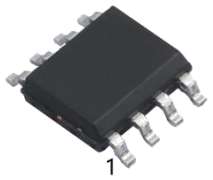
Dual General-Purpose Operational Amplifier

Features

- Internal Frequency Compensation
- Continuous Short-Circuit Protection
- Wide Common-Mode Voltage Ranges
- Wide Differential Voltage Ranges
- High DC voltage gain (about 100 dB)
- Unit gain bandwidth (about 3.5 MHz)
- Low Input Bias
- Low Input Offset Voltage and Current



SOP-8

Ordering Information

DEVICE	Package Type	MARKING	Packing	Packing Qty
NJM4558LDRG	SOP-8	4558L	REEL	2500pcs/reel
NJM4558LDRG4	SOP-8	4558L	REEL	4000pcs/reel

Description

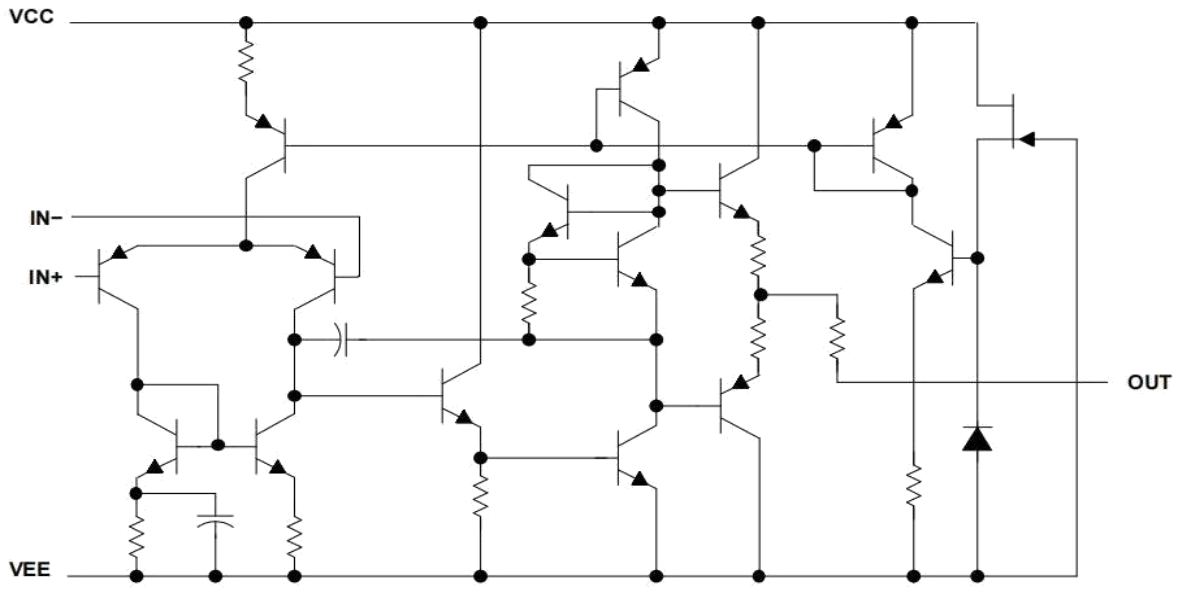
The NJM4558L device is a dual general-purpose operational amplifier.

The high common-mode input voltage range and the absence of latch-up make this amplifier ideal for voltage-follower applications. The device is short-circuit protected, and the internal frequency compensation ensures stability without external components.

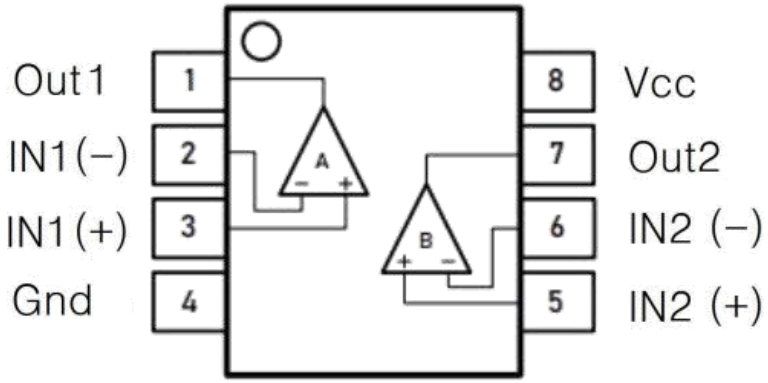
Applications

- Active filter
- Compensation amplifier
- Audio preamplifier
- Electronic instrumentation

Schematic(Eachamplifier)



Pin Configuration



SOP-8

Absolute Maximum Ratings

Over operating free-air temperature range (unless otherwise noted) (1)

PARAMETER	MIN	MAX	UNIT
Total Supply Voltage		±22	V
Differential Input Voltage		±20	V
Maximum Junction Temperature	-40	+150	℃
Operating Temperature Range	-20	+85	℃
Storage Temperature Range	-65	+150	℃
Lead Temperature (Soldering, 10 seconds)	-	+260	℃

Note: Stress greater than those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions outside those indicated in the operational sections of this specification are not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Recommended Operating Conditions

PARAMETER		MIN	NOM	MAX	UNIT
Supply Voltage, Vs=(V+) - (V-)	Signal-supply	5		36	V
	Dual-supply	±2.5		±18	V
Operating Temperature Range		-20		+85	℃

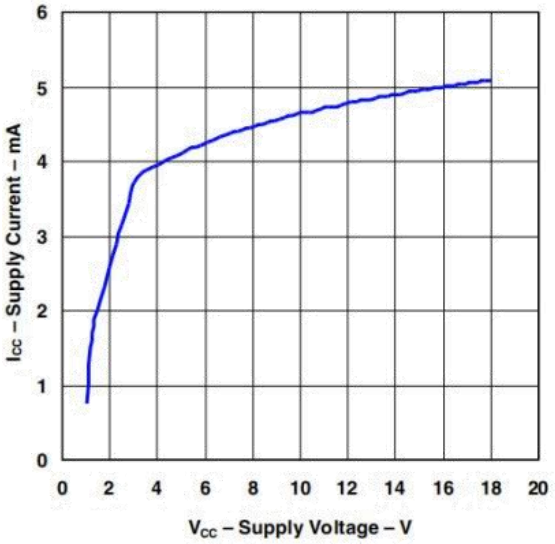
Electrical Characteristics

(VCC = +15 V, VEE = −15 V, TA = 25°C, unless otherwise noted)

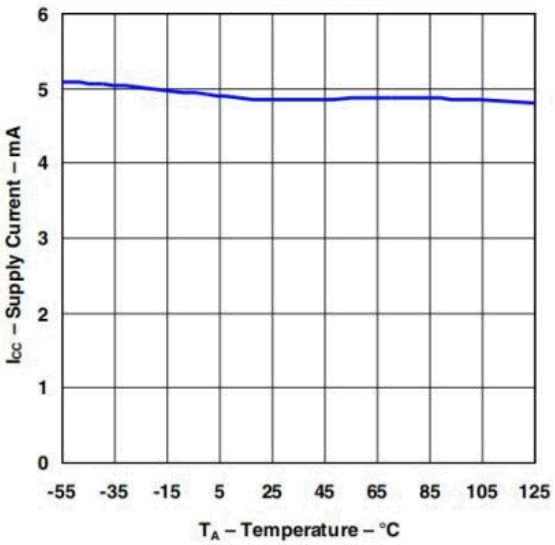
PARAMETER	SYMBOL	CONDITIONS	NJM4558L			
			MIN	TYP	MAX	UNIT
Power supply current	I_{CC}	RL=∞	-	3	5.5	mA
Input offset voltage	V_{IO}	RS<10kΩ	-	±2	±5	mV
Input offset current	I_{IO}	Vcm=0V	-	±30	±200	nA
Input bias current	I_{BIAS}	Vcm=0V	-	±50	±250	nA
Input Common Mode Voltage	V_{ICM}		-	12	13	V
Output Voltage Swing	V_{OM}	R_L=10k	12	14	-	V
		R_L=2k	10	13	-	V
Output short-circuit current	I_{SC}	VO = 0V	±40	±60	±80	mA
Large Signal Voltage Gain	Gv	Vo (p-p) =±10V,RL<2kΩ	80	100	-	dB
Common Mode Rejection Ratio	CMRR	RS<10kΩ	70	90	-	dB
Power supply Rejection Ratio	PSRR	RS<10kΩ	65	90	-	dB
Gain-Bandwidth Product	GBWP		-	3.5	-	MHz
Slew Rate	SR		-	1.7	-	V/us

Typical Characteristics

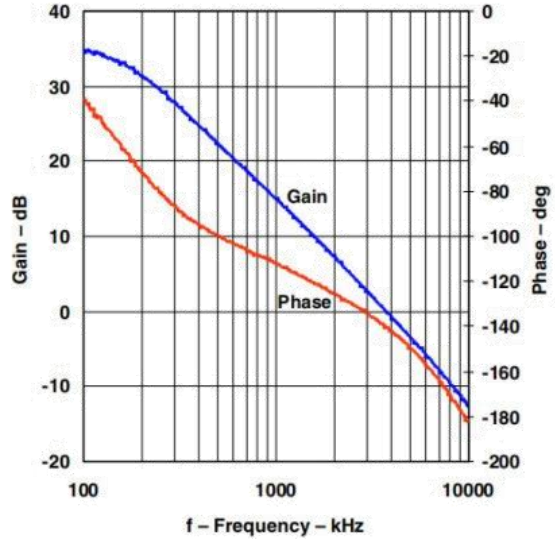
SUPPLY CURRENT
vs
SUPPLY VOLTAGE
(T_A = 25°C)



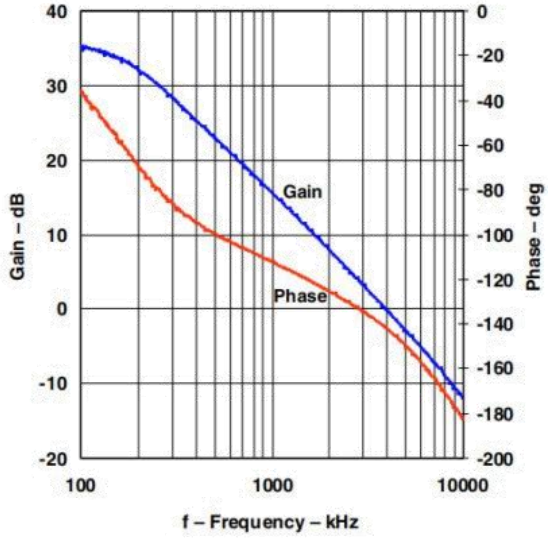
SUPPLY CURRENT
vs
TEMPERATURE
(V_{CC} = ±15 V)



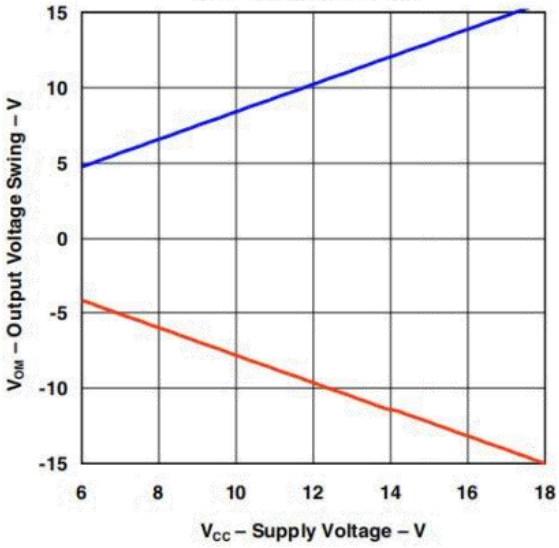
GAIN AND PHASE
vs
FREQUENCY
(V_{CC} = ±15 V, R_L = 2 kΩ, C_L = 22 pF)



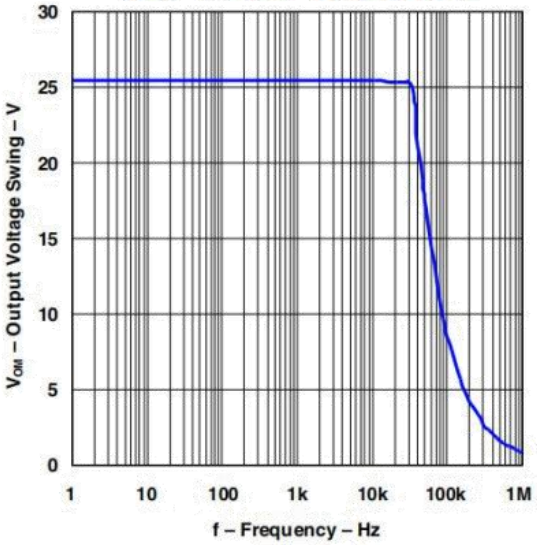
GAIN AND PHASE
vs
FREQUENCY
(V_{CC} = ±15 V, R_L = 10 kΩ, C_L = 22 pF)



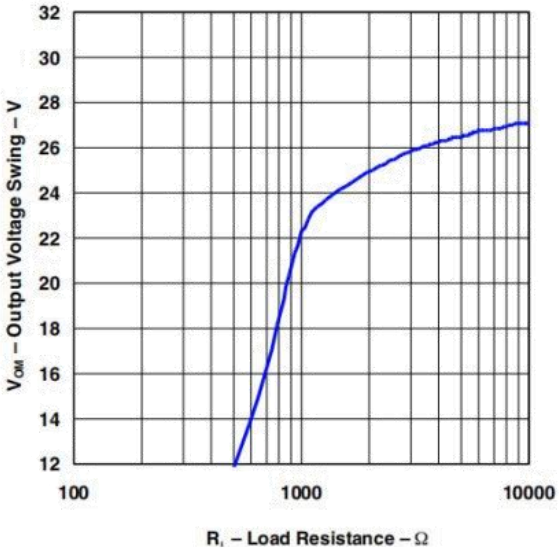
OUTPUT VOLTAGE SWING
vs
SUPPLY VOLTAGE
(R_L = 2 kΩ, T_A = 25°C)



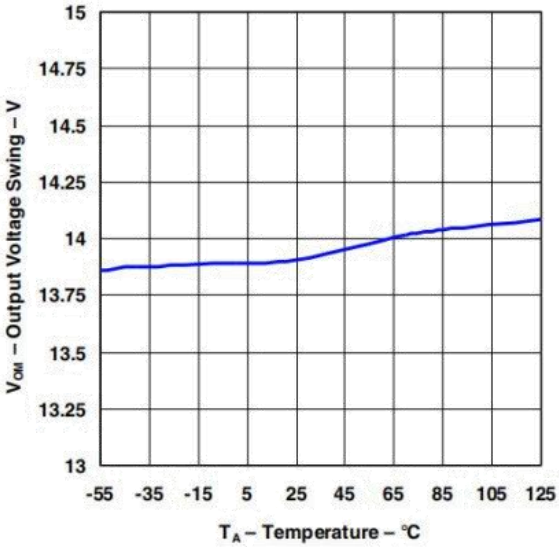
OUTPUT VOLTAGE SWING
vs
FREQUENCY
(V_{CC} = ±15 V, R_L = 2 kΩ, T_A = 25°C)



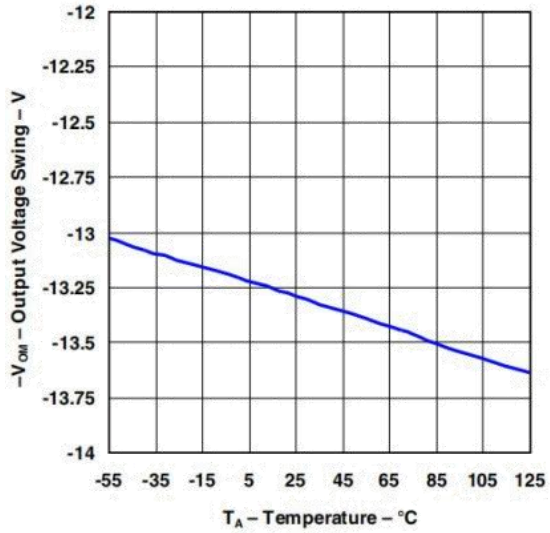
OUTPUT VOLTAGE SWING
vs
LOAD RESISTANCE
(V_{CC} = ±15 V, T_A = 25°C)



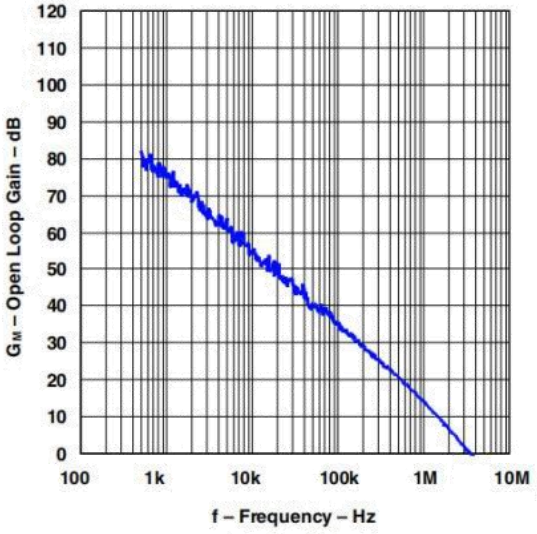
OUTPUT VOLTAGE SWING
vs
TEMPERATURE
(V_{CC} = ±15 V, R_L = 10 kΩ)



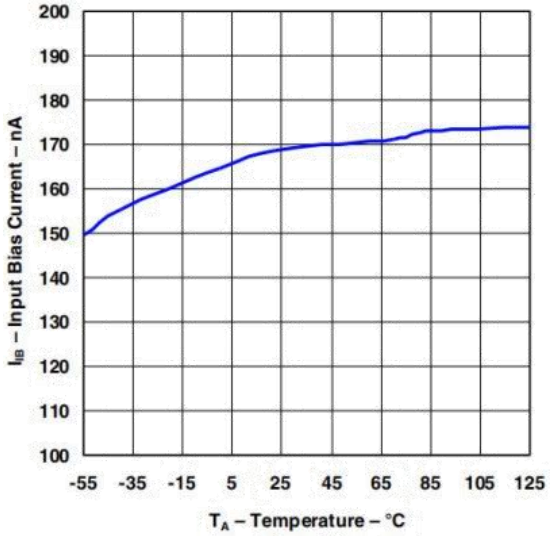
NEGATIVE OUTPUT VOLTAGE SWING
vs
TEMPERATURE
(V_{CC} = ±15 V, R_L = 10 kΩ)



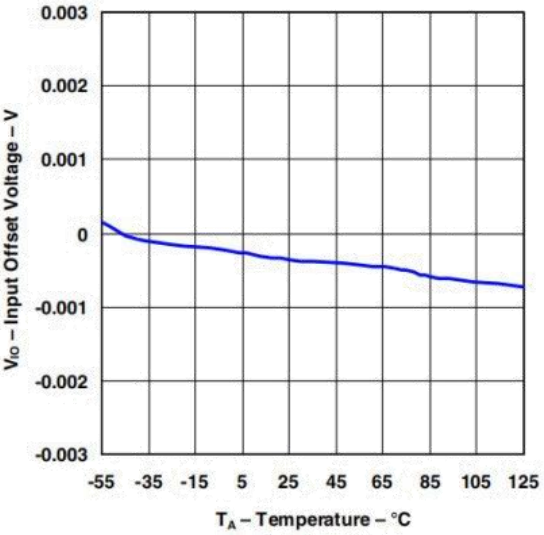
OPEN LOOP GAIN
vs
FREQUENCY
(V_{CC} = ±15 V, R_L = 2 kΩ, C_L = 22 pF, T_A = 25°C)



INPUT BIAS CURRENT
vs
TEMPERATURE
(V_{CC} = ±15 V)

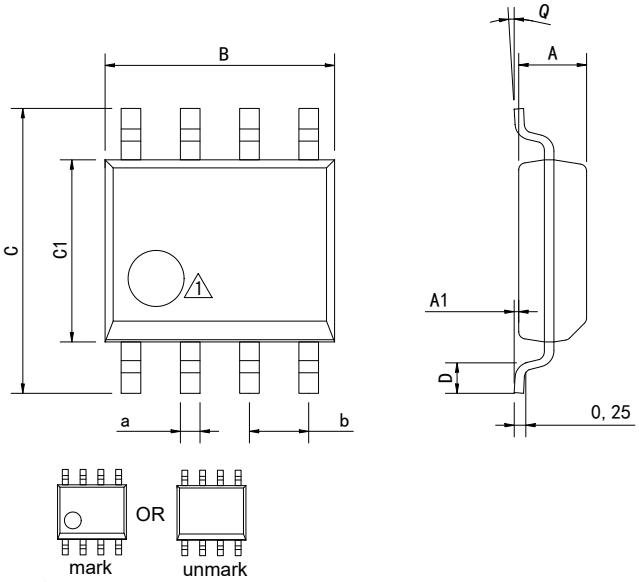


INPUT OFFSET VOLTAGE
vs
TEMPERATURE
(V_{CC} = ±15 V)



Physical Dimensions

SOP-8



Dimensions In Millimeters(SOP-8)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

C

Revision History

REVISION NUMBER	DATE	REVISION	PAGE
V1.0	2019-4	New	1-10
V1.1	2025-8	Document Reformatting	1-10

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