DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM14558 is a dual operational amplifier, which can operate from ±2V supply. The features are low offset voltage, low bias current and low current consumption.

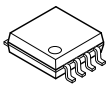
The package lineup is DIP, DMP and others, so that the NJM14558 is suitable for portable audio and any kind of signal amplifier.

■ FEATURES

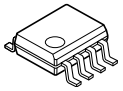
- Operating Voltage ±2.0V~±7.0V
- Input Offset Voltage 3mV max.
- Slew Rate 2.5V/μs typ.
- Bipolar Technology
- Package Outline DIP8, DMP8, SOP8 JEDEC 150mil
  SSOP8,SIP8,
  MSOP8 (VSP8)MEET JEDEC MO-187-DA

■ PACKAGE OUTLINE

NJM14558D
(DIP8)



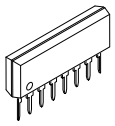
NJM14558M
(DMP8)



NJM14558E
(SOP8)

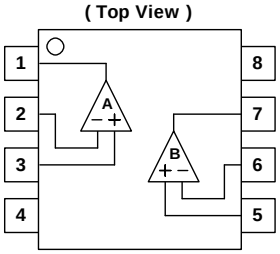
NJM14558V
(SSOP8)

NJM14558R
(MSOP8(VSP8))

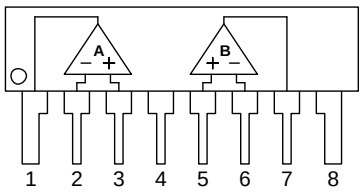


NJM14558L
(SIP8)

■ PIN CONFIGURATION



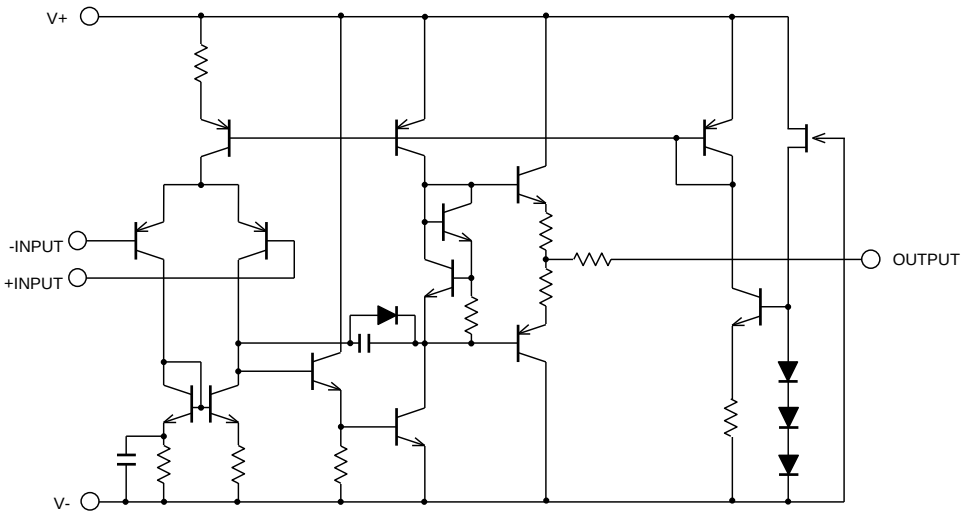
NJM14558D/14558M/14558E
NJM14558V/14558R



NJM14558L

PIN FUNCTION
1.A OUTPUT
2.A –INPUT
3.A +INPUT
4.V^-
5.B +INPUT
6.B –INPUT
7.B OUTPUT
8. V^+

■ EQUIVALENT CIRCUIT (1/2 Shown)



■ABSOLUTE MAXIMUM RATINGS (Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	± 7.5	V
Differential Input Voltage	V_{ID}	± 14	V
Input Voltage	V_{IC}	± 7 (note)	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300 (SOP8) 300 (SSOP8) 250 (MSOP8(VSP8)) 320 (SIP8) 800	mW
Operating Temperature Range	T_{opr}	-40~+85	˚C
Storage Temperature Range	T_{stg}	-40~+125	˚C

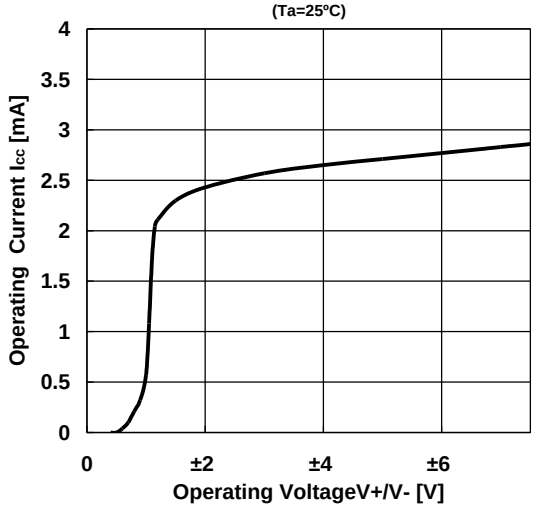
(note) For supply voltage less than ±7V,the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS(V^+/V^-=±5V,Ta=25˚C)

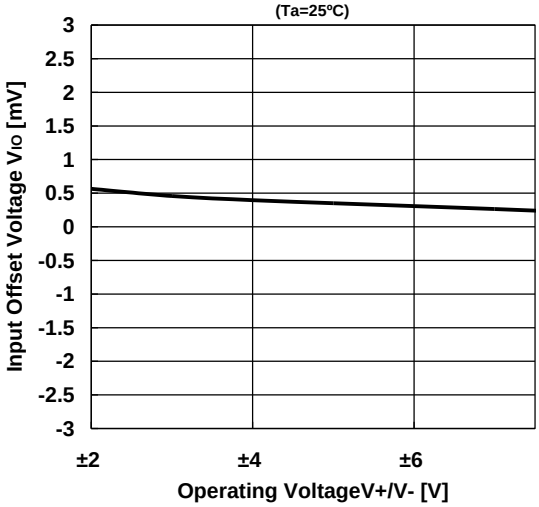
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_{opr}		± 2	-	± 7	V
Input Offset Voltage	V_{IO}	R_S≦10kΩ	-	0.5	3	mV
Input Offset Current	I_{IO}		-	5	50	nA
Input Bias Current	I_B		-	70	250	nA
Input Resistance	R_{IN}		0.3	5	-	MΩ
Large Signal Voltage Gain	A_V	R_L≧2kΩ,V_O=±2.5V	86	100	-	dB
Maximum Output Voltage Swing (+)	V_{OM}^+	R_L≧2kΩ	3.5	4.0	-	V
Maximum Output Voltage Swing (-)	V_{OM}^-	R_L≧2kΩ	-	-3.5	-3.0	V
Input Common Mode Voltage Range	V_{ICM}		± 3.0	± 4.0	-	V
Common Mode Rejection Ratio	CMR	R_S≦10kΩ	70	90	-	dB
Supply Voltage Rejection Ratio	SVR	R_S≦10kΩ	76.5	90	-	dB
Operating Current	I_{CC}		-	2.7	4.5	mA
Slew Rate	SR		-	2.5	-	V/μs
Equivalent Input Noise Voltage	V_{NI}	RIAA,R_S=2.2kΩ,30kHz:LPF	-	1.4	-	μVrms
Gain Bandwidth Product	GB		-	5	-	MHz

■ TYPICAL CHARACTERISTICS

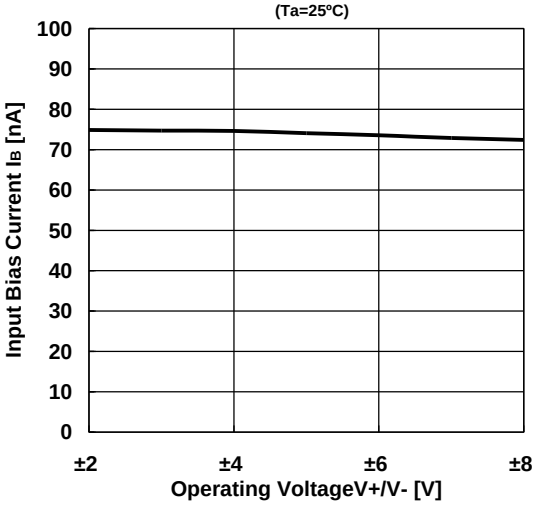
Operating Current vs. Operating Voltage
(Ta=25ºC)



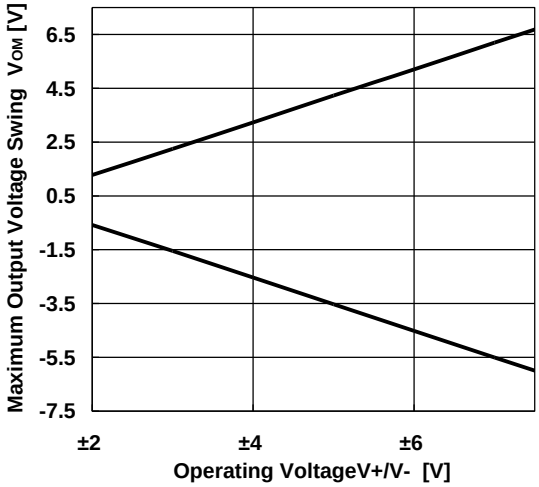
Input Offset Voltage vs. Operating Voltage
(Ta=25ºC)



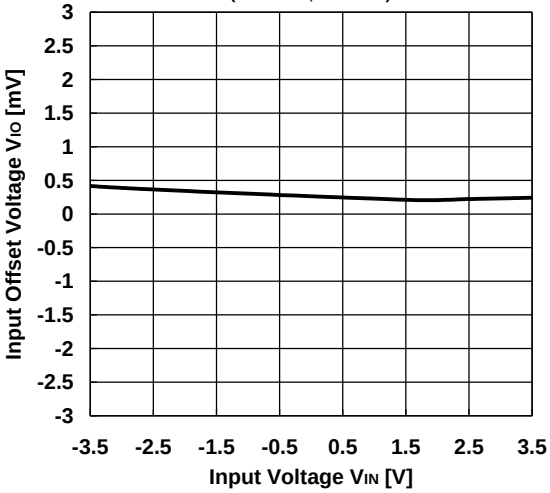
Input Bias Current vs. Operating Voltage
(Ta=25ºC)



Maximum Output Voltage Swing vs. Operating Voltage
(Ta=25ºC)



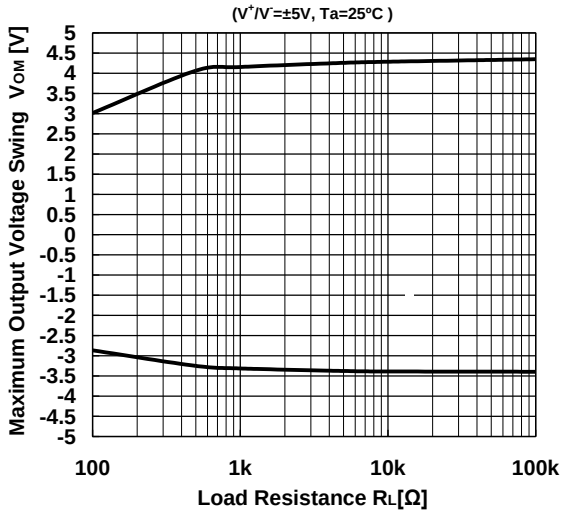
Input Common Mode Voltage Range
(V^+/V^-=±5V, Ta=25ºC)



■ TYPICAL CHARACTERISTICS

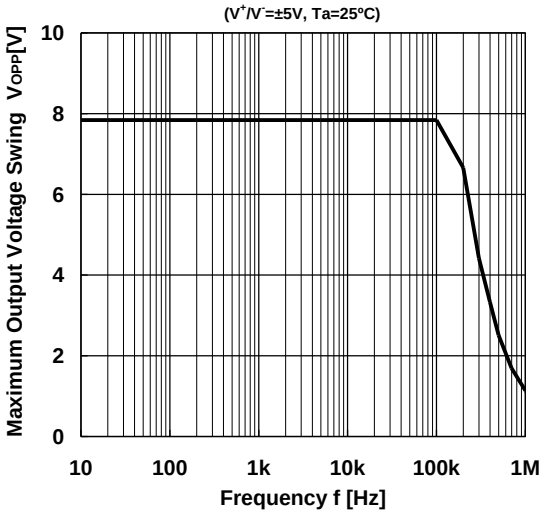
Maximum Output Voltage Swing vs. Load Resistance

(V^+/V^-=±5V, Ta=25ºC)



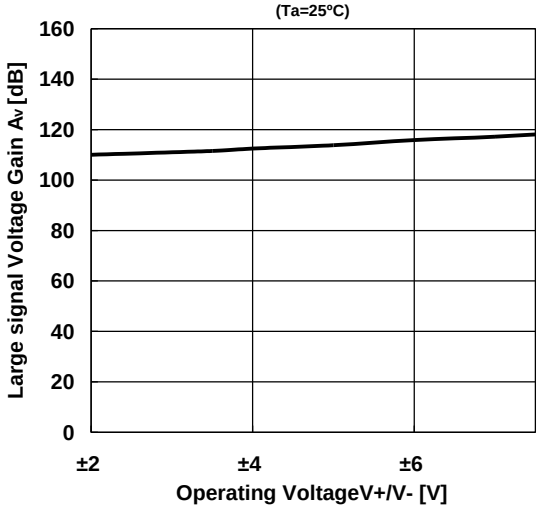
Maximum Output Voltage Swing vs.Frequency

(V^+/V^-=±5V, Ta=25ºC)

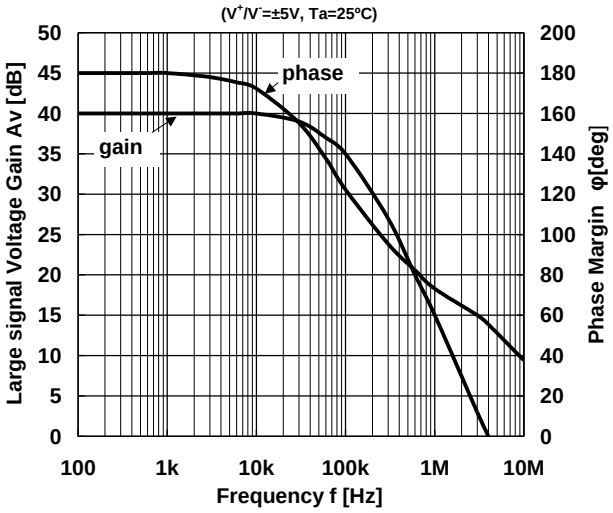


■ TYPICAL CHARACTERISTICS

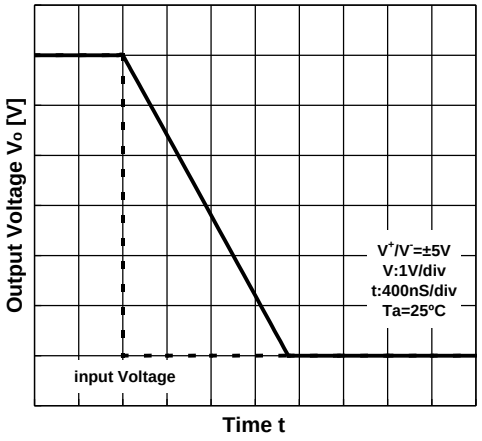
Large signal Voltage Gain vs. Operating Voltage
(Ta=25ºC)



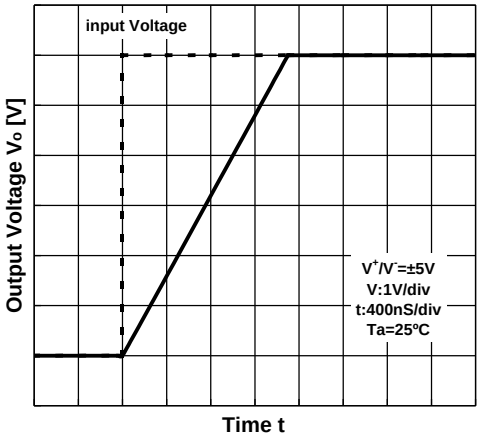
Large signal Voltage Gain vs. Frequency
(V^+/V^-=±5V, Ta=25ºC)



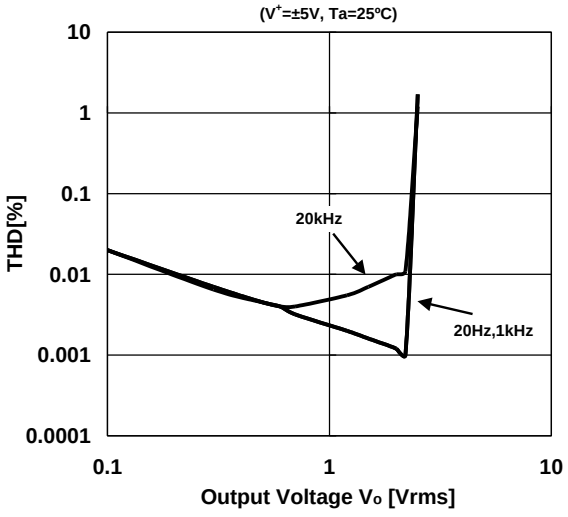
Slew Rate(Fall)



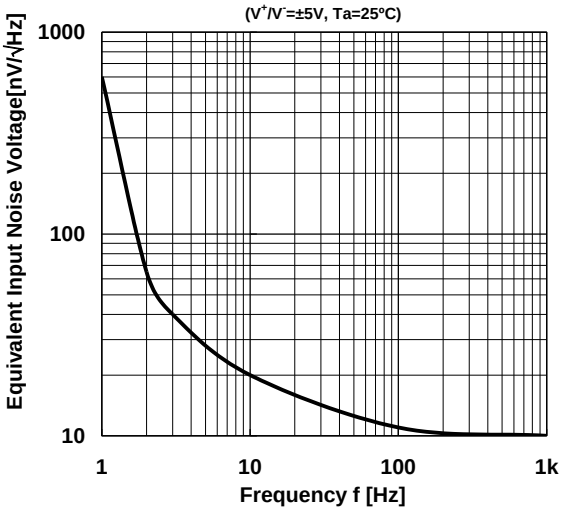
Slew Rate(Rise)



THD vs. Output Voltage
(V^+=±5V, Ta=25ºC)

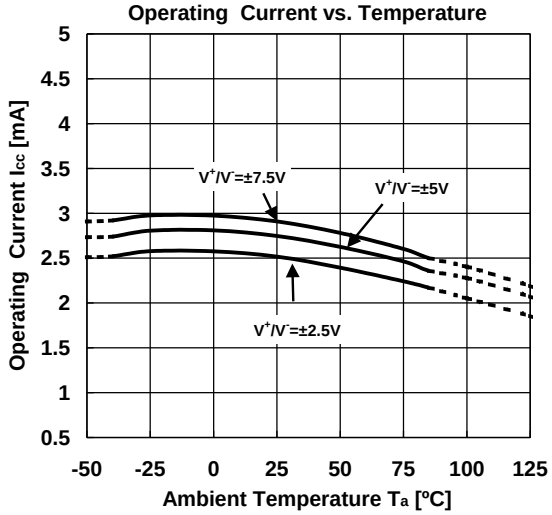


Equivalent Input Noise Voltage vs. Frequency
(V^+/V^-=±5V, Ta=25ºC)

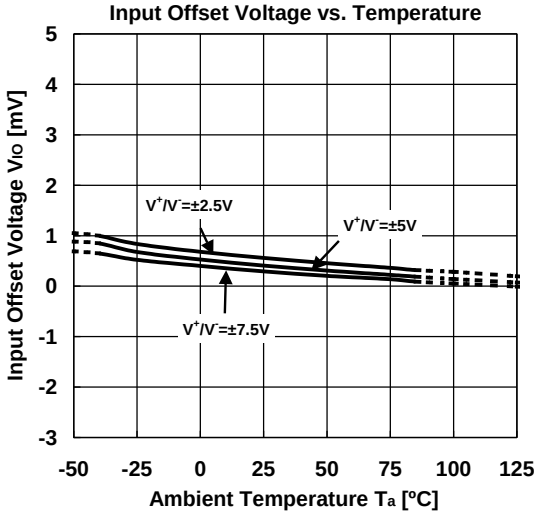


■ TYPICAL CHARACTERISTICS

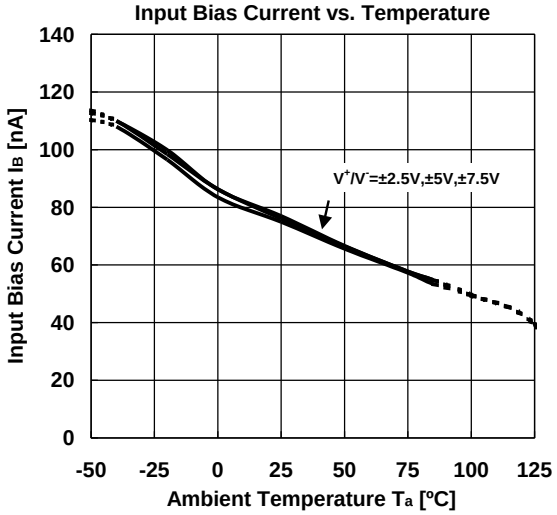
Operating Current vs. Temperature



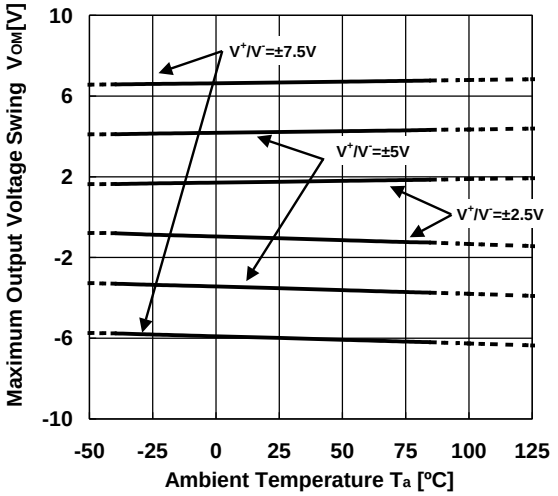
Input Offset Voltage vs. Temperature



Input Bias Current vs. Temperature

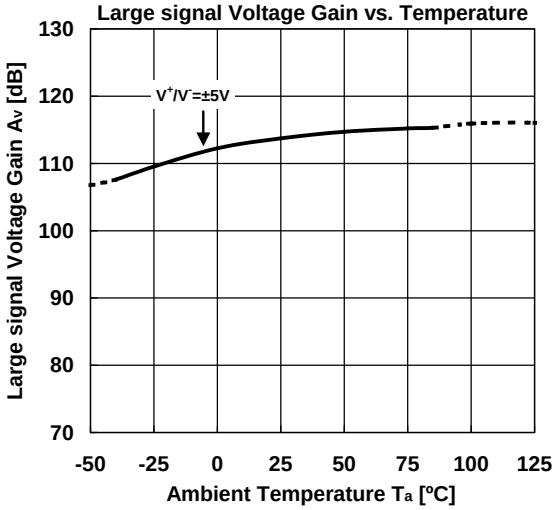


Maximum Output Voltage Swing vs. Temperature

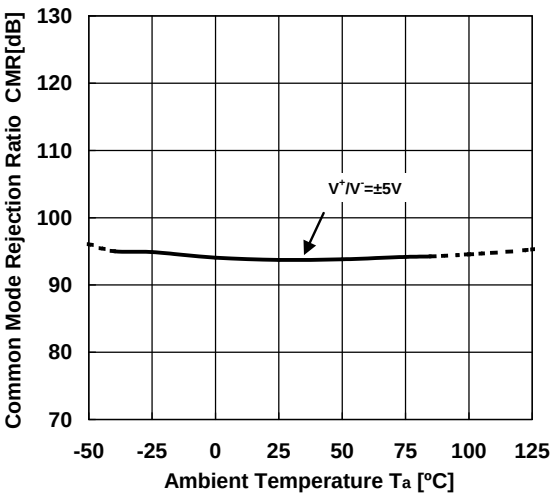


■ TYPICAL CHARACTERISTICS

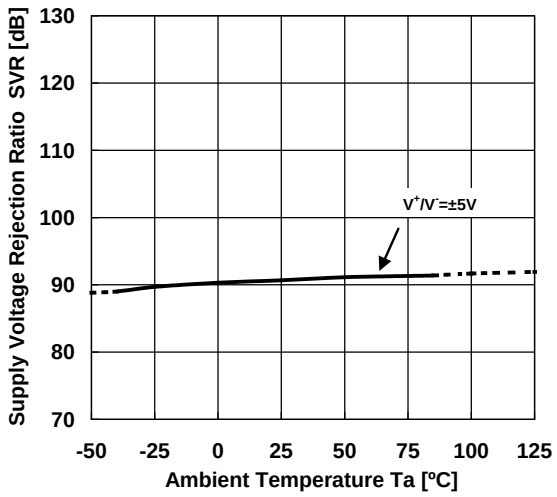
Large signal Voltage Gain vs. Temperature



Common Mode Rejection Ratio vs. Temperature



Supply Voltage Rejection Ratio vs. Temperature



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