

400MHz 3-channel Video Amplifier

■ GENERAL DESCRIPTION

The NJM41045 is a wideband 3-channel Video amplifier.
The NJM41045 is suitable for the HD video application because of -3dB large-signal bandwidth of 400MHz.

■ PACKAGE OUTLINE

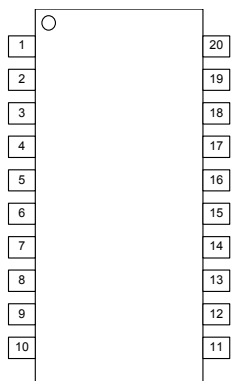


NJM41045VC3

■ FEATURES

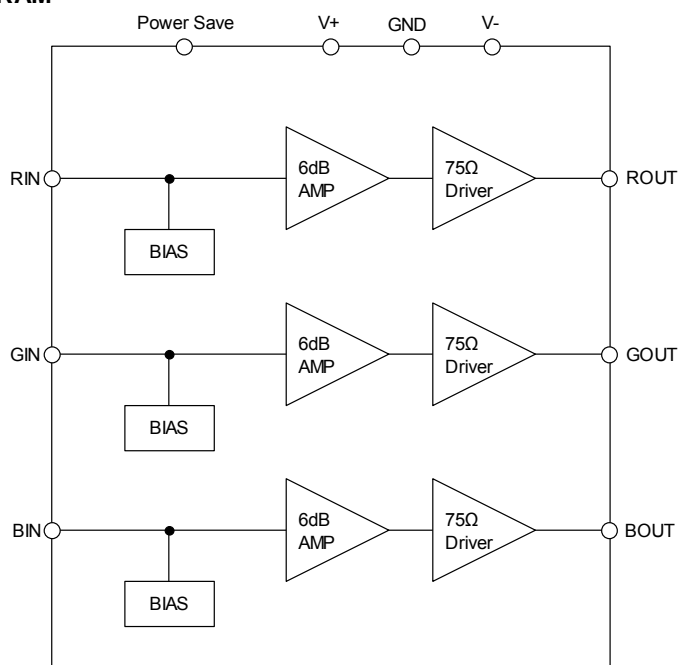
- Operating Voltage (Single) +4.5 to +9.5V
(Dual) ± 3.0 to ± 5.0 V
- Wide Bandwidth -3dB at 400MHz (2Vp-p Output)
- 6dB amplifier
- 75 Ω Driver Circuit
- Power Save Function
- Bipolar Technology
- Package Outline SSOP20-C3

■ PIN CONFIGURATION



- | | |
|---------------|----------|
| 1. N.C. | 11. V-3 |
| 2. VREF1 | 12. BOUT |
| 3. RIN | 13. V+3 |
| 4. Power save | 14. V-2 |
| 5. VREF2 | 15. GOUT |
| 6. GIN | 16. V+2 |
| 7. GND | 17. V-1 |
| 8. VREF3 | 18. ROUT |
| 9. BIN | 19. V+1 |
| 10. N.C. | 20. N.C. |

■ BLOCK DIAGRAM



NJM41045

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	10.0	V
Power Dissipation	P _D	1500 ^(Note 1)	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +150	°C

(Note 1) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm 4 layers, FR-4)

■ RECOMMENDED OPEARATING CONDITION (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage1	Vopr1	Single Power Supply	+4.5	-	+9.5	V
Operating Voltage2	Vopr2	Dual Power Supply	±3.0	-	±5.0	V

■ ELECTRICAL CHARACTERISTICS (Ta= 25°C, V⁺ = 5V, R_L = 150Ω)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}	No Signal	-	65	80	mA
Operating Current at Power Save	I _{save}	Power Save Mode	-	0.6	1	mA
Maximum Output Voltage Swing	V _{om}	100kHz, Sine Signal, THD=1%	2.2	2.4	-	Vp-p
Voltage Gain	G _v	1MHz, 1.0Vp-p, Sine Signal	5.5	6.0	6.5	dB
Frequency Characteristic 1	G _{f1}	400MHz/1MHz, 1.0Vp-p, Sine Signal	-	-3.0	-	dB
Frequency Characteristic 2	G _{f2}	450MHz/1MHz, 0.1Vp-p, Sine Signal	-	-3.0	-	dB
Gain Difference Between channel	ΔG _{v1}	1MHz, 1.0Vp-p, Sine Signal ^(Note 2)	-0.25	0	0.25	dB
Differential Gain	DG	V _{in} =1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	V _{in} =1.0Vp-p, 10step Video Signal	-	0.5	-	deg
SW Voltage High Level	V _{thH}		2.5	-	V ⁺	V
SW Voltage Low Level	V _{thL}		0	-	1.0	V
Switch Inflow Current High Level	I _{thH}	V _{sw} *=V _{ps} *=5V	-	-	400	μA
Switch Inflow Current Low Level	I _{thL}	V _{sw} *=V _{ps} *=0.3V	-	-	20	μA

(Note 2) Between ROUT/GOUT/BOUT

■ ELECTRICAL CHARACTERISTICS (Ta= 25°C, V^{+/-} = ±5.0V, R_L = 150Ω)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current1	I _{CC}	No Signal	-	65	80	mA
Operating Current2	I _{EE}	No Signal	-80	-65	-	mA
Operating Current at Power Save 1	I _{save_1cc}	Power Save Mode	-	0.75	1.3	mA
Operating Current at Power Save 2	I _{save_2ee}	Power Save Mode	-1.4	-0.4	-	mA
Maximum Output Voltage Swing	V _{om}	100kHz, Sine Signal, THD=1%	2.2	2.4	-	Vp-p
Voltage Gain	G _v	1MHz, 1.0Vp-p, Sine Signal	5.5	6.0	6.5	dB
Frequency characteristic 1	G _{f1}	400MHz/1MHz, 1.0Vp-p, Sine Signal	-	-3.0	-	dB
Frequency characteristic 2	G _{f2}	450MHz/1MHz, 0.1Vp-p, Sine Signal	-	-3.0	-	dB
Gain Difference Between channel	ΔG _{v1}	1MHz, 1.0Vp-p, Sine Signal ^(Note 2)	-0.25	0	0.25	dB
Differential Gain	DG	V _{in} =1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	V _{in} =1.0Vp-p, 10step Video Signal	-	0.5	-	deg
SW Voltage High Level	V _{thH}		2.5	-	V ⁺	V
SW Voltage Low Level	V _{thL}		0	-	1.0	V
Switch Inflow Current High Level	I _{thH}	V _{sw} *=V _{ps} *=5V	-	-	400	μA
Switch Inflow Current Low Level	I _{thL}	V _{sw} *=V _{ps} *=0.3V	-	-	20	μA

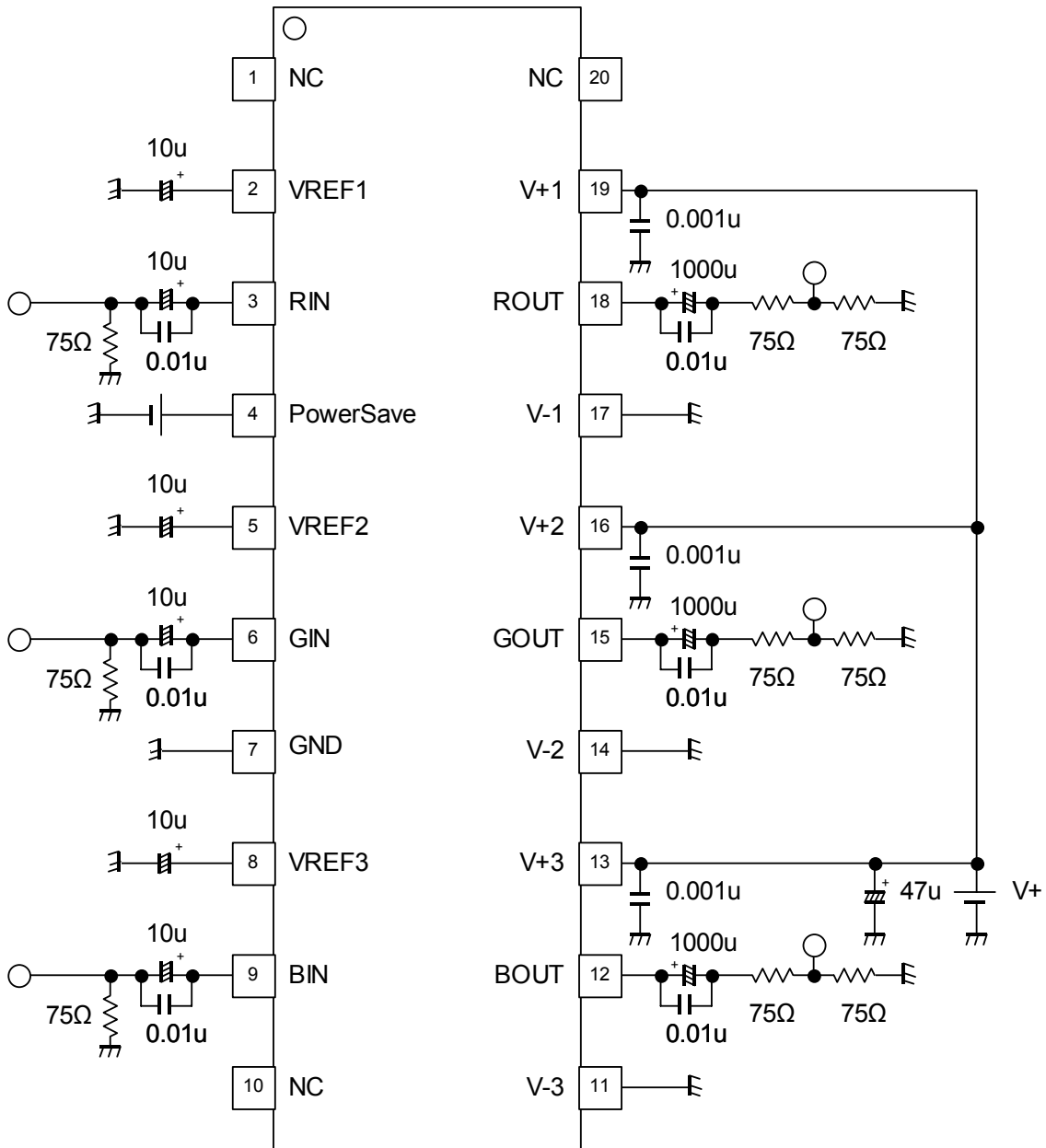
(Note 2) Between ROUT/GOUT/BOUT

■ CONTROL TERMINAL

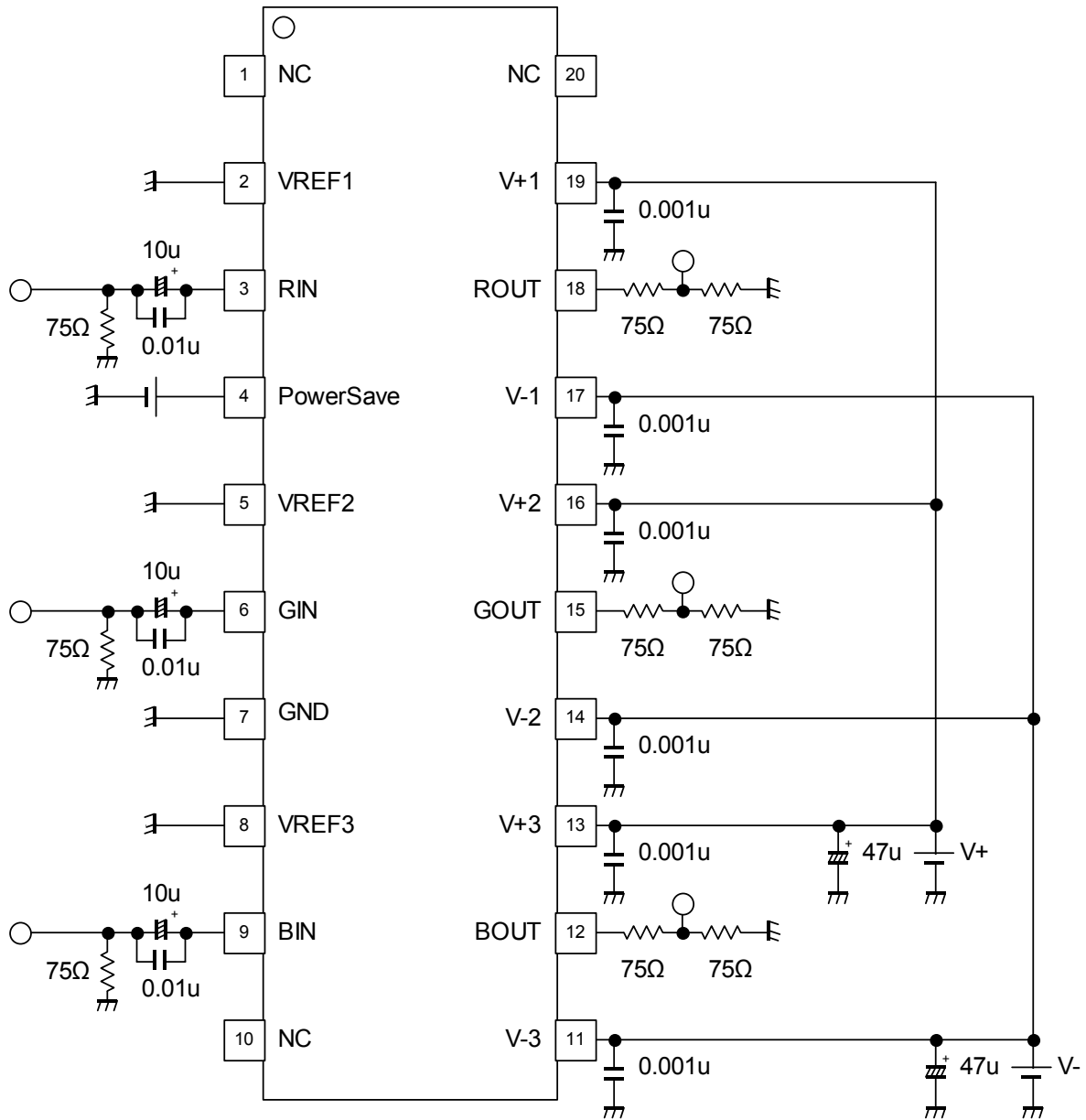
PARAMETER	STATUS	NOTE
Power Save	H	Power Save: OFF (Active)
	L	Power Save: ON (Mute)
	OPEN	Power Save: ON (Mute)

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■ TEST CIRCUIT(SINGLE SUPPLY)

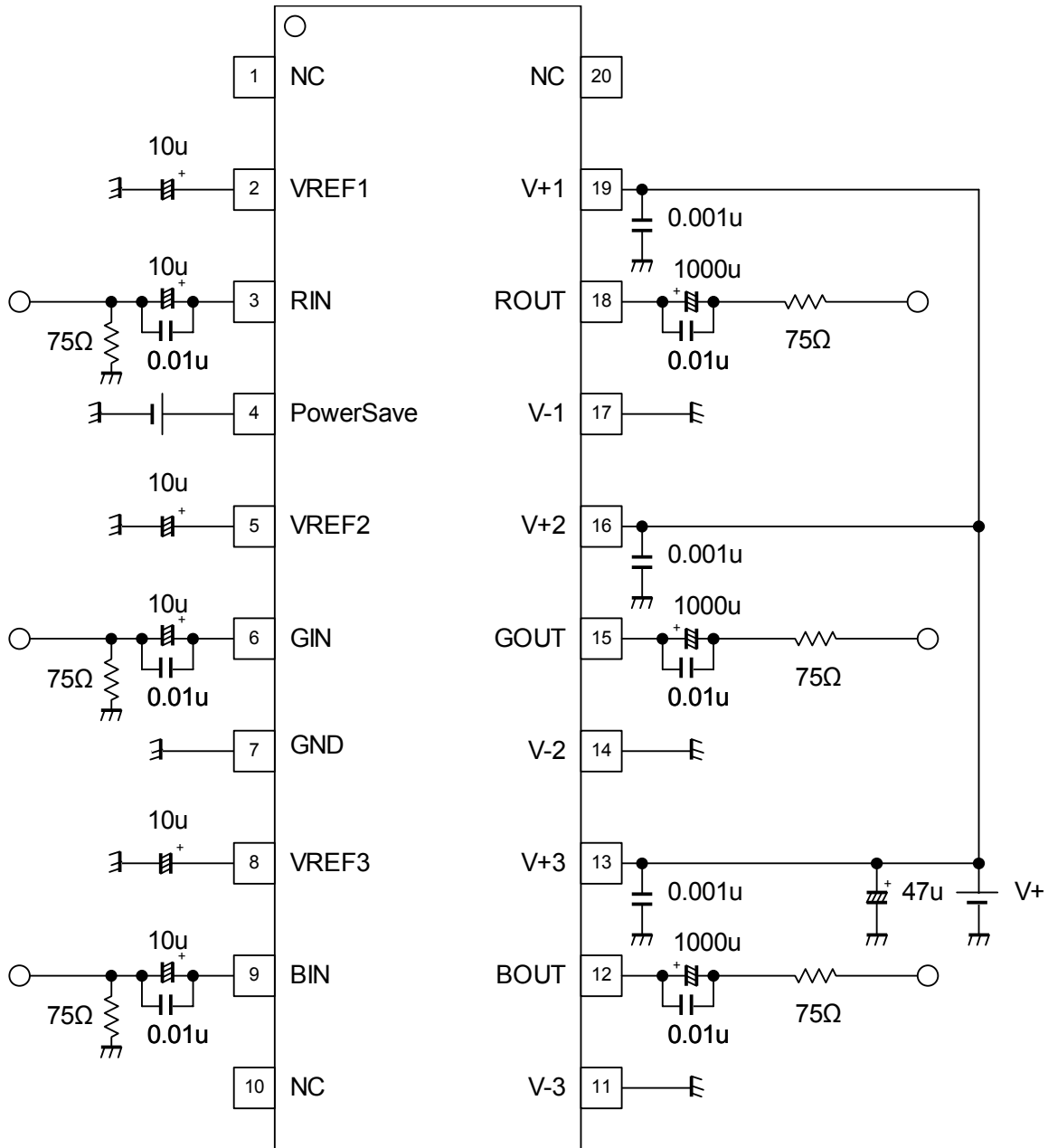


■ TEST CIRCUIT(DUAL SUPPLY)

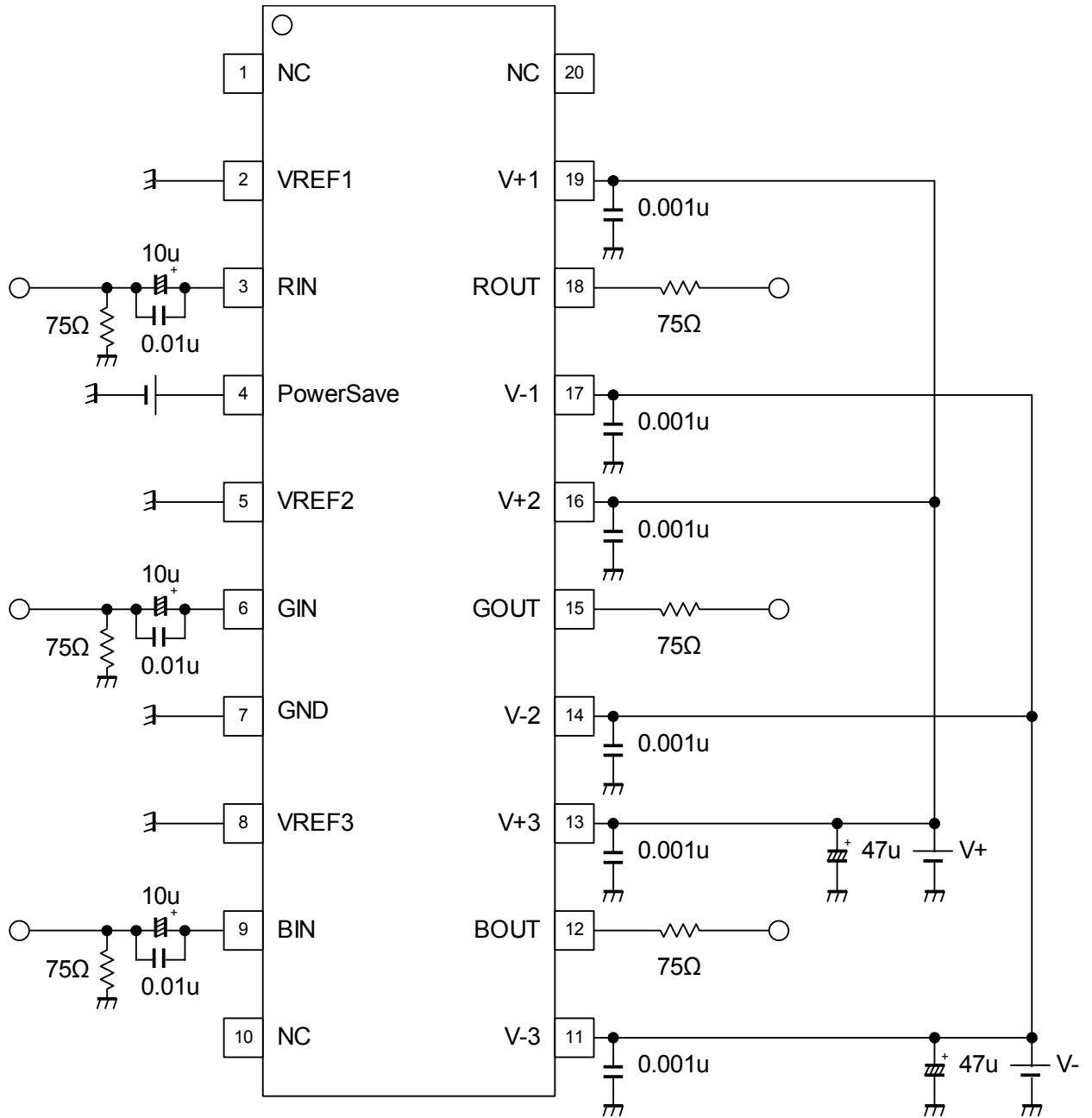


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APPLICATION CIRCUIT(SINGLE SUPPLY)



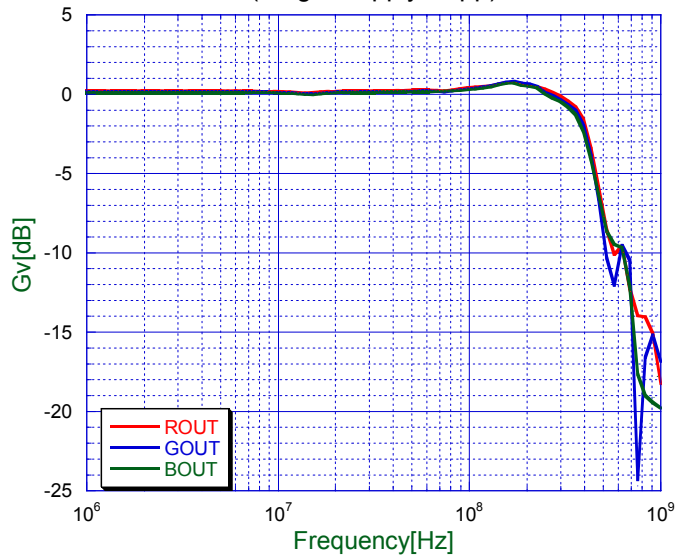
APPLICATION CIRCUIT(DUAL SUPPLY)



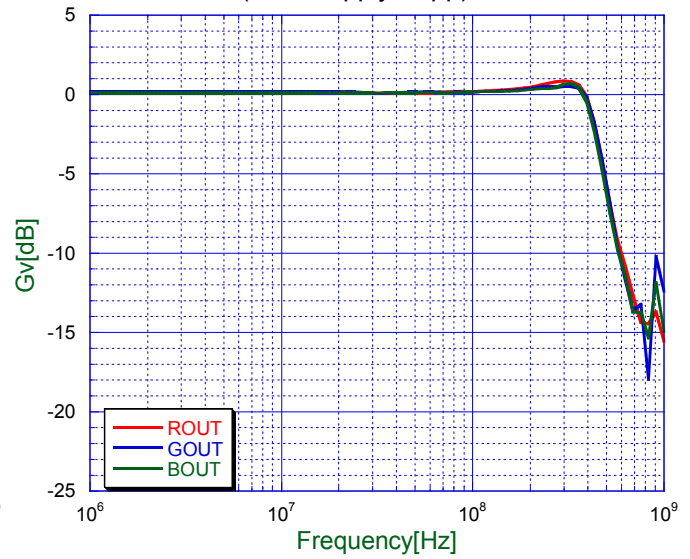
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■ TYPICAL CHARACTERISTICS

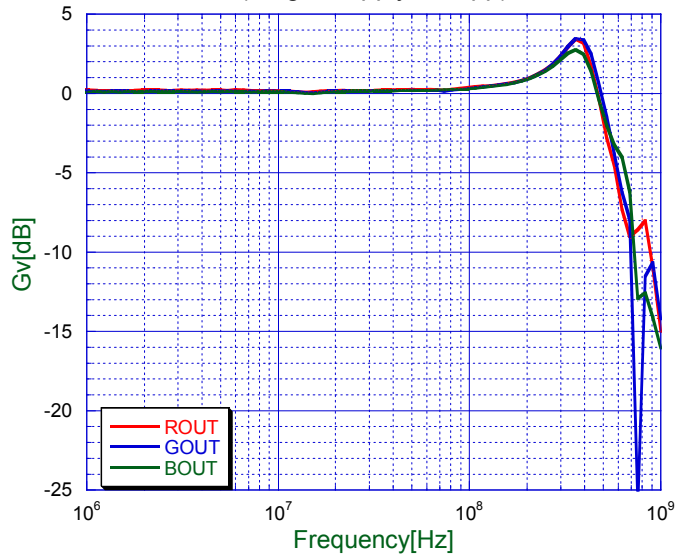
Voltage Gain vs. Frequency
(Single Supply 1Vpp)



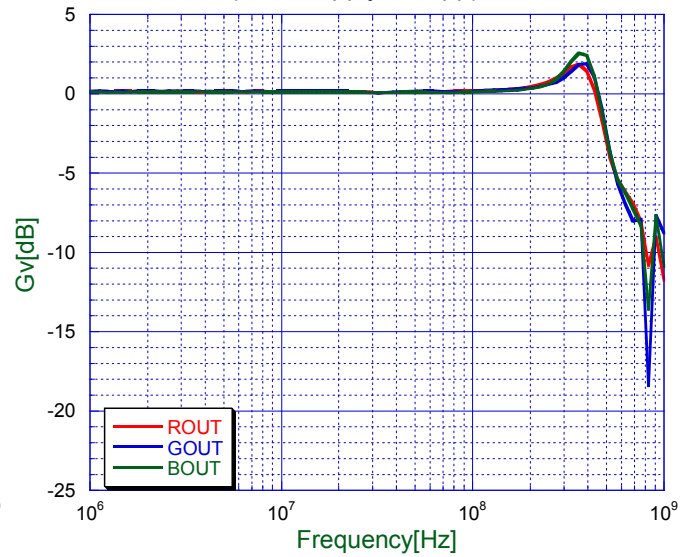
Voltage Gain vs. Frequency
(Dual Supply 1Vpp)



Voltage Gain vs. Frequency
(Single Supply 0.1Vpp)



Voltage Gain vs. Frequency
(Dual Supply 0.1Vpp)



[CAUTION]
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