

J-FET Input Operational Amplifier

IR9082/IR9082N/IR9084/IR9084N

T-79-15

IR9082/IR9082N/IR9084/IR9084N

J-FET Input Operational Amplifier

Description

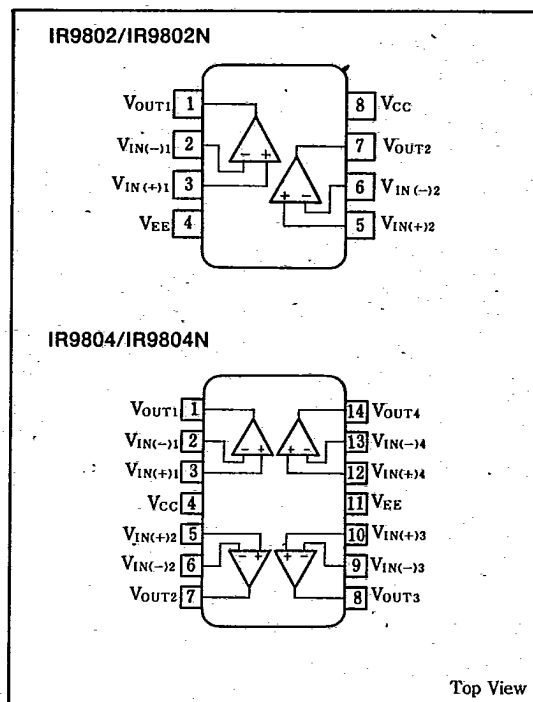
The IR9082/IR9082N/IR9084/IR9084N is an operational amplifier featured with a high slew rate, high input impedance, low input bias current and low input offset current, and its input differential amplifier is composed of J-FET pair transistors.

Thus, it can be used in a wide range of applications, such as general control equipment, medical equipment and audio equipment. Especially, it is most suitable for processing signals from a high impedance sensor.

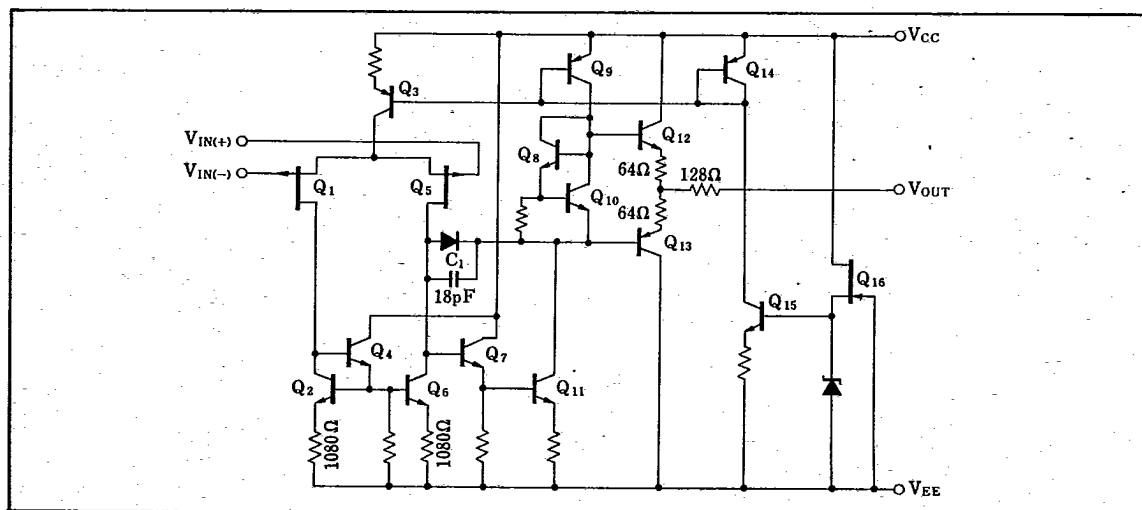
Features

1. Internal phase compensation type
2. Low input bias current 30pA (TYP.)
3. Low input offset current 5pA (TYP.)
4. High input impedance $10^{12}\Omega$ (TYP.)
5. High slew rate $13V/\mu s$ (TYP.)
6. Wide in-phase input voltage range
7. High voltage gain $200V/mV$ (TYP.)
8. 8-pin dual-in-line package (IR9082)
8-pin small outline package (IR9082N)
14-pin dual-in-line package (IR9084)
14-pin small outline package (IR9084N)

Pin Connections



Equivalent Circuit



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Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Condition	Rating	Unit
Supply voltage	V _{CC}		+18	V
	V _{EE}		-18	V
Differential input voltage	V _{ID}	*1	±30	V
Input voltage	V _{IN}	*1	±15	V
Power dissipation	P _D	Ta≤75°C	IR9082	450
			IR9082N	290
			IR9084	675
			IR9084N	360
Operating temperature	T _{opr}		-20~+75	°C
Storage temperature	T _{stg}		-55~+150	°C

*1 When supply voltage is within ±15V, it is equivalent to supply voltage.

Electrical Characteristics

(V_{CC} = +15V, V_{EE} = -15V)

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit
Input offset voltage	V _{IO}	Ta=25°C		3	10	mV
		Ta=Full range			15	
Input offset current	I _{IO}	Ta=25°C *2	R _S =50Ω		5	100
					5	
			IR9082			pA
			IR9082N			
			IR9084			200
			IR9084N			
		Ta=Full range *2	IR9082		3	nA
			IR9082N			5
			IR9084			
Input bias current	I _B	Ta=25°C	(Note 1)	30	400	pA
		Ta=Full range			10	nA
Input impedance	Z _{IN}	Ta=25°C		10 ¹²		Ω
Large amplitude voltage gain	A _V	Ta=25°C	R _L ≥2kΩ,	50	200	V/mV
		Ta=Full range	V _{OUT} =±10V	25		
Maximum output voltage	V _{OM}	Ta=25°C	R _L ≥10kΩ	24	27	V
		Ta=Full range		24		
In-Phase input voltage width	V _{ICM}	Ta=25°C		±11	±12	V
In-phase signal rejection ratio	CMR	Ta=25°C	R _S ≤10kΩ	70	76	dB
Supply voltage rejection ratio	SVR	Ta=25°C	R _S ≤10kΩ	70	76	dB
Supply current	I _{CC}	Ta=25°C	R _L =∞ No signal		3	6
					6	12
Slew rate	SR	Ta=25°C	R _L =2kΩ, C _L =100pF A _V =1, V _{IN} =10V	13		V/μs
Gain bandwidth product	f _T	Ta=25°C	A _V =1	3		MHz
Input conversion noise voltage	V _{NI}	Ta=25°C	R _S =100Ω, f=1kHz	15		nV/√Hz
Recommended operating voltage	V _{CC} , V _{EE}			±5	±15	V

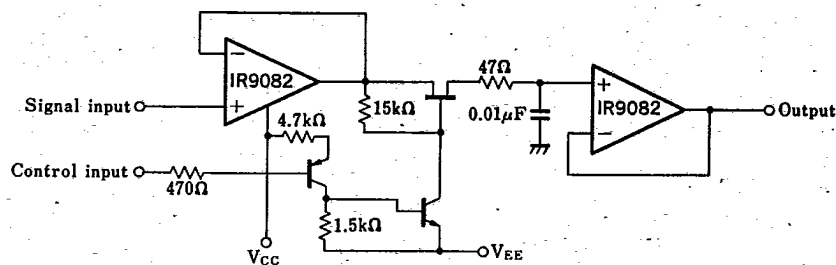
*2 This is J-FET gate leakage current. It is necessary to maintain the connection part temperature to normal at measurement.

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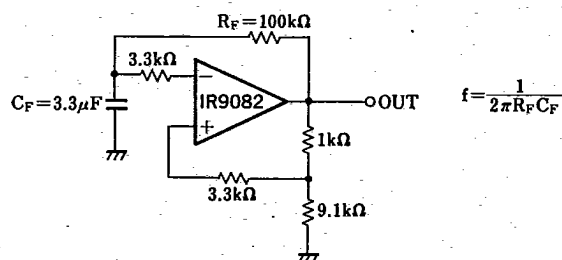
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■ Application Circuit Examples

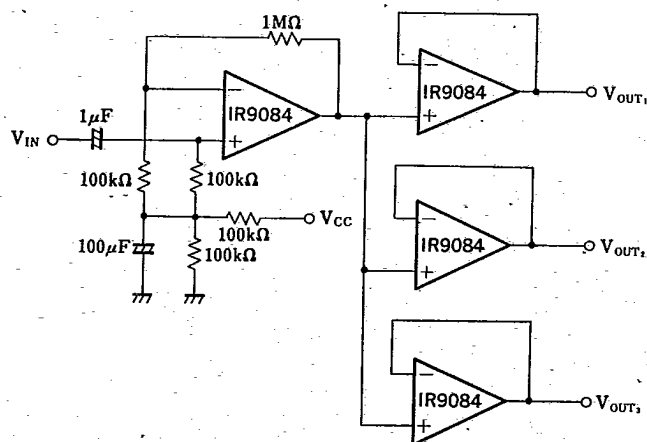
(1) Sample hold circuit



(2) Short-ripple oscillation circuit (0.5Hz)



(3) Audio distribution amplifier



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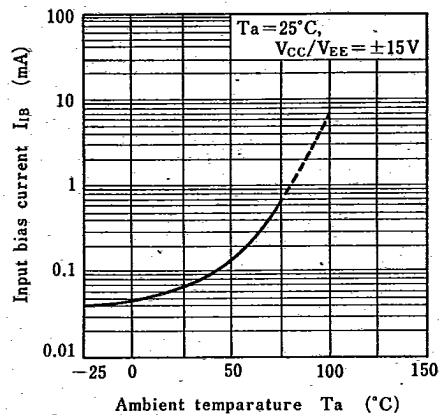
J-EET Input Operational Amplifier

IR9082/IR9082N/IR9084/IR9084N

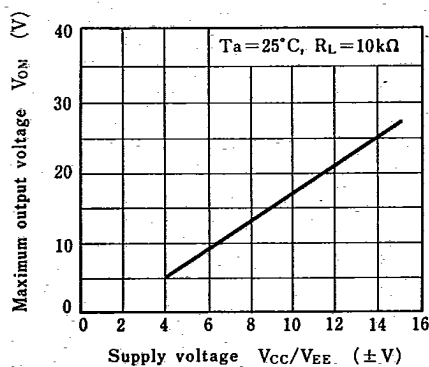
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Electrical Characteristic Curves

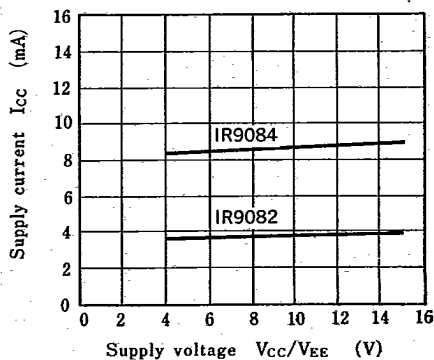
Input bias current—Temperature Characteristics



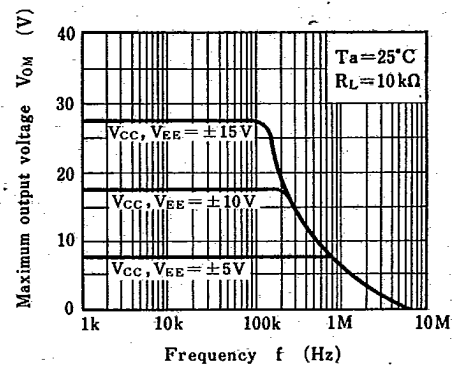
Maximum output voltage—Supply voltage Characteristics



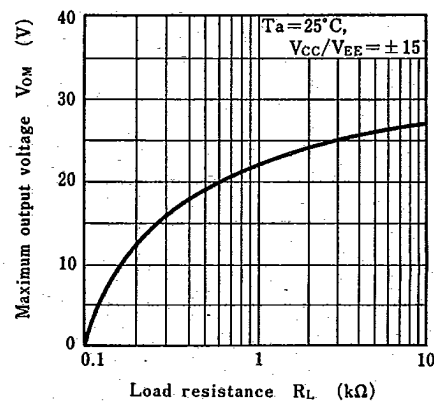
Supply current—Supply voltage Characteristics



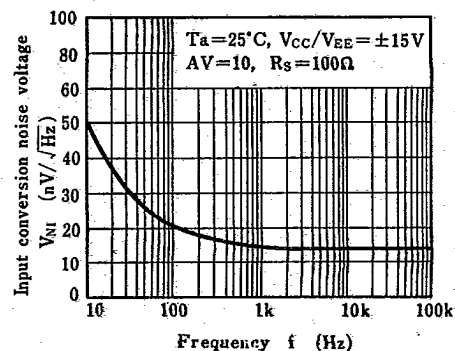
Maximum output voltage—Frequency Characteristics



Maximum output voltage—Load resistance Characteristics



Input conversion noise voltage—Frequency Characteristics



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