

## 02\_ICデータシート

### ■ NJM072B/082B 電気的特性 (V<sub>+</sub>/V<sub>-</sub>=±15V, T<sub>a</sub>=25°C)

項目	記号	条件	最小	標準	最大	単位
入力オフセット電圧	V <sub>IO</sub>	R <sub>S</sub> =50Ω	-	3 (5)	10 (15)	mV
入力オフセット電流	I <sub>IO</sub>		-	5	50 (200)	pA
入力バイアス電流	I <sub>B</sub>		-	30	200 (400)	pA
入力力抵抗	R <sub>IN</sub>		-	10 <sup>12</sup>	-	Ω
電圧利得	A <sub>V</sub>	R <sub>L</sub> =2kΩ, V <sub>O</sub> =±10V	88	106	-	dB
最大出力電圧振幅	V <sub>OPP</sub>	R <sub>L</sub> =10kΩ	24	27	-	V <sub>P-P</sub>
同相入力電圧範囲	V <sub>IDM</sub>		±10	-	-	V
同相信号除去比	CMR	R <sub>S</sub> ≤10kΩ	70	76	-	dB
電源電圧除去比	SVR	R <sub>S</sub> ≤10kΩ	70	76	-	dB
消費電流	I <sub>CC</sub>		-	3	5 (5, 6)	mA
スルーレート	SR		-	13	-	V/μs
ユニティゲイン周波数	f <sub>T</sub>		-	3	-	MHz
入力換算雑音電圧	V <sub>N</sub>	R <sub>S</sub> =100Ω, BW=10~10kHz	-	4	-	μV <sub>rms</sub>

### ■ NJM072/082 電気的特性 (V<sub>+</sub>/V<sub>-</sub>=±15V, T<sub>a</sub>=25°C)

項目	記号	条件	最小	標準	最大	単位
入力オフセット電圧	V <sub>IO</sub>	R <sub>S</sub> =50Ω	-	3 (5)	10 (15)	mV
入力オフセット電流	I <sub>IO</sub>		-	5	50 (200)	pA
入力バイアス電流	I <sub>B</sub>		-	30	200 (400)	pA
入力力抵抗	R <sub>IN</sub>		-	10 <sup>12</sup>	-	Ω
電圧利得	A <sub>V</sub>	R <sub>L</sub> =2kΩ, V <sub>O</sub> =±10V	88	106	-	dB
最大出力電圧振幅	V <sub>OPP</sub>	R <sub>L</sub> =10kΩ	24	27	-	V <sub>P-P</sub>
同相入力電圧範囲	V <sub>IDM</sub>		±10	-	-	V
同相信号除去比	CMR	R <sub>S</sub> ≤10kΩ	70	76	-	dB
電源電圧除去比	SVR	R <sub>S</sub> ≤10kΩ	70	76	-	dB
消費電流	I <sub>CC</sub>		-	3	5 (5, 6)	mA
スルーレート	SR		-	20	-	V/μs
ユニティゲイン周波数	f <sub>T</sub>		-	5	-	MHz
入力換算雑音電圧	V <sub>N</sub>	R <sub>S</sub> =100Ω, BW=10~10kHz	-	4	-	μV <sub>rms</sub>

OPA134, OPA2134, OPA4134

www.ti.com

SBO5058A - DECEMBER 1997 - REVISED OCTOBER 2015

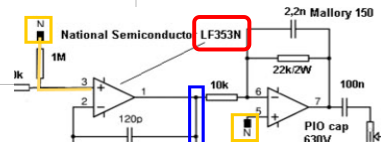
### 6.4 Electrical Characteristics

At T<sub>A</sub> = +25°C, V<sub>S</sub> = ±15 V, unless otherwise noted

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>AUDIO PERFORMANCE</b>					
Total Harmonic Distortion + Noise	G = 1, f = 1 kHz, V <sub>O</sub> = 3 V <sub>rms</sub>	R <sub>L</sub> = 2 kΩ	0.00008%		
		R <sub>L</sub> = 600 Ω	0.00015%		
Intermodulation Distortion	G = 1, f = 1 kHz, V <sub>O</sub> = 1 V <sub>p-p</sub>		-98		dB
Headroom <sup>(1)</sup>	THD < 0.01%, R <sub>L</sub> = 2 kΩ, V <sub>S</sub> = 18 V		23.6		dBu
<b>FREQUENCY RESPONSE</b>					
Gain-Bandwidth Product			8		MHz
Slew Rate <sup>(2)</sup>			±15	±20	V/μs
Full Power Bandwidth			1.3		MHz
Settling Time 0.1%	G = 1, 10-V Step, C <sub>L</sub> = 100 pF		0.7		μs
Settling Time 0.01%	G = 1, 10-V Step, C <sub>L</sub> = 100 pF		1		μs
Overload Recovery Time	(V <sub>IN</sub> ) × (Gain) = V <sub>S</sub>		0.5		μs

Gainster.....IC

.....SlewRate.....over13V/μs



### ■ ELECTRICAL CHARACTERISTICS NJM4558/4559

(V<sub>+</sub>/V<sub>-</sub>=±15V, T<sub>a</sub>=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> ≤10kΩ	-	0.5	6	mV
Input Offset Current	I <sub>IO</sub>		-	5	200	nA
Input Bias Current	I <sub>B</sub>		-	25	500	nA
Input Resistance	R <sub>IN</sub>		0.3	5	-	MΩ
Large Signal Voltage Gain	A <sub>V</sub>	R <sub>L</sub> ≥2kΩ, V <sub>O</sub> =±10V	86	100	-	dB
Maximum Output Voltage Swing 1	V <sub>OM1</sub>	R <sub>L</sub> ≥10kΩ	±12	±14	-	V
Maximum Output Voltage Swing 2	V <sub>OM2</sub>	R <sub>L</sub> ≥2kΩ	±10	±13	-	V
Input Common Mode Voltage Range	V <sub>ICM</sub>		±12	14	-	V
Common Mode Rejection Ratio	CMR	R <sub>S</sub> ≤10kΩ	70	90	-	dB
Supply Voltage Rejection Ratio	SVR	R <sub>S</sub> ≤10kΩ	76.5	90	-	dB
Operating Current	I <sub>CC</sub>		-	3.5	5.7	mA
Slew Rate	SR		-	1	-	V/μs
	NJM4558		-	1	-	V/μs
	NJM4559		-	2	-	V/μs
Equivalent Input Noise Voltage (note2)	V <sub>N</sub>	RIA, R <sub>S</sub> =2.2kΩ, 30kHz LPF	-	1.4	-	μV <sub>rms</sub>
Gain Bandwidth Product	GB		-	3	-	MHz
	NJM4558		-	3	-	MHz
	NJM4559		-	6	-	MHz

LF353

GainsterオリジナルのIC



AC 電気的特性 (Note 5) 広帯域 JFET 入力デュアル・オペアンプ

Symbol	Parameter	Conditions	LF353			Units
			Min	Typ	Max	
	Amplifier to Amplifier Coupling	T <sub>A</sub> =25°C, f=1 Hz-20 kHz (Input Referred)		-120		dB
SR	Slew Rate	V <sub>S</sub> =±15V, T <sub>A</sub> =25°C	8.0	13		V/μs
GBW	Gain Bandwidth Product	V <sub>S</sub> =±15V, T <sub>A</sub> =25°C	2.7	4		MHz
e <sub>n</sub>	Equivalent Input Noise Voltage	T <sub>A</sub> =25°C, R <sub>S</sub> =100Ω, f=1000 Hz		16		nV/√Hz
i <sub>n</sub>	Equivalent Input Noise Current	T <sub>A</sub> =25°C, f=1000 Hz		0.01		pA/√Hz

### 7.6 Operating Characteristics

V<sub>CCs</sub> = ±15 V, T<sub>A</sub> = 25°C (unless otherwise noted)

NE5532, NE5532A, SA5532, SA5532A

PARAMETER	TEST CONDITIONS	NE5532, SA5532			NE5532A, SA5532A			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
SR	Slew rate at unity gain		9			9		V/μs
	Overshoot factor	V <sub>I</sub> = 100 mV, R <sub>L</sub> = 600 Ω, A <sub>VO</sub> = 1, C <sub>L</sub> = 100 pF	10		10			%
V <sub>n</sub>	Equivalent input noise voltage	f = 30 Hz	8		8	10		nV/√Hz
		f = 1 kHz	5		5	6		
i <sub>n</sub>	Equivalent input noise current	f = 30 Hz	2.7		2.7			pA/√Hz
		f = 1 kHz	0.7		0.7			

Dual Bipolar/JFET, Audio Operational Amplifier

OP275\*

DYNAMIC PERFORMANCE						UNIT
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Slew Rate	SR	R <sub>L</sub> = 2 kΩ	15	22		V/μs
Full-Power Bandwidth	BW <sub>P</sub>					kHz
Gain Bandwidth Product	GBP				9	MHz
Phase Margin	φ <sub>m</sub>				62	Degrees
Overshoot Factor		V <sub>IN</sub> = 100 mV, A <sub>V</sub> = +1, R <sub>L</sub> = 600 Ω, C <sub>L</sub> = 100 pF	10			%