

SINGLE ISOLATION AMPLIFIER

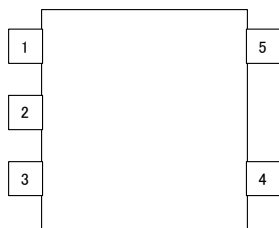
■ GENERAL DESCRIPTION

NJM2505A is the single isolation amplifier developed by the video signal. It can remove the noise of a signal with isolation amplifier and carries in the small package (MTP5), it is suitable for the interface of the video signal of a car AV system.

■ FEATURES

- Operating Voltage 4.5 to 9.0V
- Input: Sync-tip Clamp
- Common Mode Noise Rejection Ratio -55dBtyp.
- Voltage Gain 0dBtyp.
- Frequency Characteristics 0dBtyp.at 10MHz
- Bipolar Technology
- Package MTP5

■ PIN CONFIGURATION



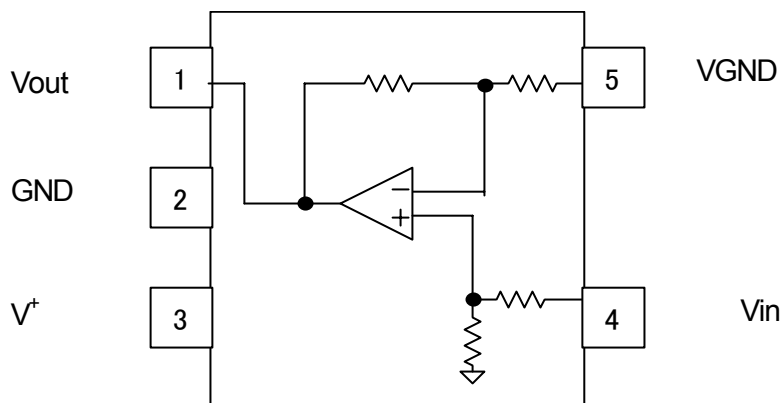
- 1: Vout
- 2: GND
- 3: V+
- 4: Vin
- 5: VGND

■ PACKAGE OUTLINE



NJM2505AF

■ BLOCK DIAGRAM



NJM2505A

■ ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	15.0	V
Power Dissipation	P _D	200	MW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

■ RECOMMENDED OPERATING CONDITION(Ta=25°C)

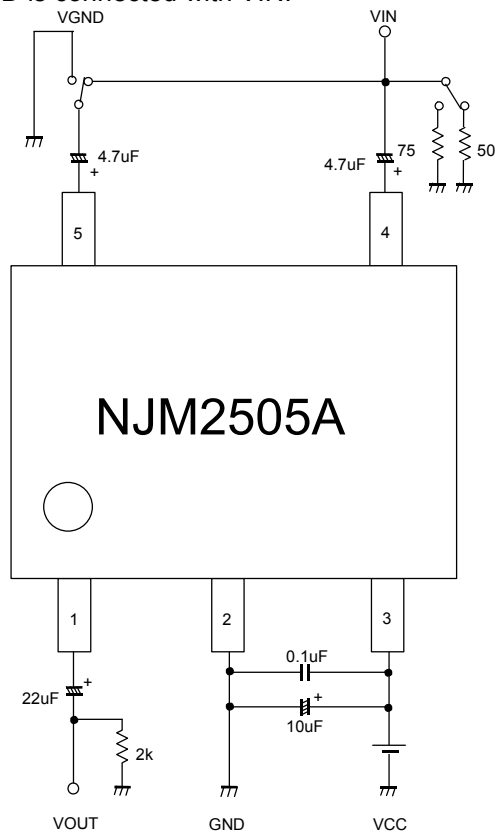
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage Range	Vopr		4.5	-	9.0	V

■ ELECTRICAL CHARACTERISTICS(V⁺ =5.0V, Ta=25°C)

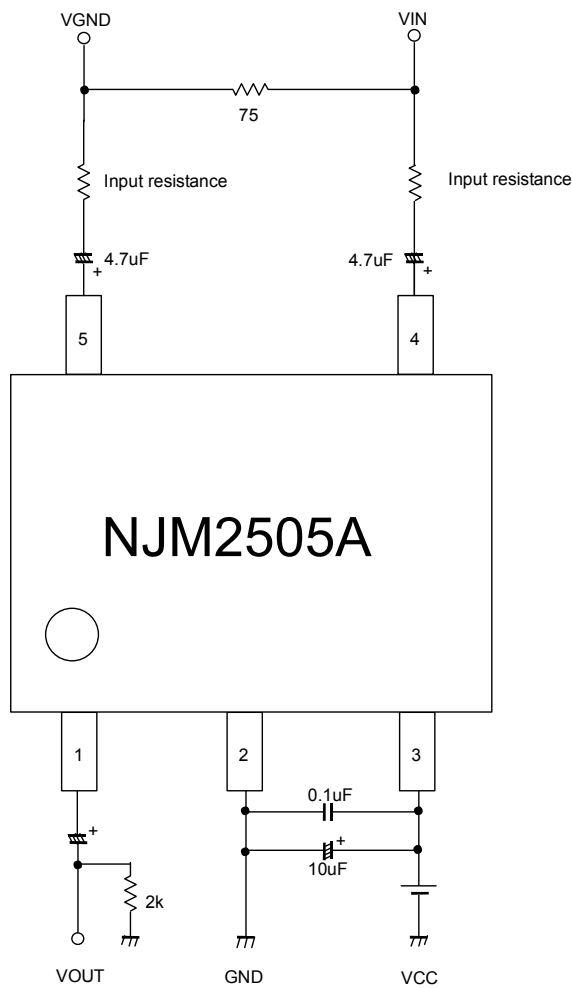
PARAMETR	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I _{CC}	No Signal	-	3.0	6.0	mA
Maximum Output Voltage Level	Vom	Vin=100kHz, Sin-Signal, THD=1%,	2.0	2.2	-	Vp-p
Voltage Gain	Gv	Vin=100kHz, 1.0Vp-p, Sin-Signal	-1.0	0	1.0	dB
Frequency Characteristics	Gf	Vin=10MHz / 1MHz , 1.0VppSin-Signal	-1.0	0	1.0	dB
Common Mode Noise Rejection Ratio	CMR	Vin=20KHz, Vin=1Vpp	-	-55	-	dB
Differential Gain	DG	Vin=1.0Vp-p, 10step Video Signal	-	0.3	-	%
Differential Phase	DP	Vin=1.0Vp-p, 10step Video Signal	-	0.4	-	deg

TEST CIRCUIT

When CMR is measured, VGND is connected with VIN.



APPLICATION CIRCUIT



NJM2505A

APPLICATION

1: Please connect input surge resistance to 4pin(Vin) and 5pin(VGND). Please refer to Fig. 1. If resistance is enlarged, a waveform may deteriorate.

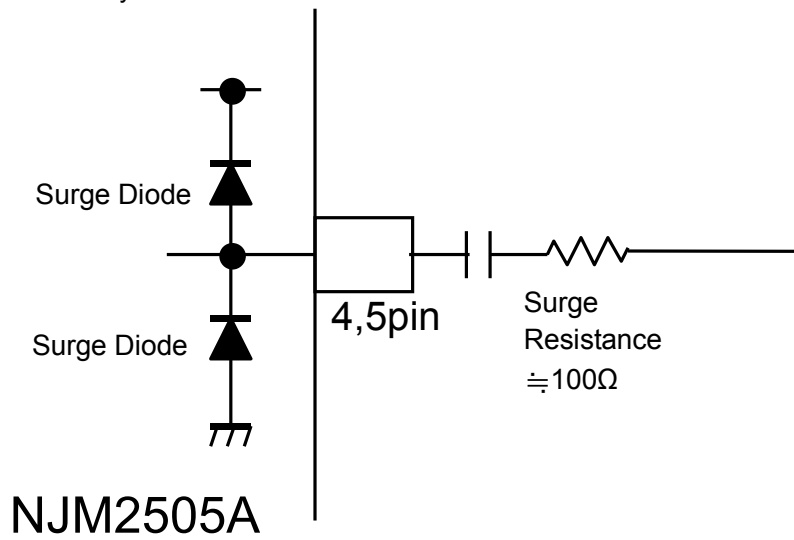


Fig1: External connection

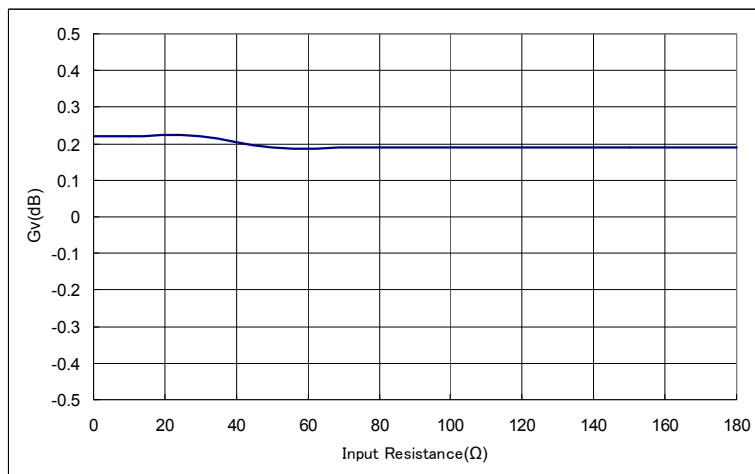


Fig2: Input resistance vs. Voltage gain

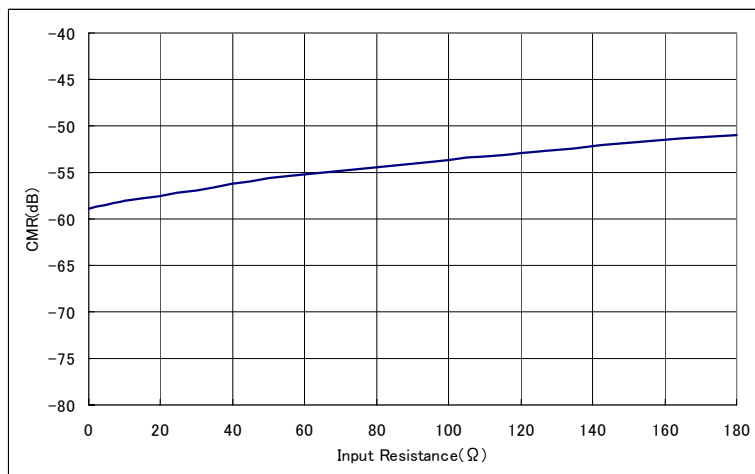


Fig3: Input resistance vs. Common mode rejection ratio

2: Please connect a diode in a VGND at large common mode noise may be inputted into a Vin(4pin) and VGND(5pin). Thereby, large common noise is restricted(refer to Fig.4). Current flows to a diode. Be careful of current capacity.

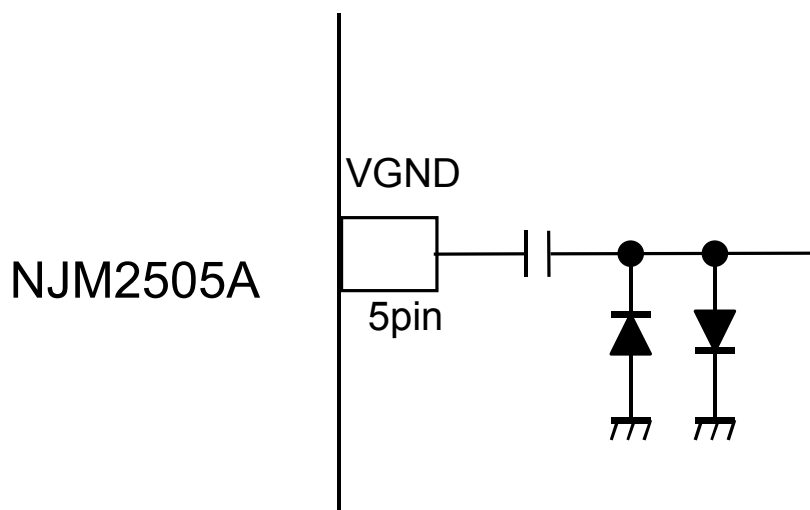


Fig4: External connection

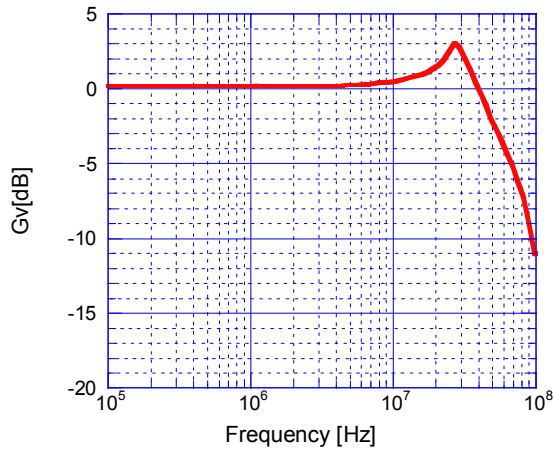
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■ EQUIVALENT CIRCUIT

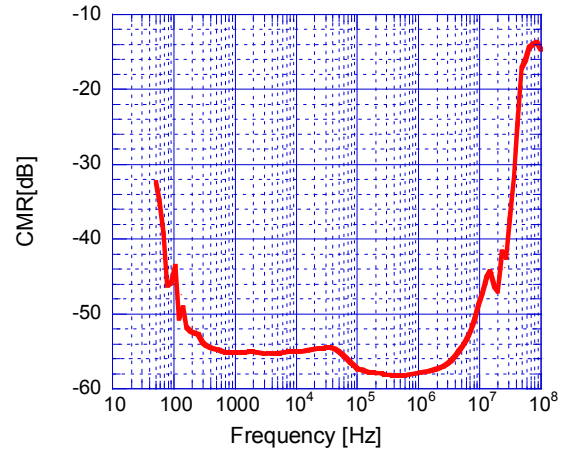
Pin.No	Symbol	Inside Equivalent Circuit	Voitage
1	Vout		0.92V
2	GND	-	-
3	V ⁺	-	-
4	Vin		1.67V
5	VGND		1.67V

■ TYPICAL CHARACTERISTICS

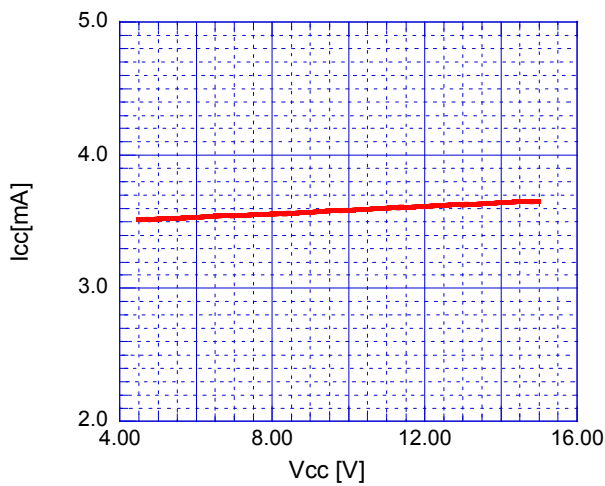
Voltage gain vs. Frequency
($V_{in}=100\text{kHz}$, 1.0Vp-p , $T_a=25^\circ\text{C}$)



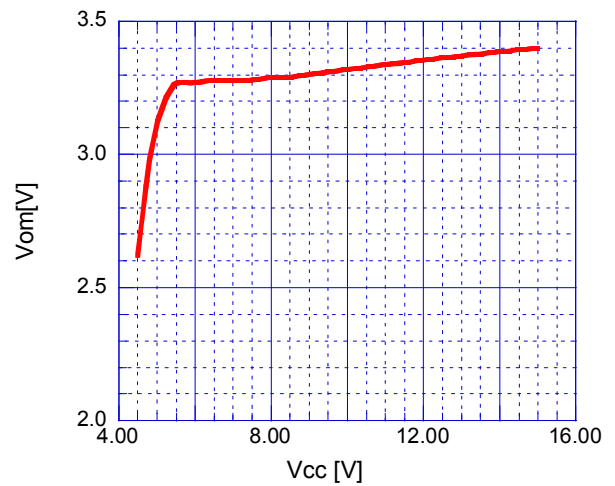
Common mode rejection ratio vs. Frequency
($V_{in}=1.0\text{Vp-p}$, $T_a=25^\circ\text{C}$)



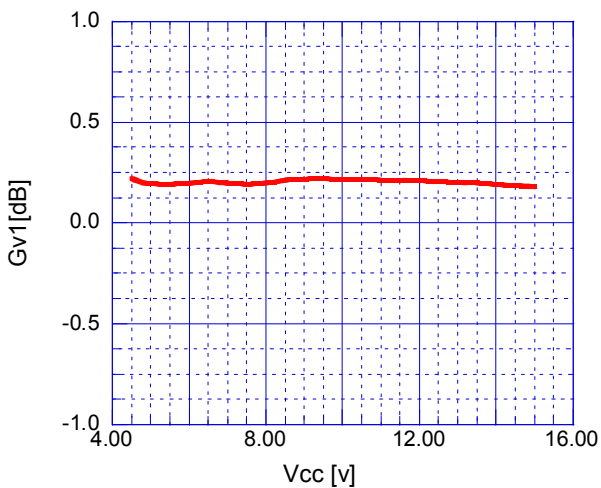
Supply current vs. Supply voltage
($T_a=25^\circ\text{C}$)



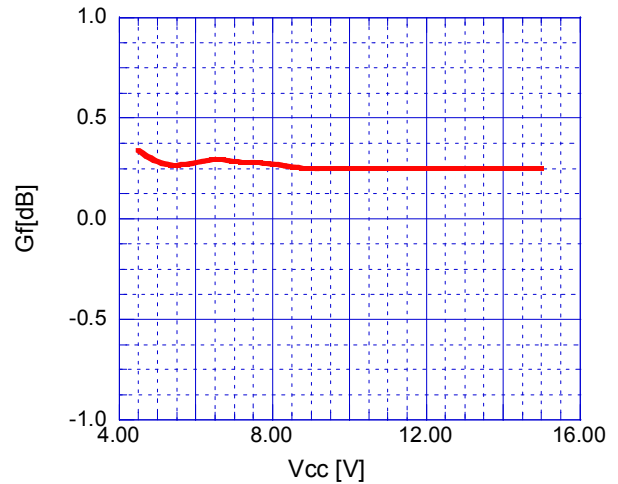
Maximum output voltage vs. Supply voltage
($V_{in}=100\text{kHz}$, $T_a=25^\circ\text{C}$)



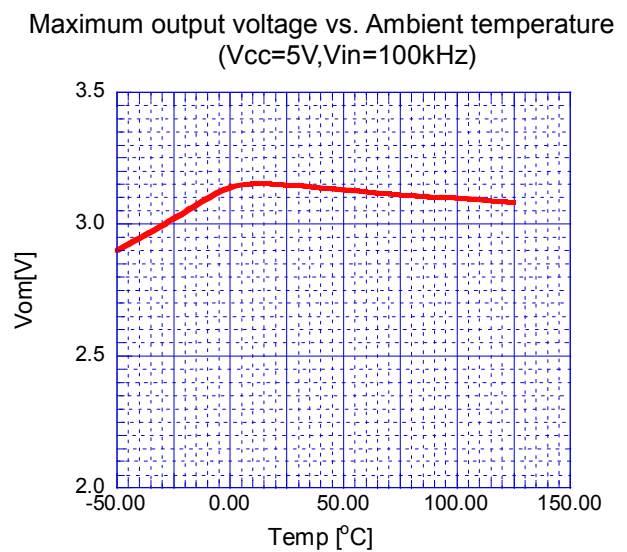
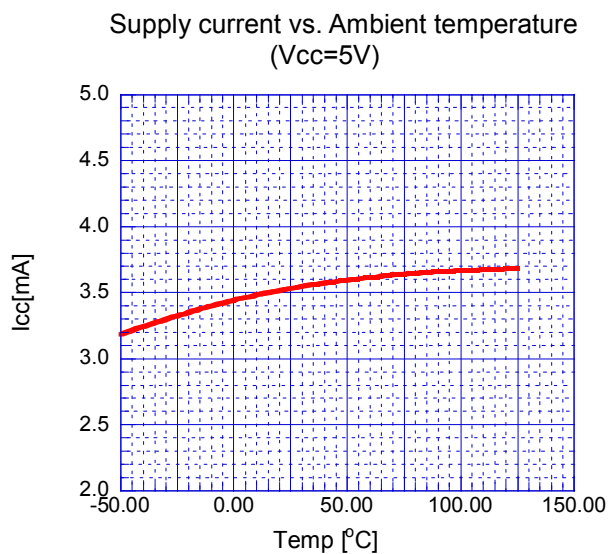
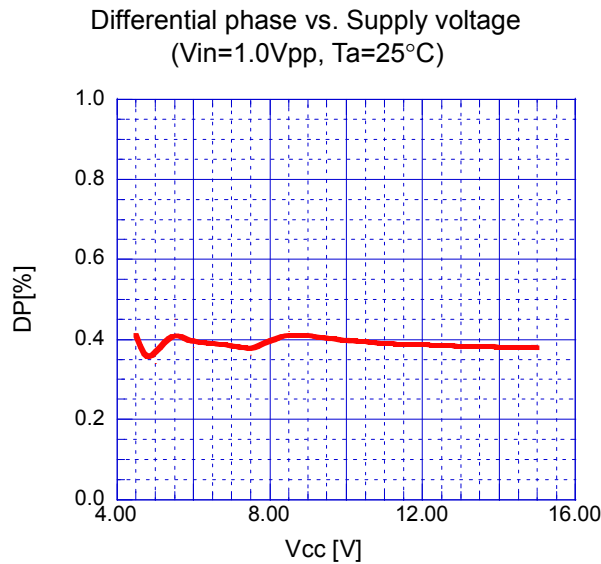
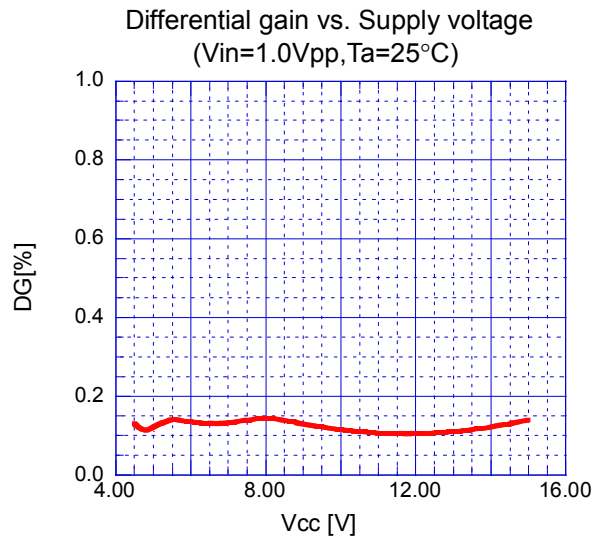
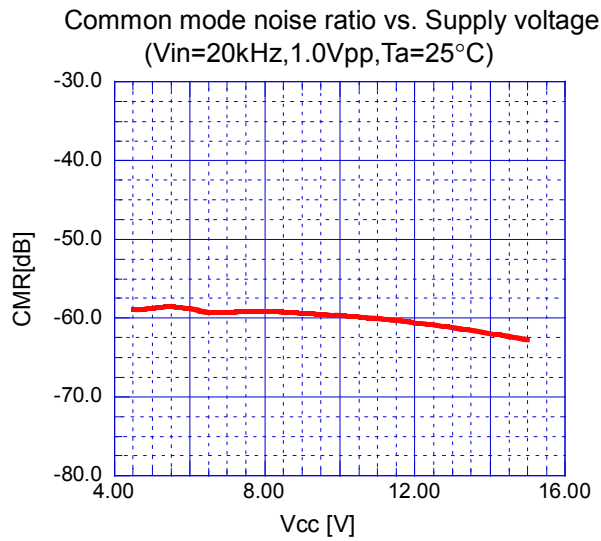
Voltage gain vs. Supply voltage
($V_{in}=100\text{kHz}$, 1.0Vpp , $T_a=25^\circ\text{C}$)



Frequency characteristics vs. Supply voltage
($V_{in}=1.0\text{Vpp}$, $10\text{MHz}/1\text{MHz}$, $T_a=25^\circ\text{C}$)

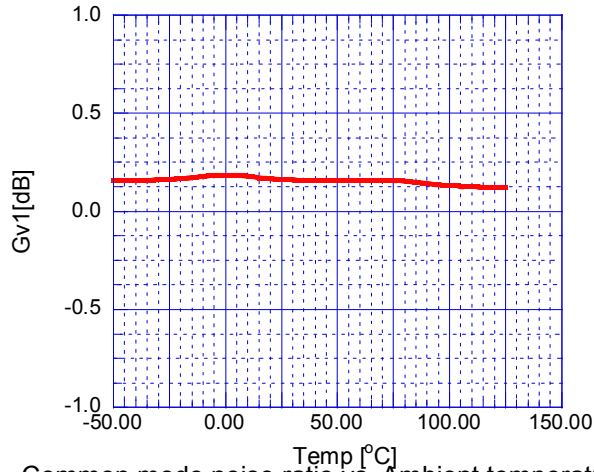


■ TYPICAL CHARACTERISTICS

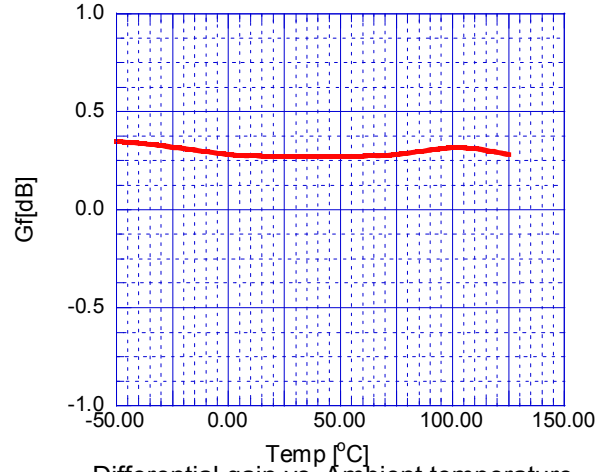


■ TYPICAL CHARACTERISTICS

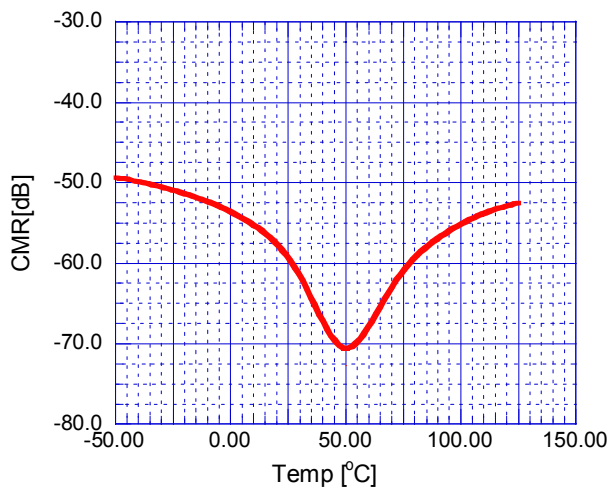
Voltage gain vs. Ambient temperature
($V_{cc}=5V, V_{in}=100kHz, 1.0V_{pp}$)



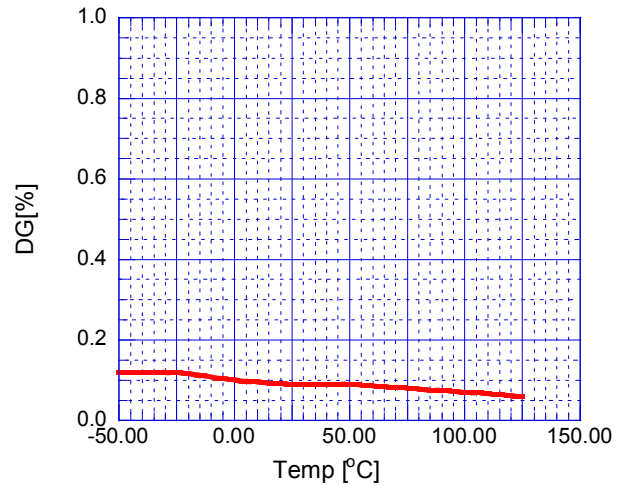
Frequency characteristics vs. Ambient temperature
($V_{cc}=5V, V_{in}=1.0V_{pp}$ 10MHz/1MHz)



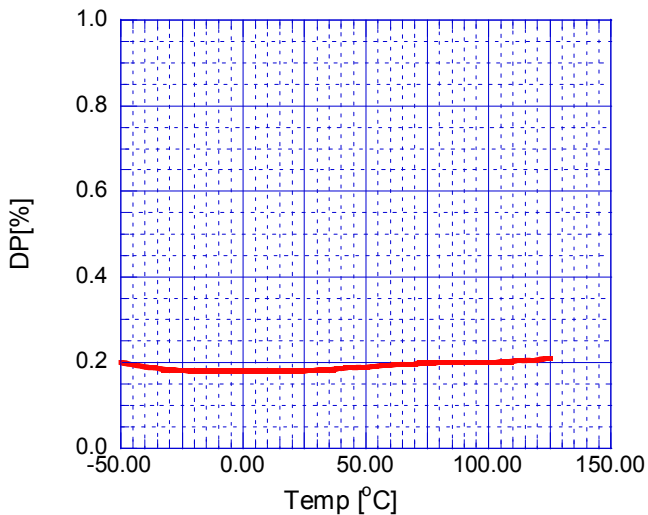
Common mode noise ratio vs. Ambient temperature
($V_{cc}=5V, V_{in}=20kHz, 1.0V_{pp}$)



Differential gain vs. Ambient temperature
($V_{cc}=5V, V_{in}=1.0V_{pp}$)



Differential phase vs. Ambient temperature
($V_{cc}=5V, V_{in}=1.0V_{pp}$)



[CAUTION]

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