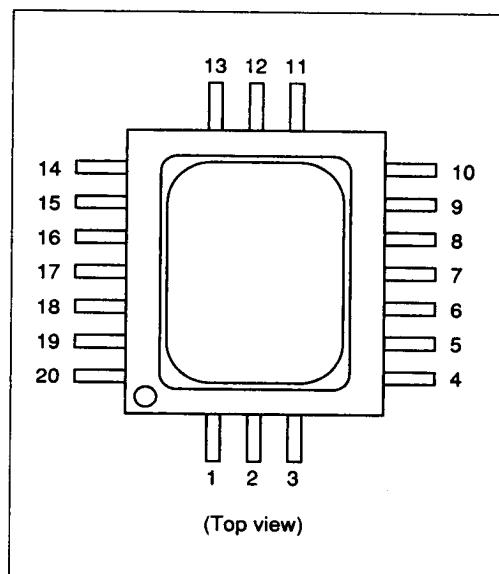
Main Amplifier for Optical Communication

The HA29204 is a fixed gain amplifier for fiber optic system. It achieves a high gain (20 dB) and very wide band width 2.5 GHz.

Features

- Band width; 2.5 GHz
- Typical gain; 20 dB
- 50 Ω line driving capability
- Single power supply of -5.2 V
- 20 pin package containing internal decoupling capacitors and input termination resistors of 50 Ω .

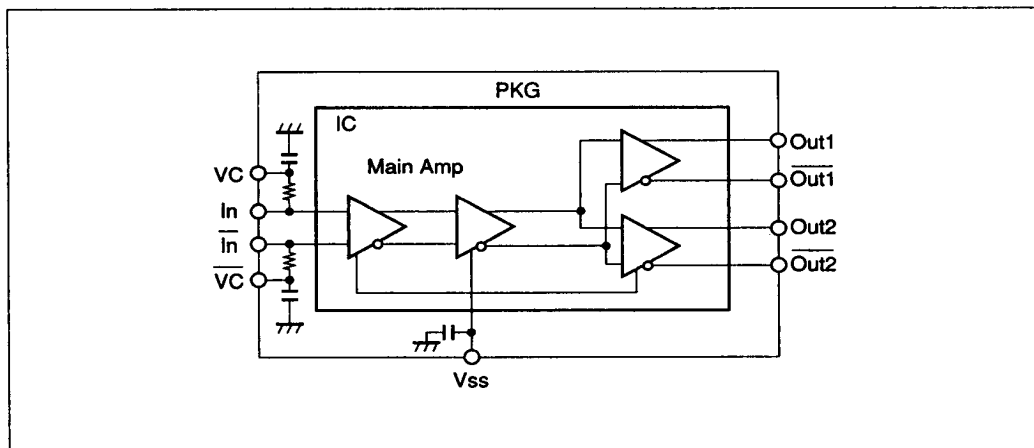
Pin Arrangement



Pin No.	Symbol	Function
1	N/C	Non connection
2	(V _{SS})	-5.2 V source input
3	N/C	Non connection
4	Out2	+Signal output
5	GND	
6	Out2	-Signal output
7	GND	
8	Out1	+Signal output
9	GND	
10	Out1	-Signal output

Pin No.	Symbol	Function
11	N/C	Non connection
12	V _{SS}	-5.2 V source input
13	N/C	Non connection
14	VC	+Input level adjust
15	GND	
16	In	+Signal input
17	GND	
18	In	-Signal input
19	GND	
20	VC	-Input level adjust

Block Diagram



Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage	V_{SS}	-7.5 to +0.5	V
Input voltage	V_{in}	V_{SS} to -2.0	V
Supply current	I_{SS}	200	mA
Storage temperature	T_{stg}	-55 to +125	°C

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{SS}	-5.46	-5.2	-4.94	V
Operating temperature	T_a	0	—	+65	°C

DC Characteristics ($V_{SS} = -5.2 \text{ V} \pm 5\%$)

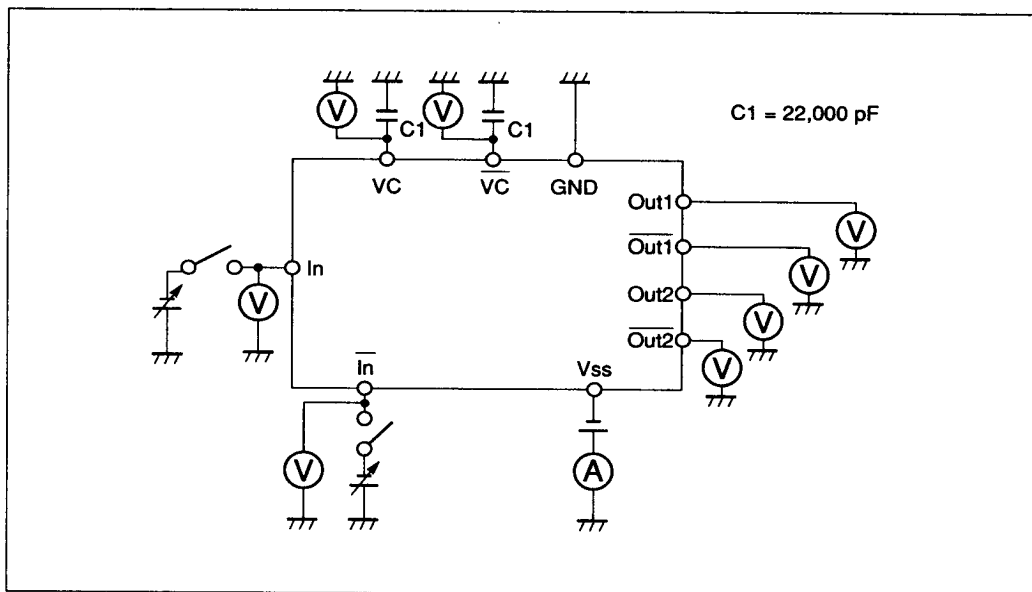
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Input voltage (+)	V_{in+}	—	-3.9	—	V	Terminal open
Input voltage (-)	V_{in-}	—	-3.9	—	V	Terminal open
Offset voltage	V_{off}	—	50	—	mV	
VCO voltage	V_{co}	—	-3.9	—	V	VC terminal open
Output voltage	V_{out}	—	-2.4	—	V	
Power consumption	P_T	—	750	—	mW	

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AC Characteristics

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Bandwidth	f_B	—	2.5	—	GHz	3 dB down
Gain	G	—	20	—	dB	100 MHz
Gain deviation	ΔG_F	—	-1.0/+1.0	—	dB	50 MHz to 1.5 GHz
Output voltage swing	Vout	—	0.5	—	Vp-p	
Noise figure	NF	—	20	—	dB	
Input impedance	Zin	—	50	—	Ω	
Input VSWR	Vsi	—	1.6	—		50 MHz to 2.5 GHz
Output impedance	Zout	—	50	—	Ω	
Output VSWR	Vso	—	1.6	—		50 MHz to 2.5 GHz

DC Test Circuit

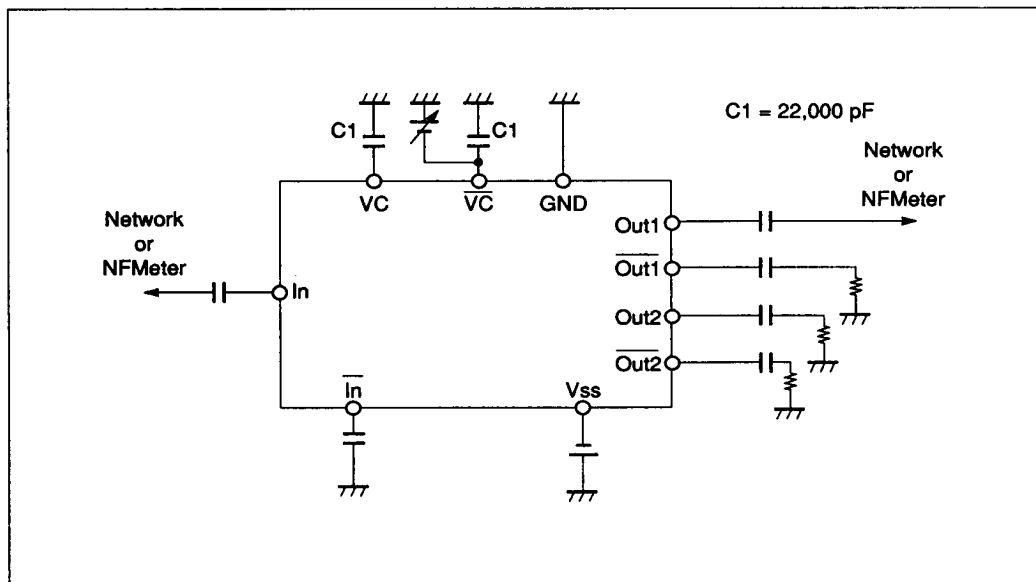


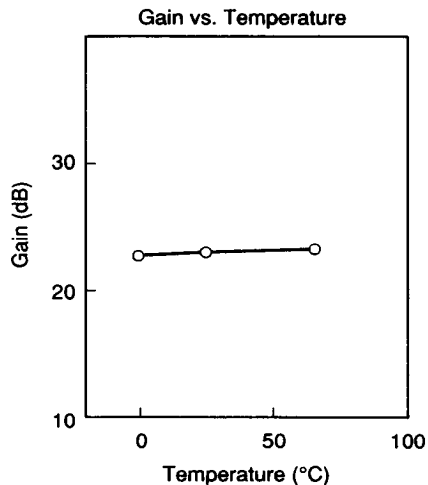
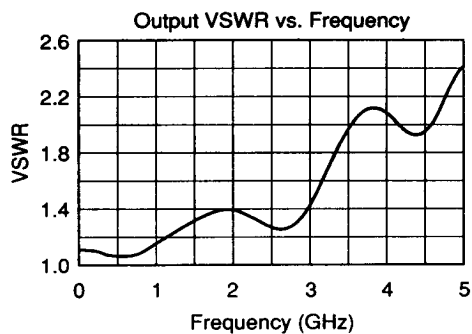
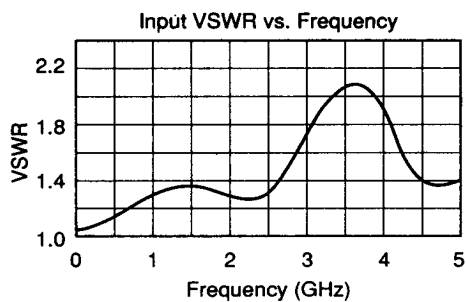
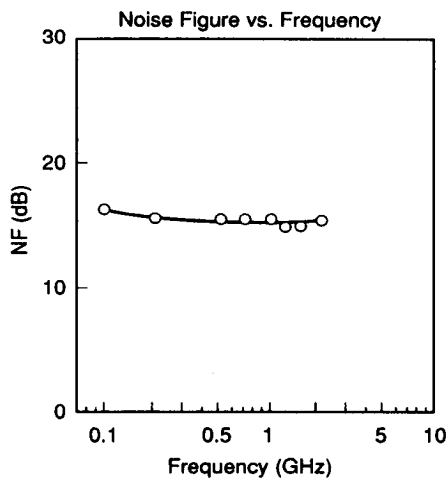
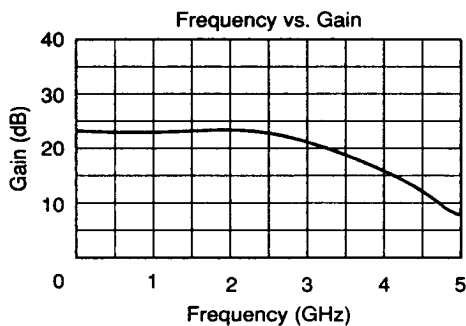
Packaging Information

Part No.	Package
HA29204	FG-20

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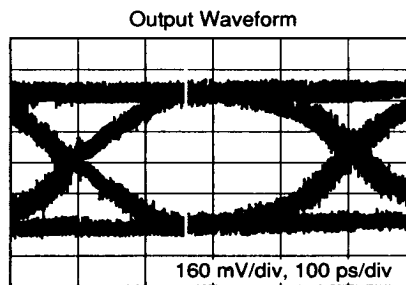
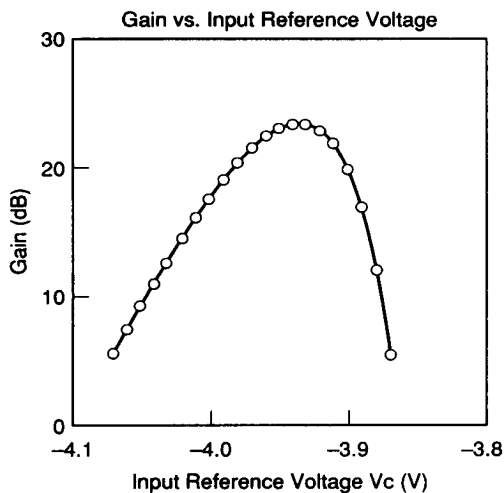
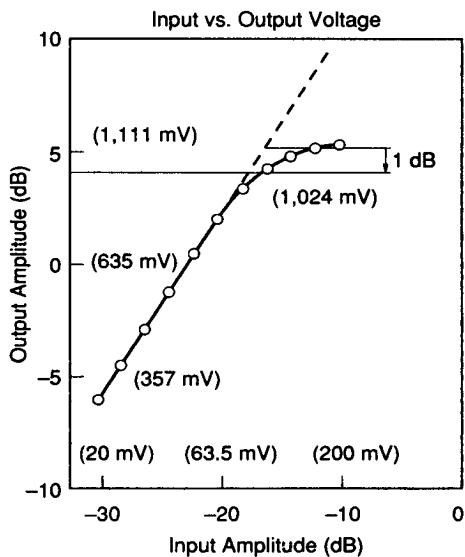


Typical Performance ($T_a = 25^\circ\text{C}$, $V_{SS} = -5.2\text{ V}$)

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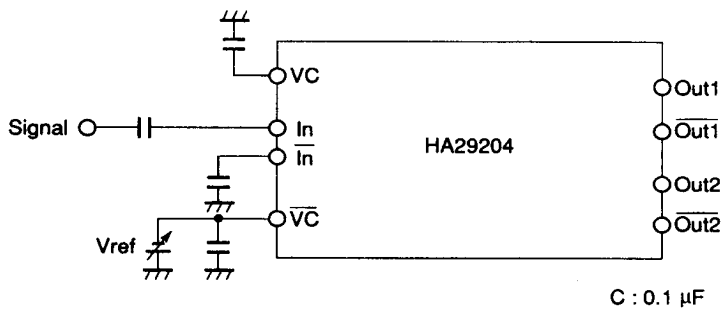
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Typical Performance ($T_a = 25^\circ\text{C}$, $V_{SS} = -5.2\text{ V}$) (cont)

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Application Circuit

Case 1



Case 2

