

HIGH SPEED SINGLE SUPPLY OPERATIONAL AMPLIFIER

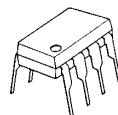
■ GENERAL DESCRIPTION

The **NJM2742** is a high speed single supply operational amplifier. The low V_{OL} enables to treat small output signal on a single supply.

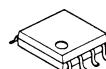
It has wide supply voltage range, +3 to +32 volt and high slew rate.

The **NJM2742** is suitable for power supply and motor driver units.

■ PACKAGE OUTLINE



NJM2742D



NJM2742M



NJM2742V

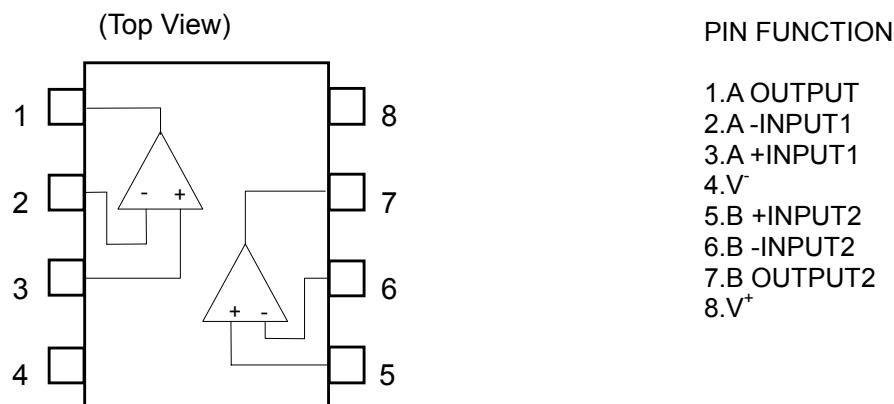


NJM2742RB1

■ FEATURES

- Single Supply
- Operating Voltage (3 to 32V)
- Low Saturation Output Voltage ($V_{OL} = 0.2V$ typ. at $R_L = 2k\Omega, V^+ = 5V$)
- High Slew Rate (10V/ μ s typ.)
- Bipolar Technology
- Package Outline DIP8,DMP8,SSOP8,TVSP8

■ PIN CONFIGURATION



NJM2742

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	+36	V
Differential Input Voltage	V _{ID}	±36	V
Common Mode Input Voltage	V _{IC}	-0.3 to +36	V
Power Dissipation	P _D	500 (DIP8) 300 (DMP8) 250 (SSOP8) 320 (TVSP8)	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +150	°C

■ RECOMMENDED OPERATING CONDITION

(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Voltage Range	V ⁺		3.0	-	32	V

■ DC CHARACTERISTICS

(V⁺/V⁻=±15V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I _{CC}	No Signal	-	4.3	5.5	mA
Input Offset Voltage	V _{IO}		-	1.0	12	mV
Input Bias Current	I _B		-	80	400	nA
Input Offset Current	I _{IO}		-	5	75	nA
Open Loop Voltage Gain	A _V	R _L >2kΩ	80	110	-	dB
Common Mode Rejection	CMR	-15V < V _{IC} < 12.5V	55	75	-	dB
Supply Voltage Rejection	SVR	3V < V ⁺ < 32V	70	90	-	dB
Maximum Output Voltage 1	V _{OM1}	R _L >10kΩ	+13.7 /-13.7	+14 /-14.8	-	V
Maximum Output Voltage 2	V _{OM2}	R _L >2kΩ	+13.5 /-13.5	-	-	V
Source Output Current	I _{SOURCE}	V _{IN+} =1V, V _{IN-} =0V, V _O =0V	10	30	-	mA
Sink Output Current	I _{SINK}	V _{IN+} =0V, V _{IN-} =1V, V _O =0V	10	30	-	mA
Input Common Mode Voltage Range	V _{ICM}	CMR > 55dB	-15	-	12.5	V

■ AC CHARACTERISTICS

(V⁺/V⁻=±15V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Gain Bandwidth product	GB	f=10kHz	-	2	-	MHz
Equivalent Input Noise Voltage	V _{NI}	f=1kHz	-	40	-	nV/ √Hz
Capacitive Load Tolerance	CL		-	1000	-	pF

■ TRANSIENT CHARACTERISTICS

(V⁺/V⁻=±15V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR		-	10	-	V/μs

■ DC CHARACTERISTICS(V⁺=+5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I _{CC}	No Signal	-	3.3	4.5	mA
Input Offset Voltage	V _{IO}		-	1.0	12	mV
Input Bias Current	I _B		-	80	400	nA
Input Offset Current	I _{IO}		-	5	75	nA
Open Loop Voltage Gain	A _V	R _L >2kΩ	80	110	-	dB
Common Mode Rejection	CMR	0V < V _{IC} < 2.8V	50	60	-	dB
Supply Voltage Rejection	SVR	3V < V ⁺ < 32V	70	90	-	dB
Maximum Output Voltage	V _{OH}	R _L =2kΩ	3.7	4.0	-	V
	V _{OL}	R _L =2kΩ	-	0.1	0.2	
Source Output Current	I _{SOURCE}	V _{IN+} =1V, V _{IN-} =0V, V _O =2.5V	10	30	-	mA
Sink Output Current	I _{SINK}	V _{IN+} =0V, V _{IN-} =1V, V _O =2.5V	10	30	-	mA
Input Common Mode Voltage Range	V _{ICM}	CMR > 50dB	0	-	2.8	V

■ AC CHARACTERISTICS(V⁺=+5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Gain Bandwidth product	GB	f=10kHz	-	2	-	MHz
Equivalent Input Noise Voltage	V _{NI}	f=1kHz	-	40	-	nV/ √Hz
Capacitive Load Tolerance	CL		-	1000	-	pF

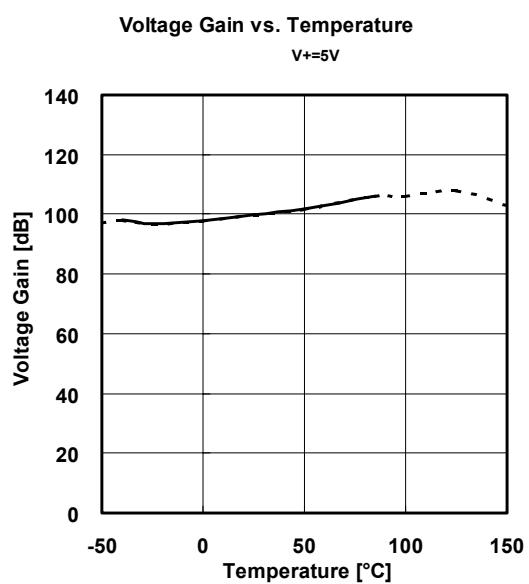
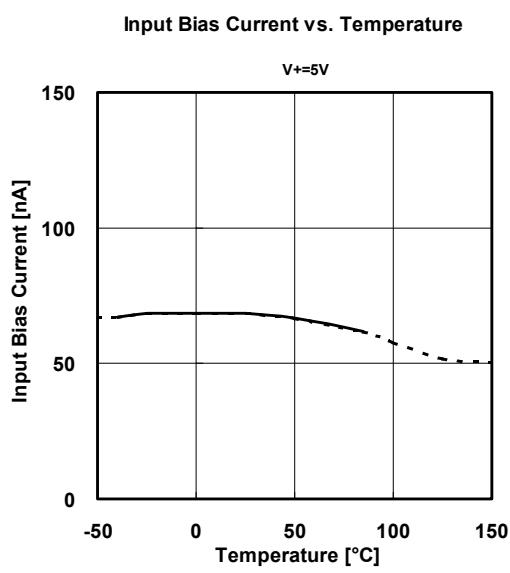
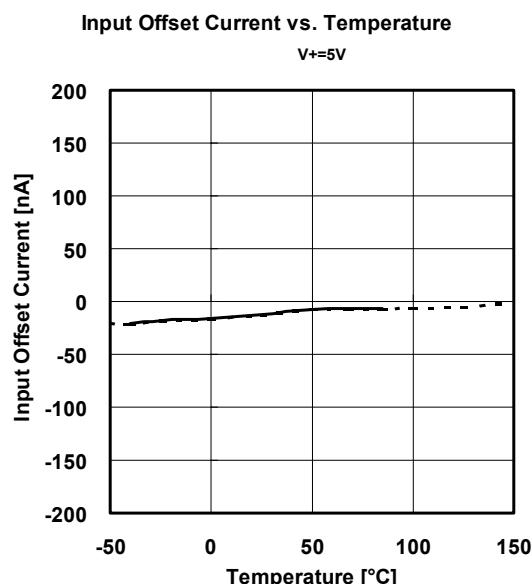
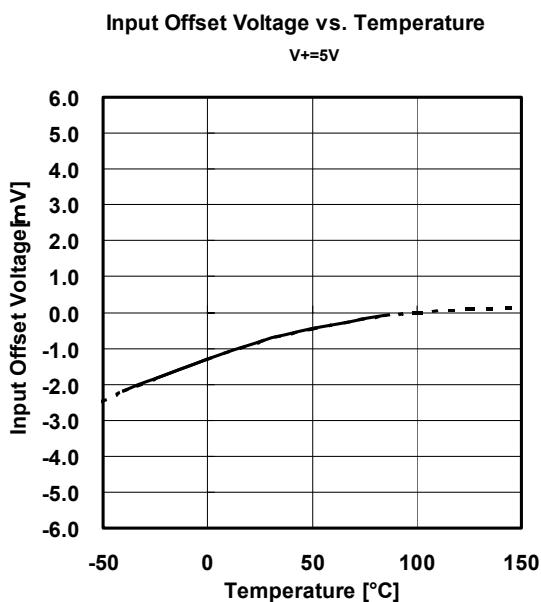
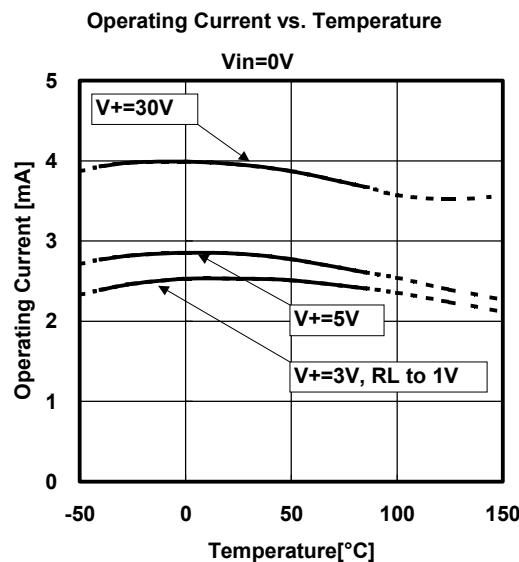
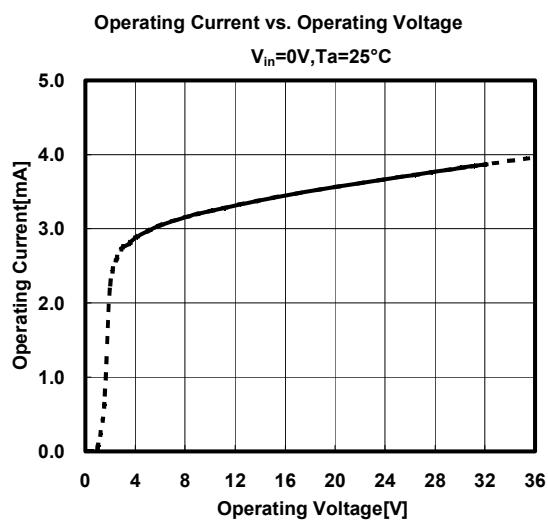
■ TRANSIENT CHARACTERISTICS(V⁺=+5V, Ta=25°C)

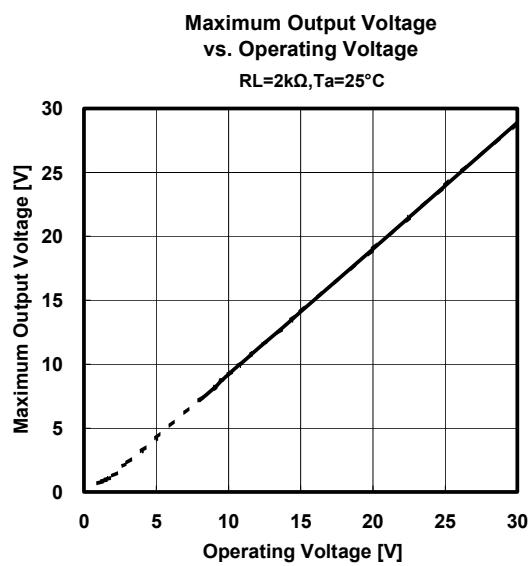
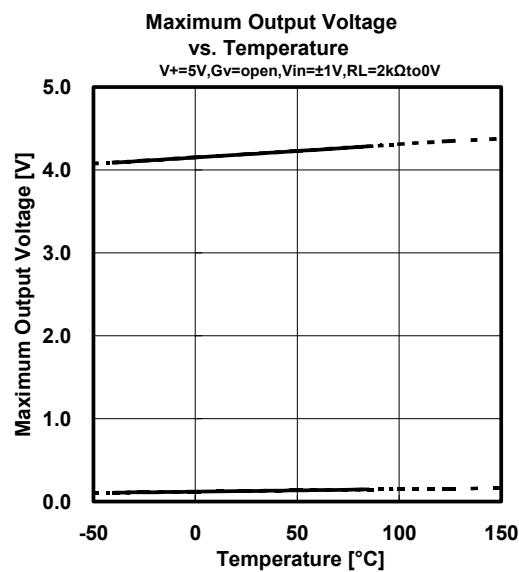
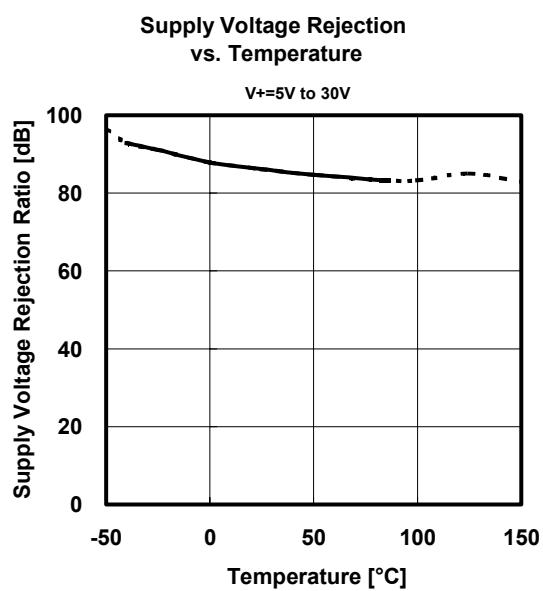
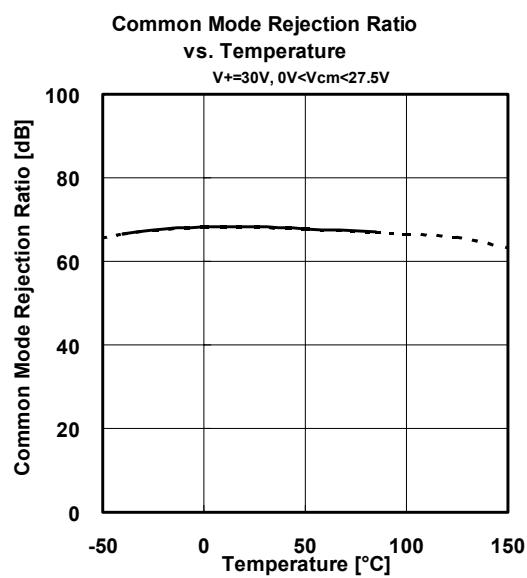
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR		-	7	-	V/μs

Note: The common mode input voltage range of NJM2742 is shifted toward the V- for single supply use.

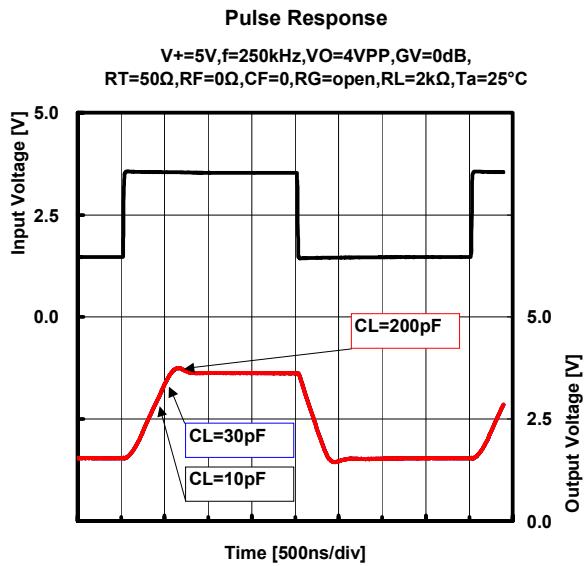
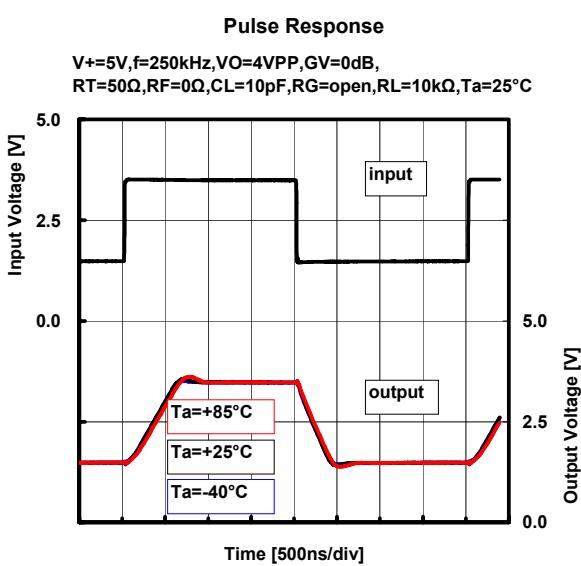
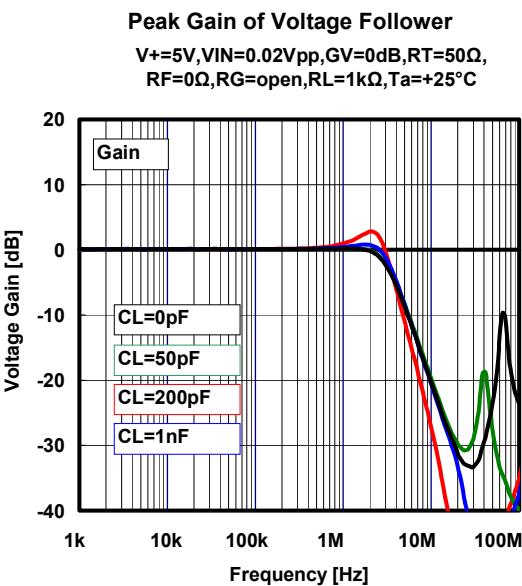
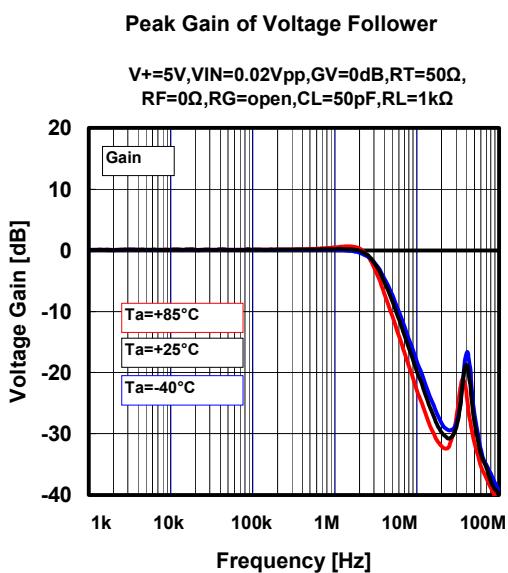
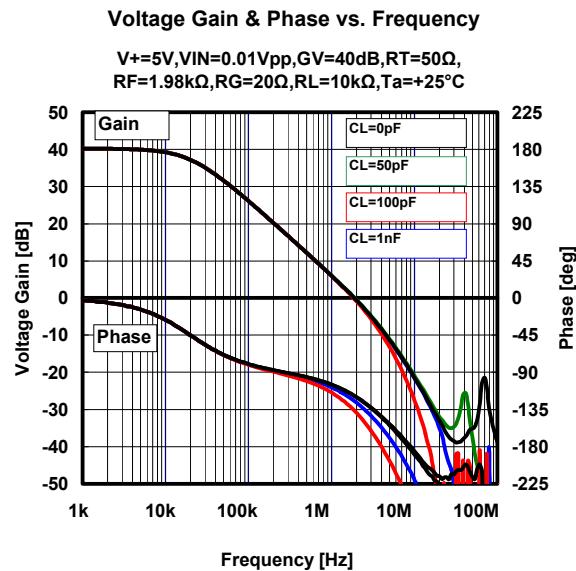
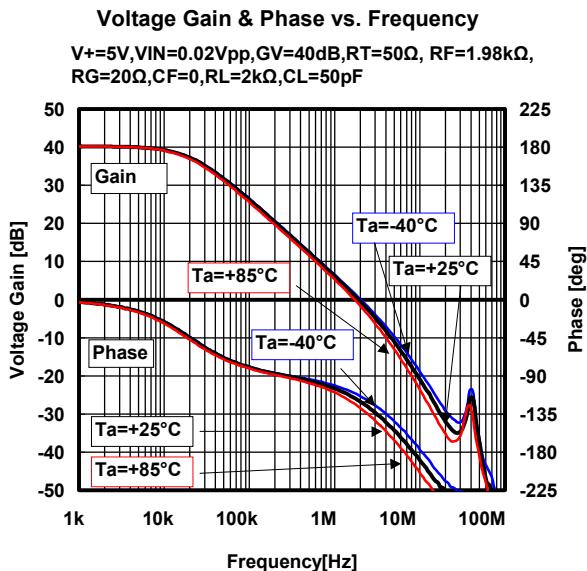
At the low operating voltage, the center potential of the V+ and V- may be out of the common mode voltage range. In this case, shift the common mode input voltage toward the V-.

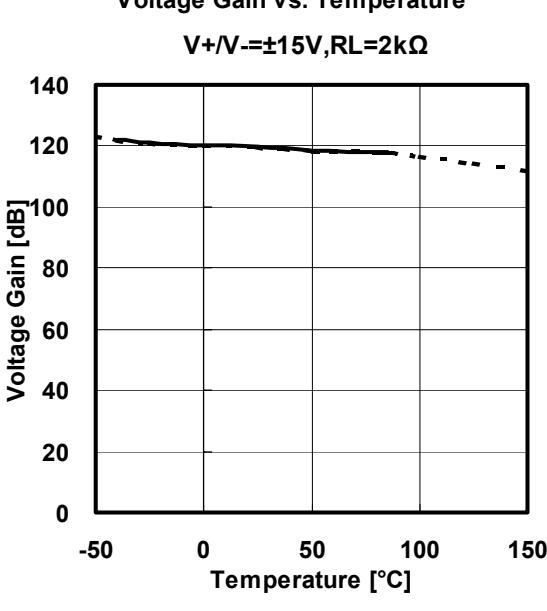
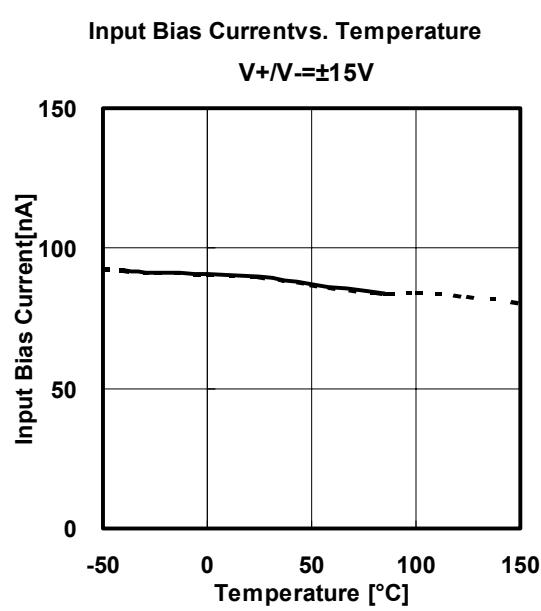
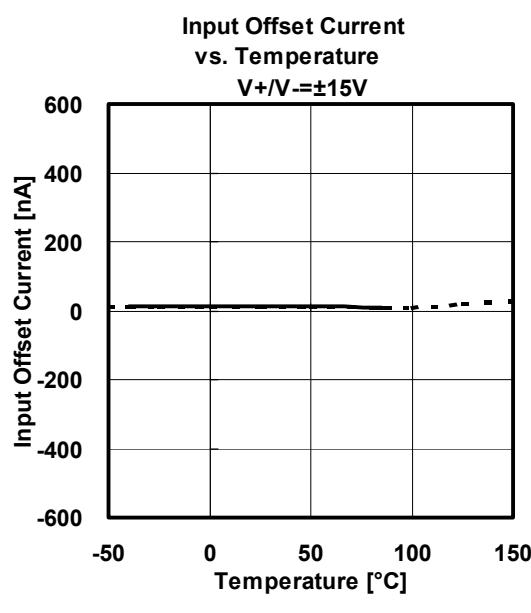
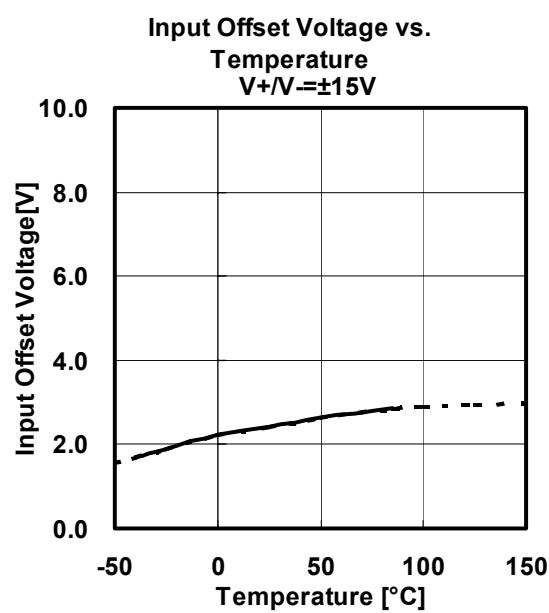
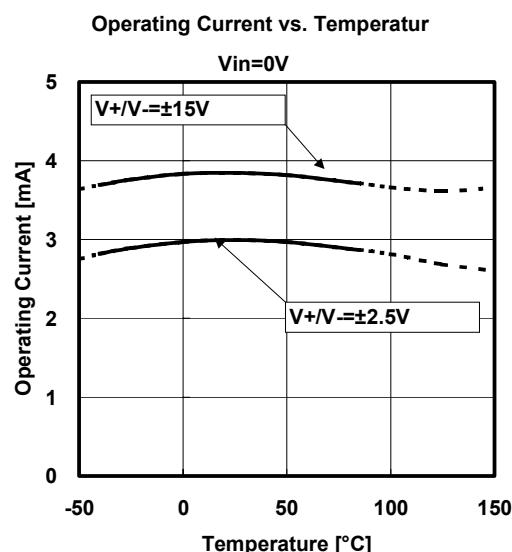
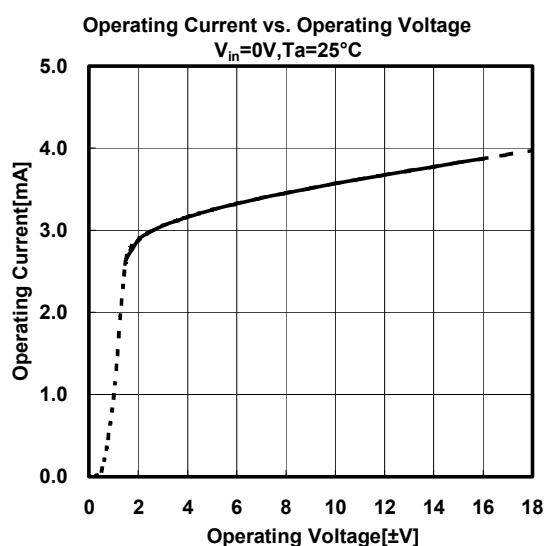
■ TYPICAL CHARACTERISTICS

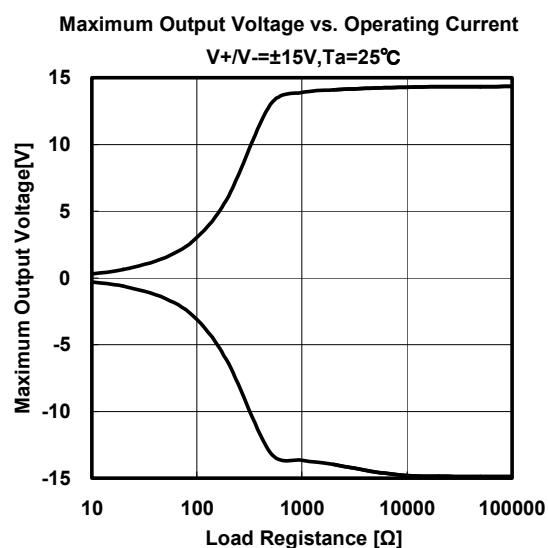
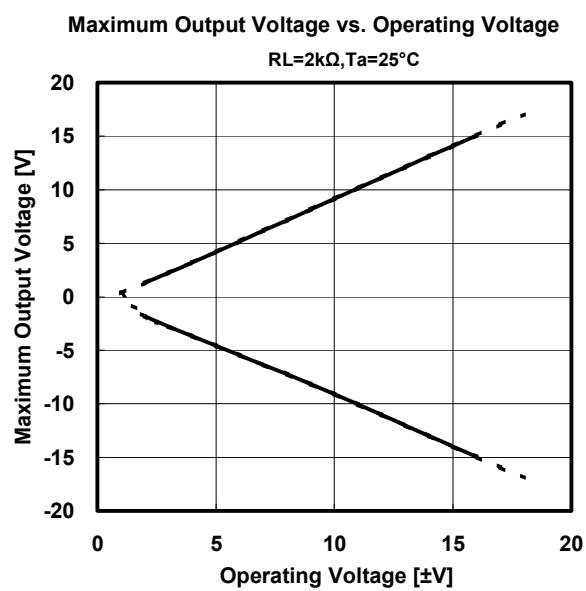
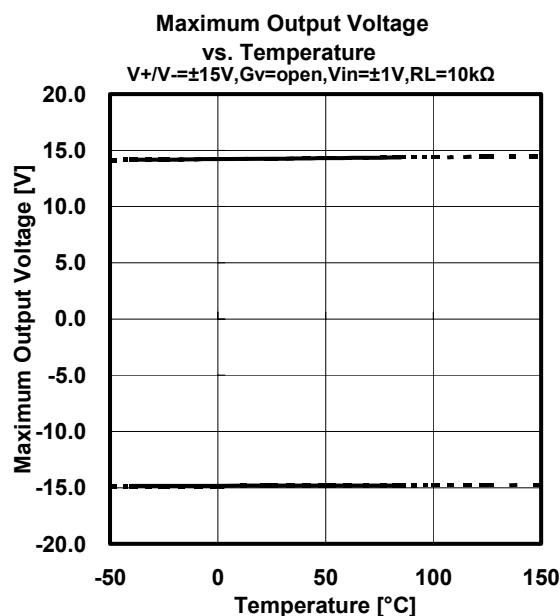
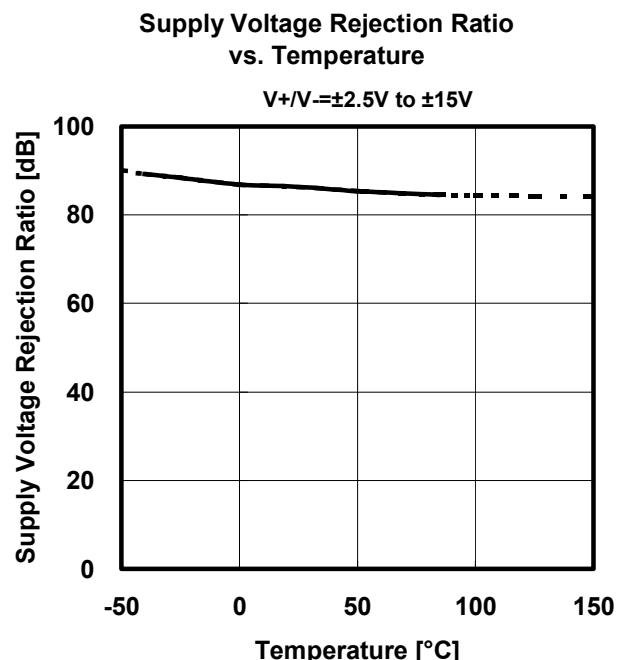
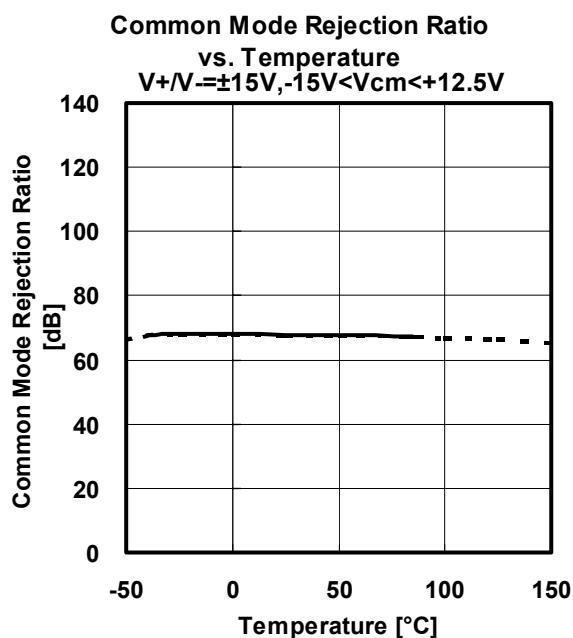




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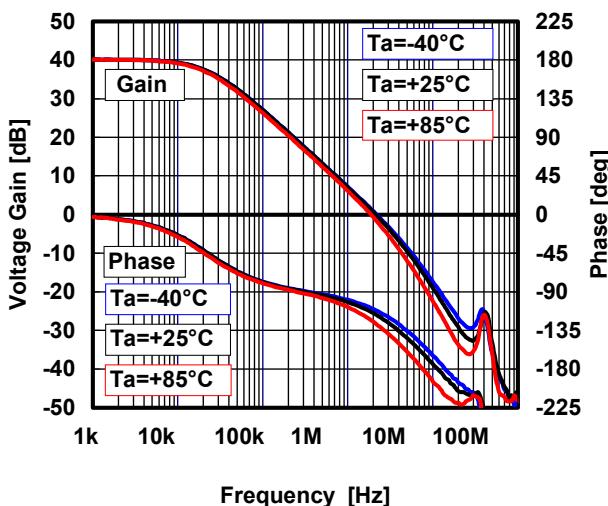






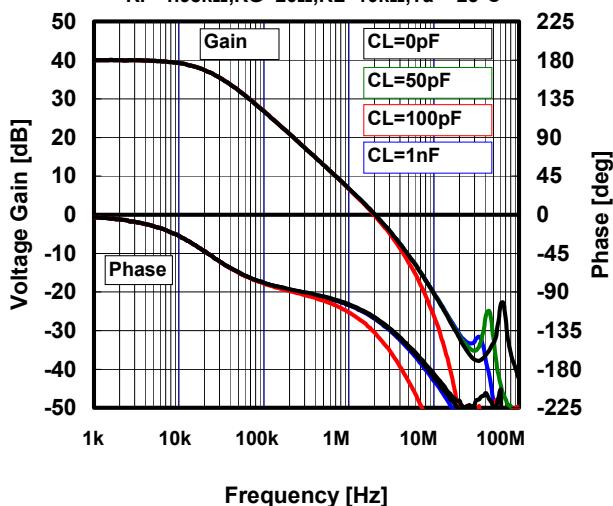
Voltage Gain & Phase vs. Frequency

$V_+/V_- = \pm 15V$, $V_{IN} = 0.02V_{pp}$, $GV = 40dB$, $RT = 50\Omega$,
 $RF = 1.98k\Omega$, $RG = 20\Omega$, $CF = 0$, $RL = 2k\Omega$, $CL = 50pF$



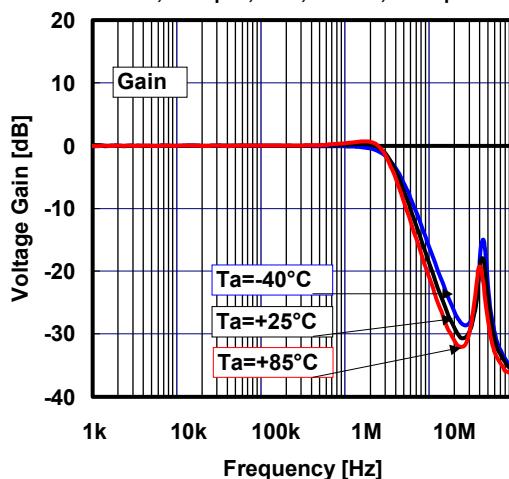
Voltage Gain & Phase vs. Frequency

$V_+/V_- = \pm 15V$, $V_{IN} = 0.01V_{pp}$, $GV = 40dB$, $RT = 50\Omega$,
 $RF = 1.98k\Omega$, $RG = 20\Omega$, $RL = 10k\Omega$, $T_a = +25^\circ C$



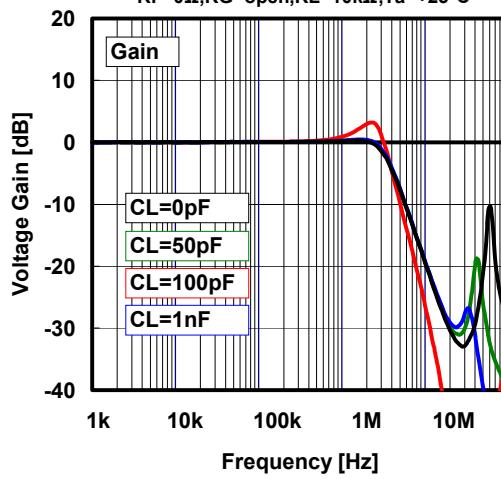
Peak Gain of Voltage Follower

$V_+/V_- = \pm 15V$, $V_{IN} = 0.02V_{pp}$, $GV = 0dB$, $RT = 50\Omega$, $RF = 0$,
 $RG = \text{open}$, $CF = 0$, $RL = 2k\Omega$, $CL = 50pF$



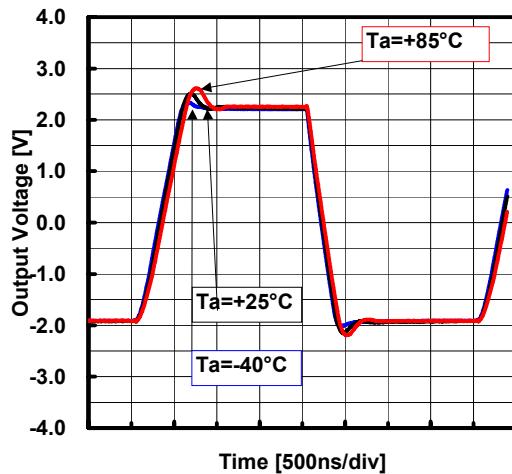
Peak Gain of Voltage Follower

$V_+/V_- = \pm 15V$, $V_{IN} = 0.02V_{pp}$, $GV = 0dB$, $RT = 50\Omega$,
 $RF = 0\Omega$, $RG = \text{open}$, $RL = 10k\Omega$, $T_a = +25^\circ C$



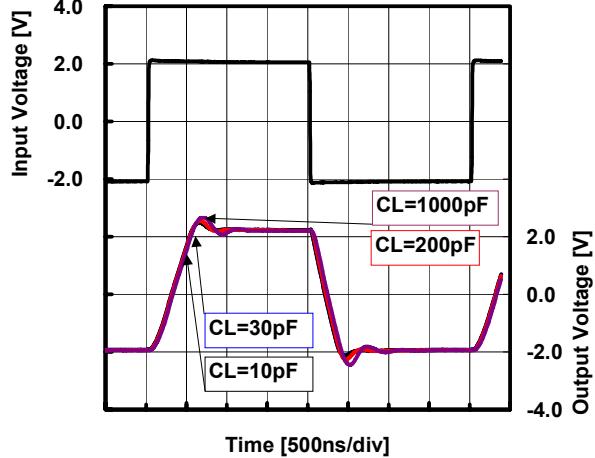
Pulse Response

$V_+/V_- = \pm 15V$, $f = 250kHz$, $V_O = 4V_{PP}$, $GV = 0dB$,
 $RT = 50\Omega$, $RF = 0\Omega$, $CF = 0$, $RG = \text{open}$, $CL = 50pF$, $RL = 10k\Omega$



Pulse Response

$V_+/V_- = \pm 15V$, $f = 250kHz$, $V_O = 4V_{PP}$, $GV = 0dB$,
 $RT = 50\Omega$, $RF = 0\Omega$, $CF = 0$, $RG = \text{open}$, $RL = 10k\Omega$, $T_a = +25^\circ C$



[CAUTION]

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ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

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С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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