

SINGLE SUPPLY QUAD OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

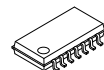
The NJM12902 is single-supply quad operational amplifier, which can operate from 2V supply. The features are low offset voltage, low bias current, and drive TTL or DTL circuit directly. The package lineup is DMP and others compact, so that the NJM12902 is suitable for audio for low voltage operation and any other kind of signal amplifier.

■ FEATURES

- Operating Voltage (+2V~+14V)
- Input Offset Voltage (5mV max.)
- Slew Rate (0.7V/μs typ.)
- Operating Current (1.0mA typ.)
- Bipolar Technology
- Package Outline

NJM12902M	DMP14
NJM12902E	EMP14
NJM12902V	SSOP14

■ PACKAGE OUTLINE



NJM12902M

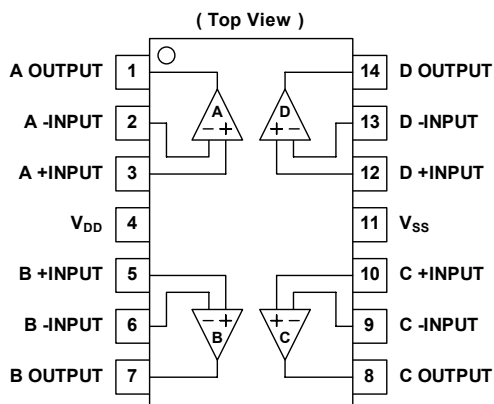


NJM12902E

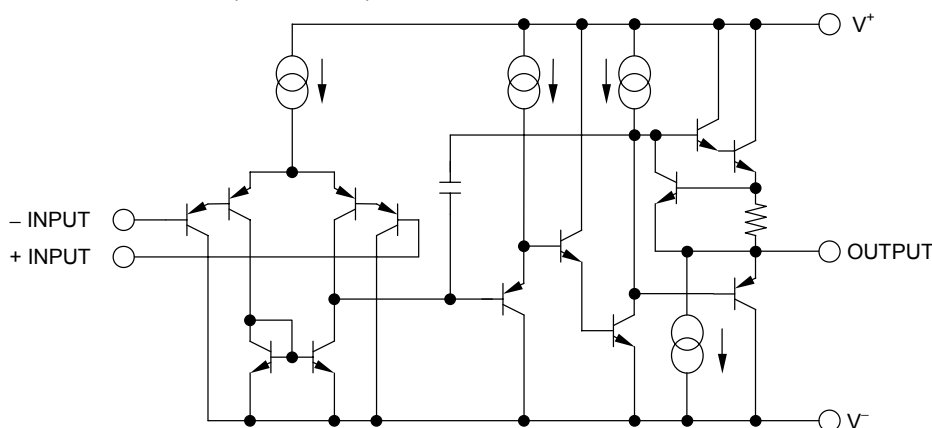


NJM12902V

■ PIN CONFIGURATION



■ EQUIVALENT CIRCUIT (1/4 Shown)



NJM12902

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

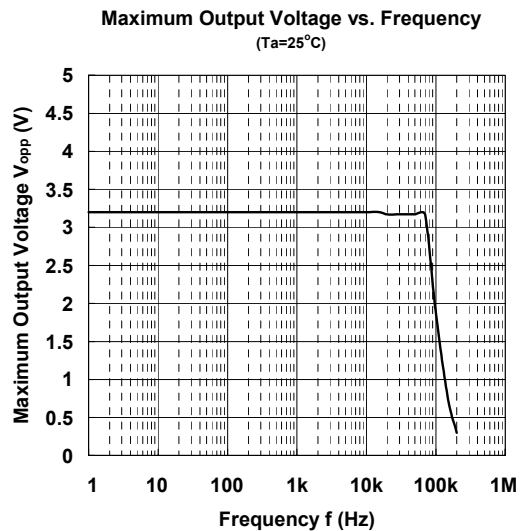
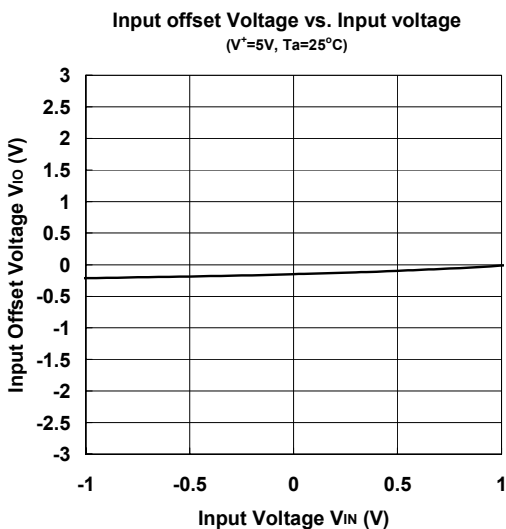
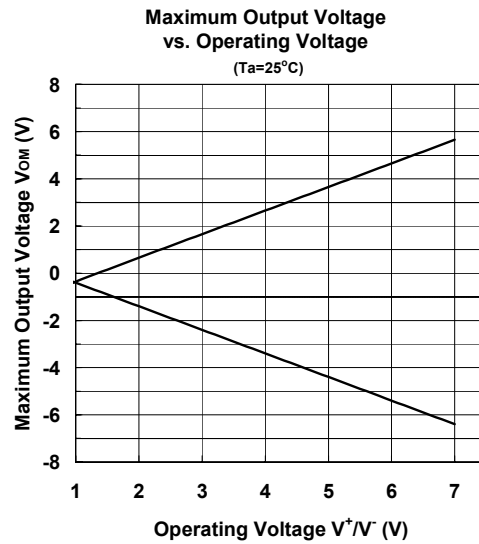
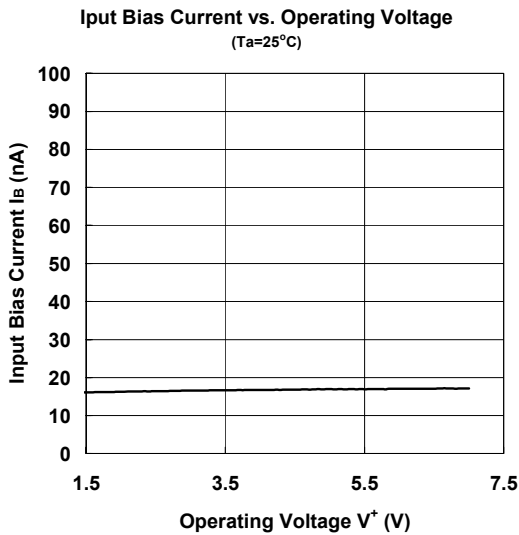
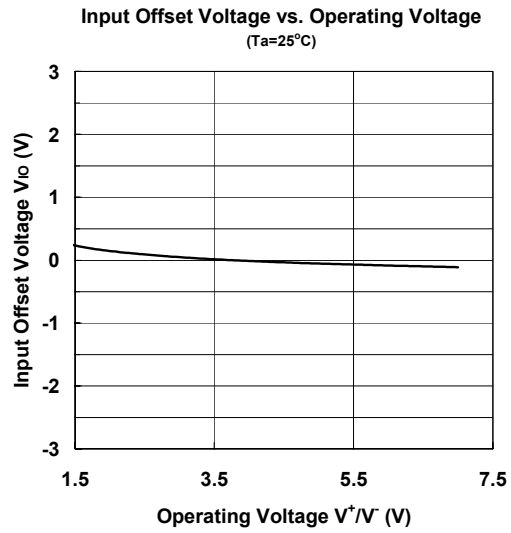
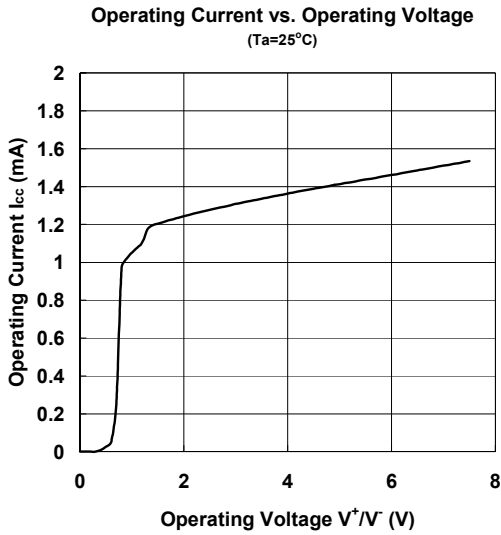
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15	V
Differential Input Voltage	V _{ID}	14	V
Input Voltage	V _{IC}	-0.3~+14	V
Power Dissipation	P _D	(DMP14) 300 (EMP14) 300 (SSOP14) 300	mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-50~+125	°C

■ ELECTRICAL CHARACTERISTICS

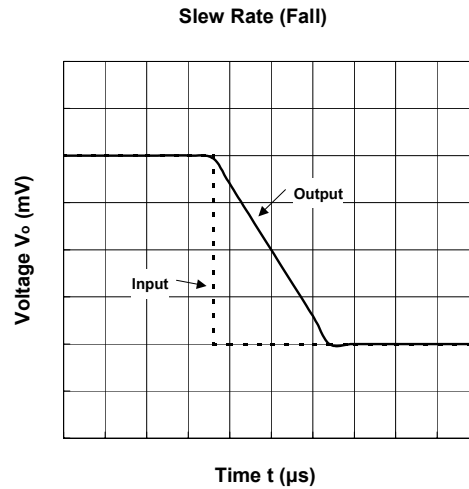
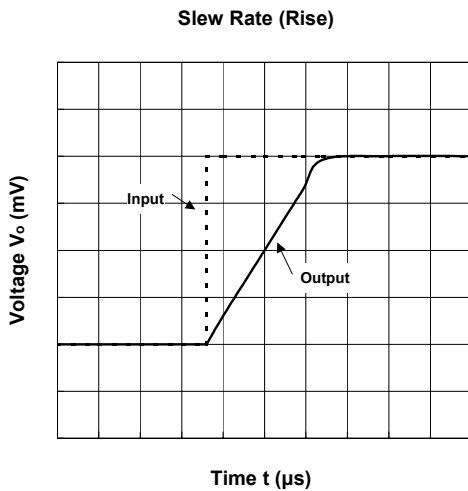
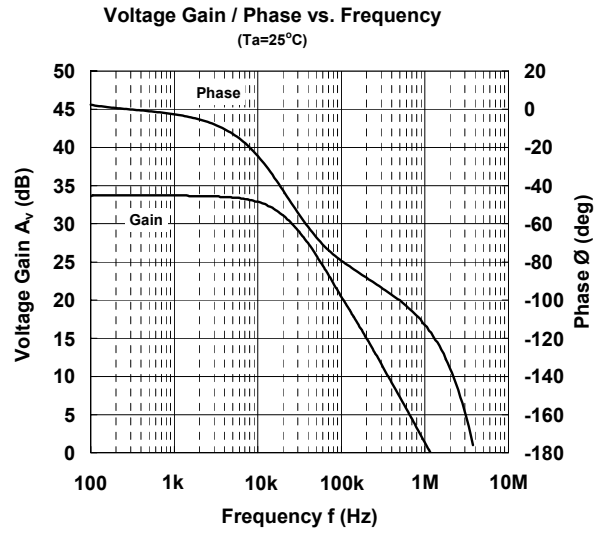
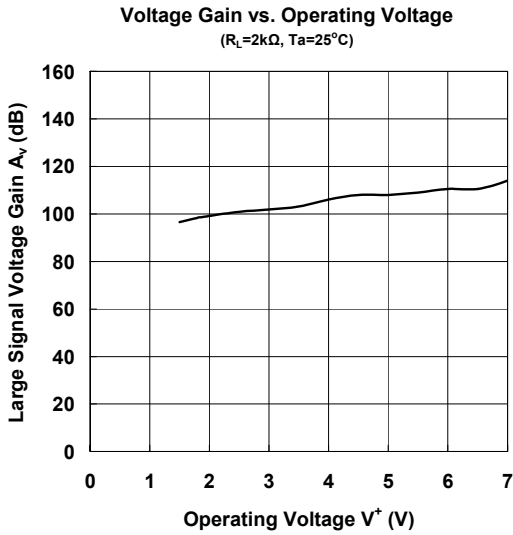
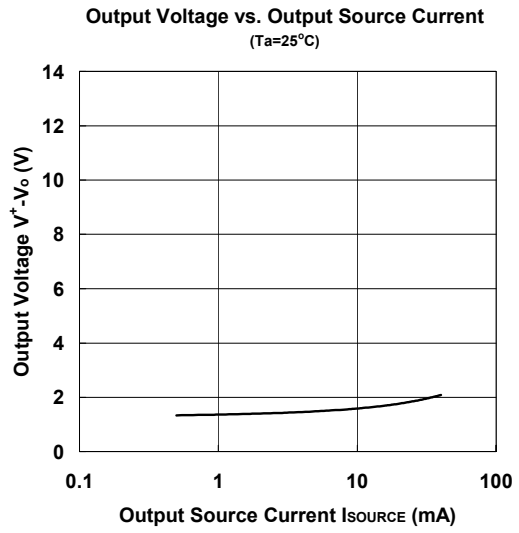
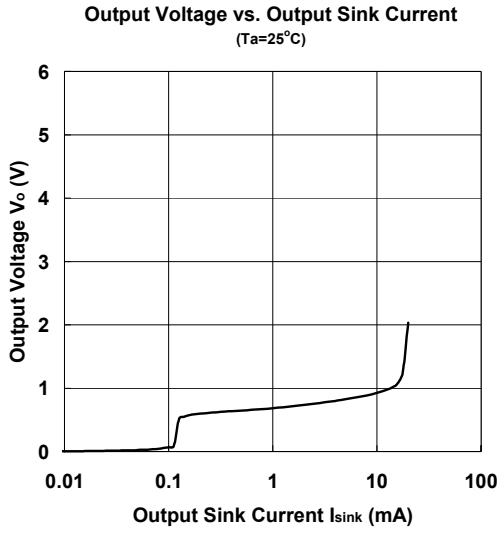
(V⁺=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V _{opr}		2	-	14	V
Input Offset Voltage	V _{IO}	R _S =0Ω	-	1	5	mV
Input Offset Current	I _{IO}		-	5	50	nA
Input Bias Current	I _B		-	20	150	nA
Large Signal Voltage Gain	A _V	R _L ≥2kΩ	-	100	-	dB
Maximum Output Voltage Swing	V _{OM}	R _L =2kΩ	3.5	-	-	V
Input Common Mode Voltage Range	V _{ICM}		0~3.5	-	-	V
Common Mode Rejection Ratio	CMR		-	85	-	dB
Supply Voltage Rejection Ratio	SVR		-	100	-	dB
Output Source Current	I _{SOURCE}	V _{IN} ⁺ =1V, V _{IN} ⁻ =0V	20	40	-	mA
Output Sink Current	I _{SINK}	V _{IN} ⁺ =0V, V _{IN} ⁻ =1V	8	30	-	mA
Channel Separation	CS	f=1k~20kHz	-	120	-	dB
Operating Current	I _{CC}	R _L =∞	-	1.0	2.0	mA
Slew Rate	SR	V ⁺ /V=±2.5V, R _L =2kΩ, A _V =0dB, f=1kHz	-	0.7	-	V/μs
Gain Bandwidth Product	GB		-	1.5	-	MHz

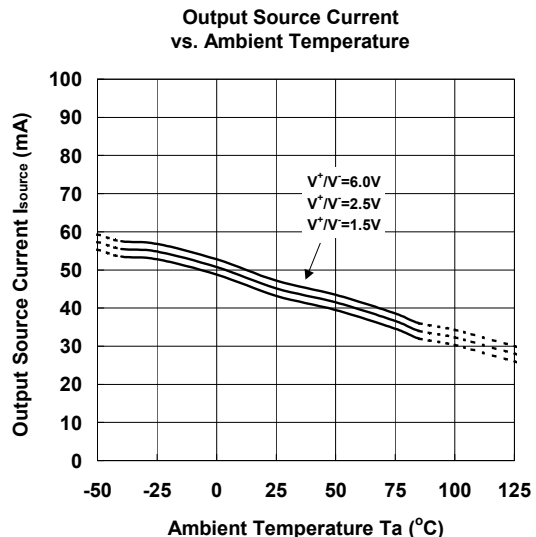
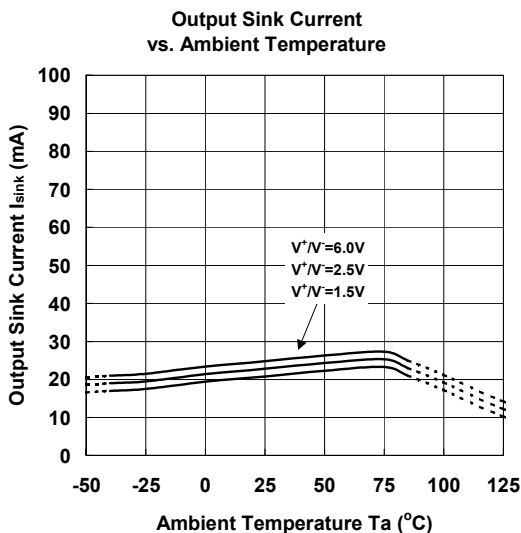
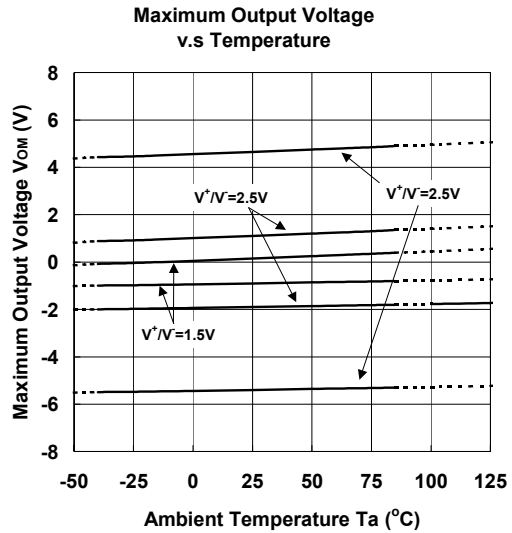
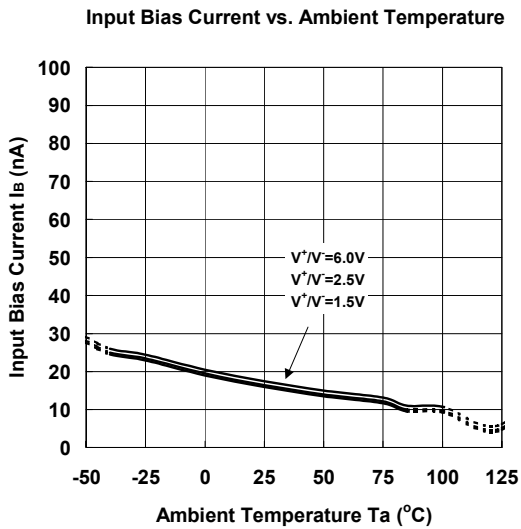
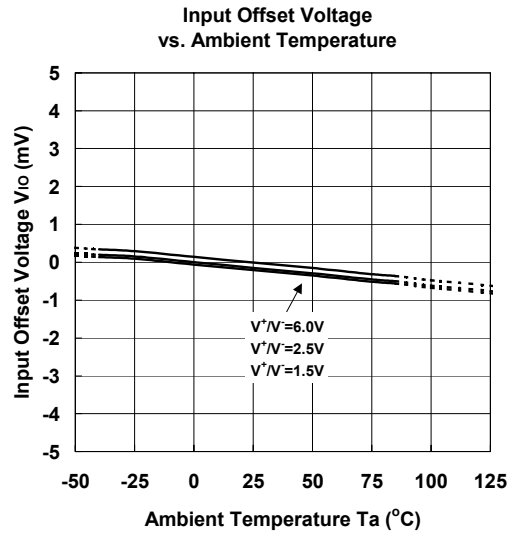
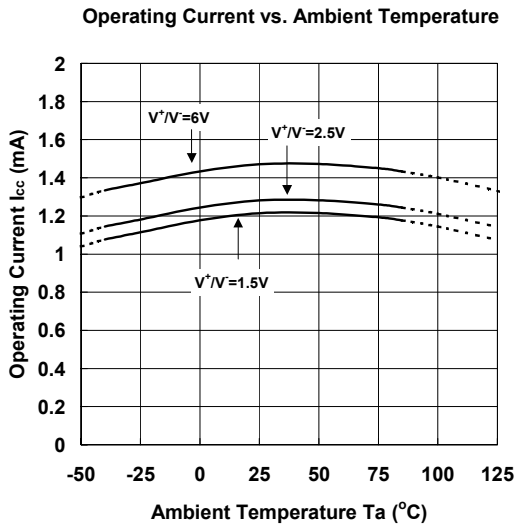
■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS

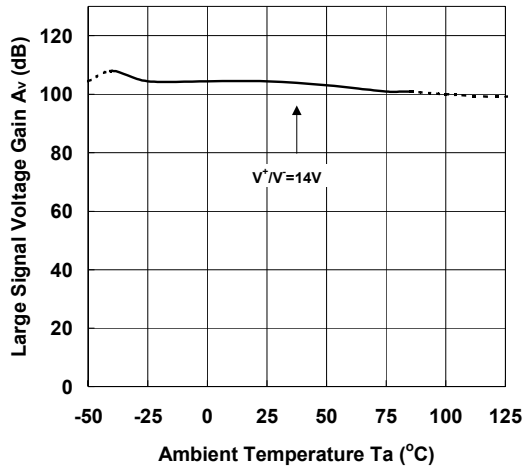


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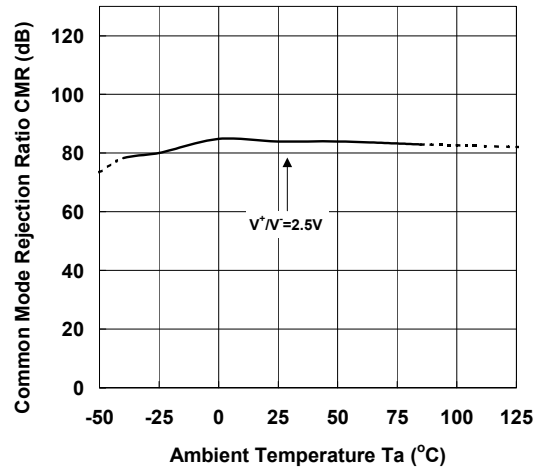


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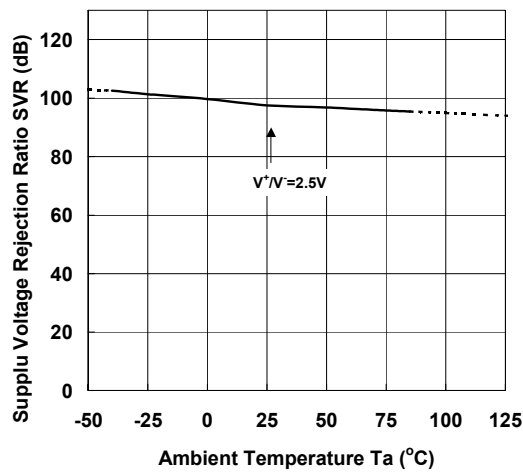
Large Signal Voltage Gain
vs. Ambient Temperature



Common Mode Rejection Ratio
v.s Ambient Temperature



Supply Voltage Rejection Ratio
v.s Ambient Temperature



[CAUTION]

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