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.

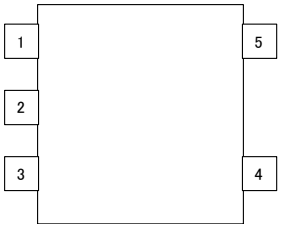
■ PACKAGE OUTLINE

NJM2505AF

■ FEATURES

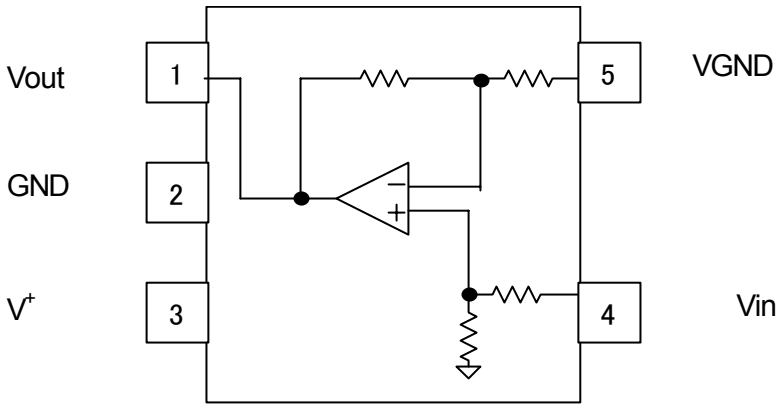
- Operating Voltage 4.5 to 9.0V
- Input: Sync-tip Clamp
- Common Mode Noise Rejection Ratio –55dBtyp.
- Voltage Gain 0dBtyp.
- Frequency Characteristics 0dBtyp.at 10MHz
- Bipolar Technology
- Package MTP5

■ PIN CONFIGURATION



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

■ BLOCK DIAGRAM



■ **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)

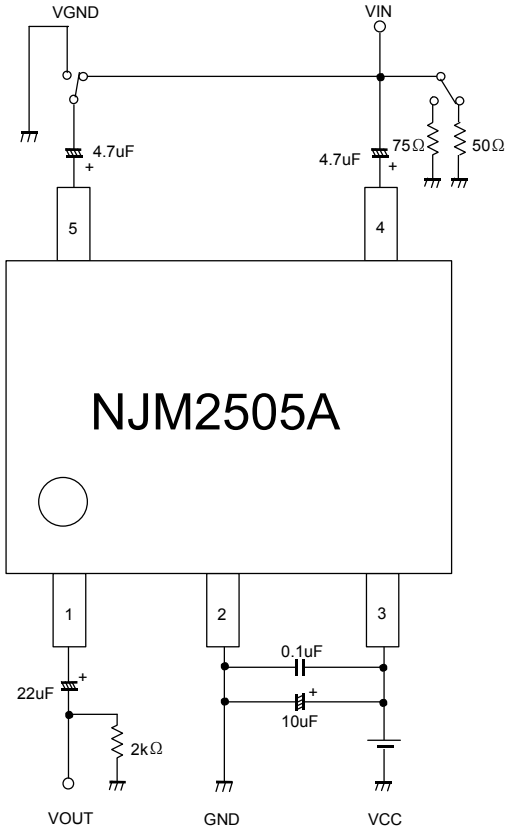
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage Range	Vopr		4.5	-	9.0	V

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

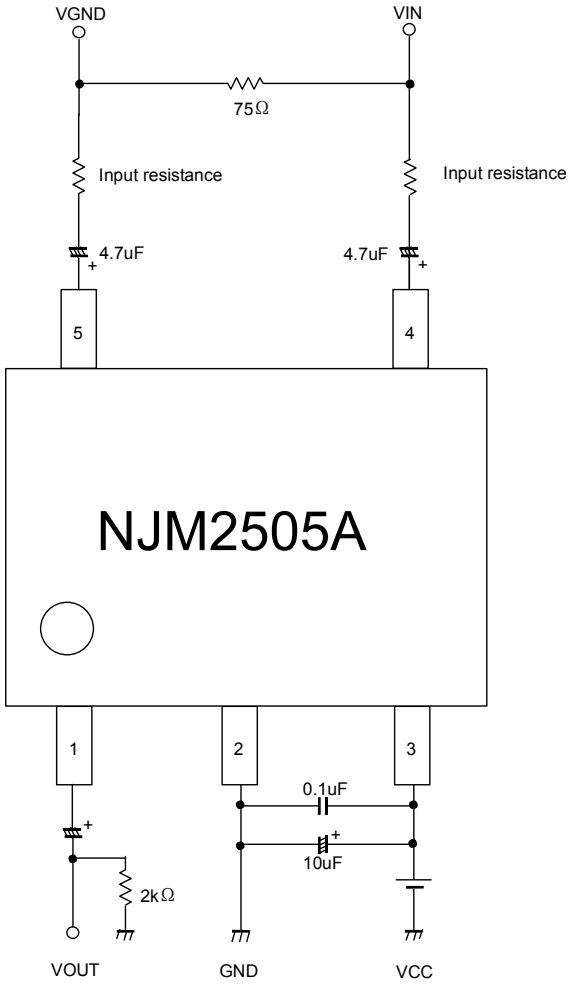
PARAMETR	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I_{CC}	No Signal	-	3.0	6.0	mA
Maximum Output Voltage Level	Vom	Vin=100kHz,Sin-Signal,THD=1%,	2.0	2.2	-	Vp-p
Voltage Gain	Gv	Vin=100kHz,1.0Vp-p,Sin-Signal	-1.0	0	1.0	dB
Frequency Characteristics	Gf	Vin=10MHz / 1MHz ,1.0VppSin-Signal	-1.0	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**



■ **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.

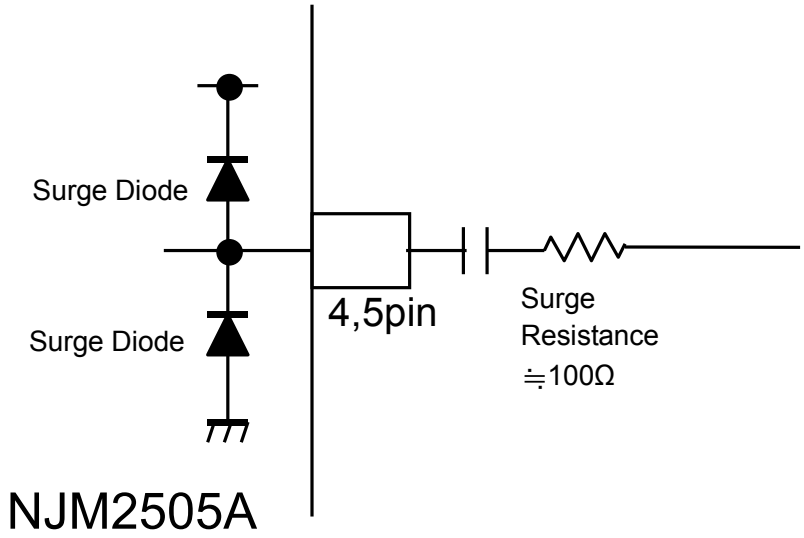


Fig1: External connection

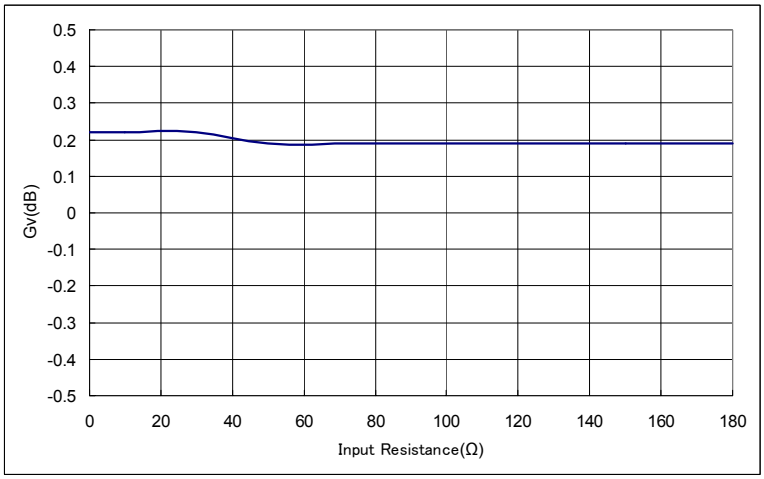


Fig2: Input resistance vs. Voltage gain

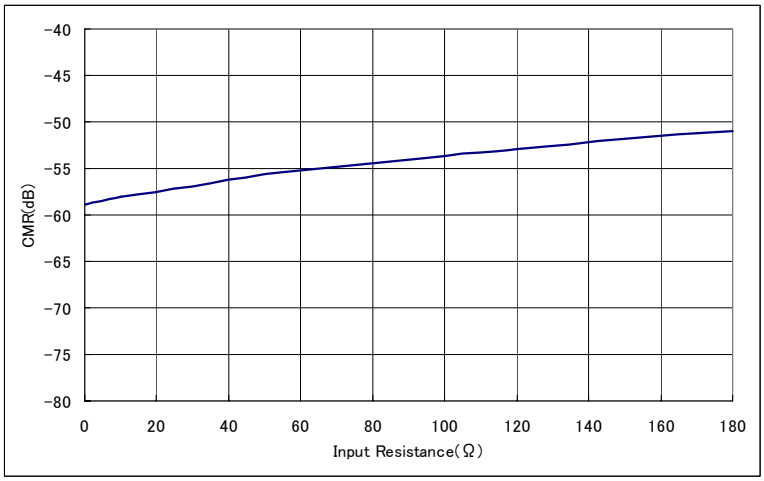


Fig3: Input resistance vs. Common mode rejection ratio

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.

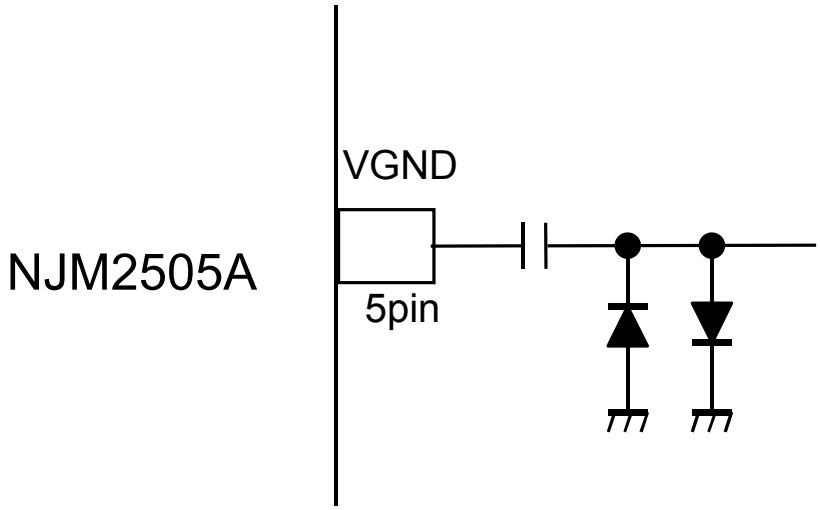
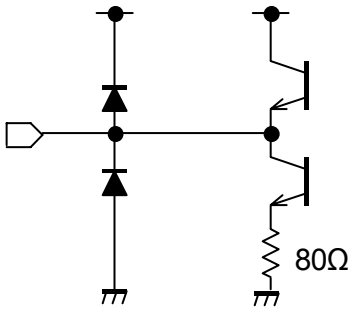
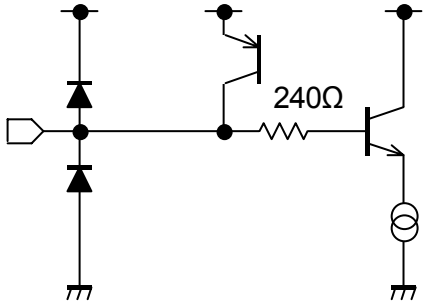
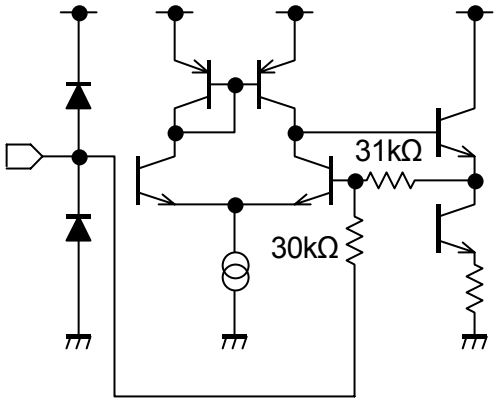


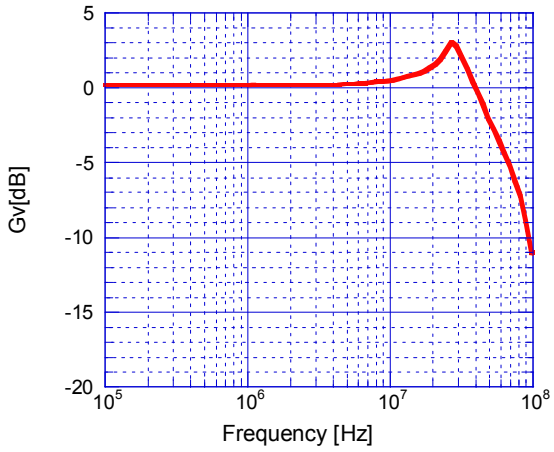
Fig4: External connection

■ **EQUIVALENT CIRCUIT**

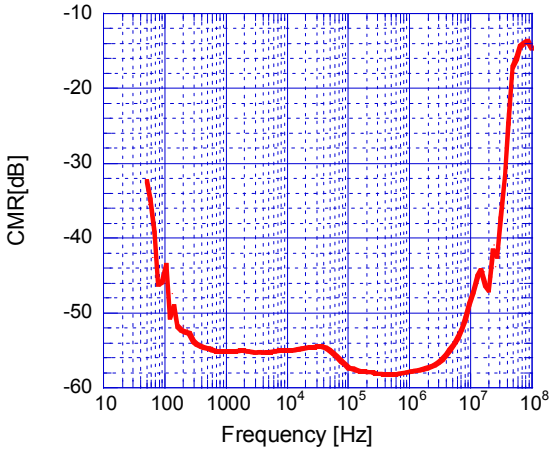
Pin.No	Symbol	Inside Equivalent Circuit	Voitage
1	Vout		0.92V
2	GND	-	-
3	V^+	-	-
4	Vin		1.67V
5	VGND		1.67V

■ TYPICAL CHARACTERISTICS

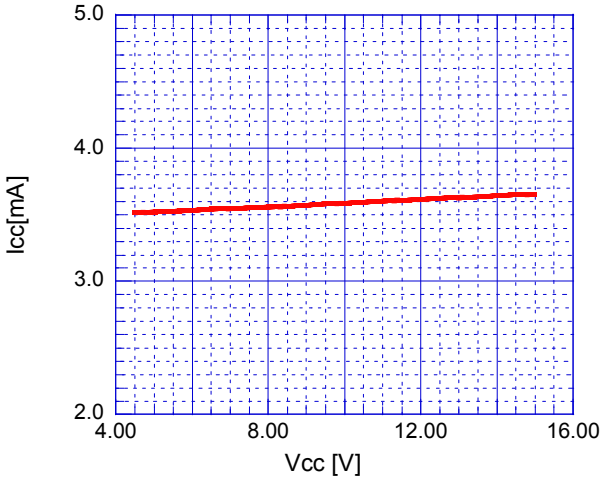
Voltage gain vs. Frequency
(Vin=100kHz,1.0Vp-p,Ta=25°C)



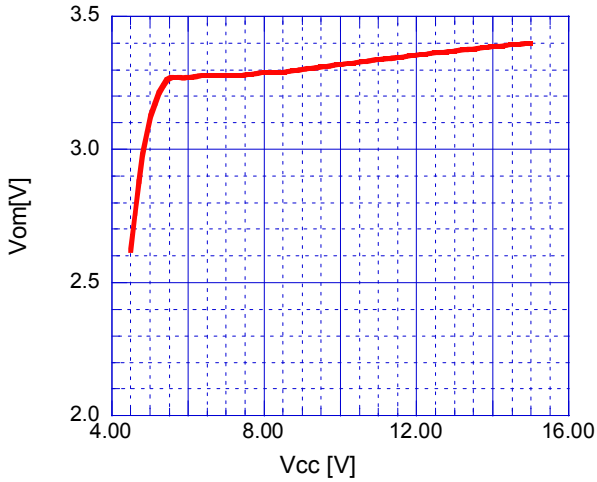
Common mode rejection ratio vs. Frequency
(Vin=1.0Vp-p,Ta=25°C)



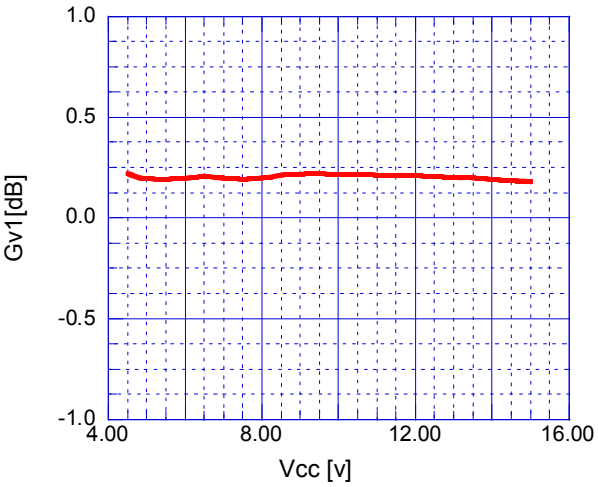
Supply current vs. Supply voltage
(Ta=25°C)



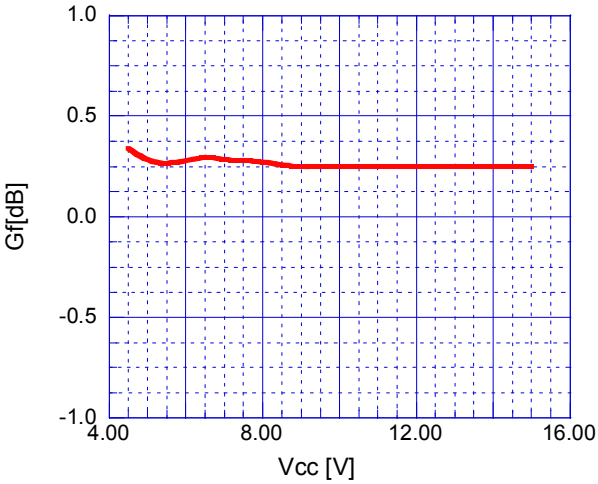
Maximum output voltage vs. Supply voltage
(Vin=100kHz,Ta=25°C)



Voltage gain vs. Supply voltage
(Vin=100kHz,1.0Vpp,Ta=25°C)

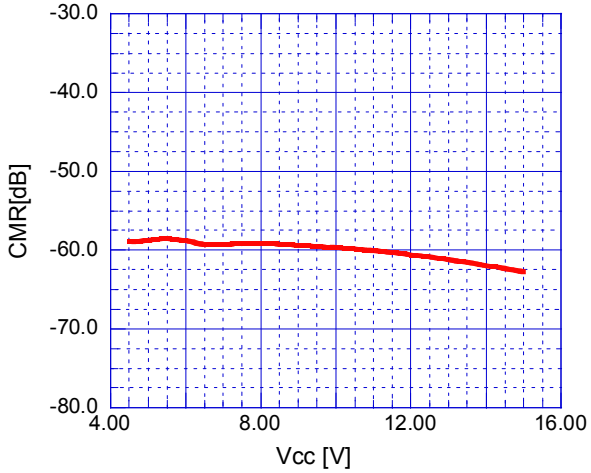


Frequency characteristics vs. Supply voltage
(Vin=1.0Vpp,10MHz/1MHz,Ta=25°C)

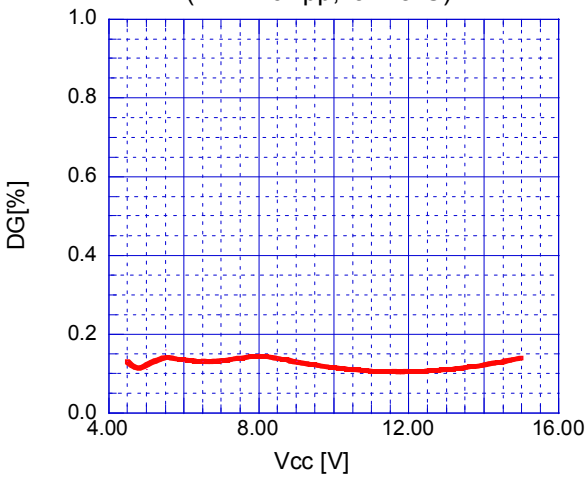


■ TYPICAL CHARACTERISTICS

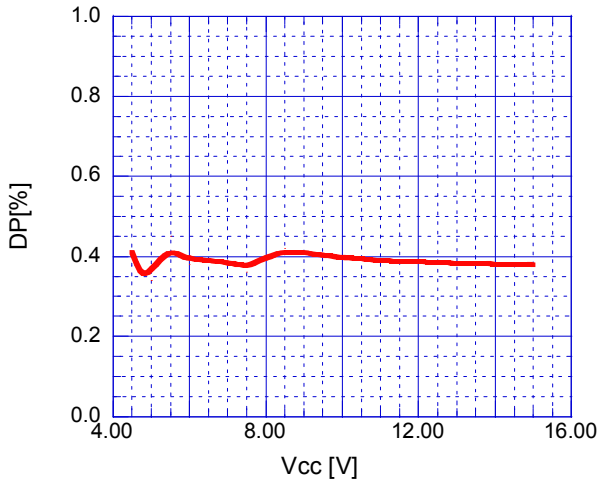
Common mode noise ratio vs. Supply voltage
(Vin=20kHz,1.0Vpp,Ta=25°C)



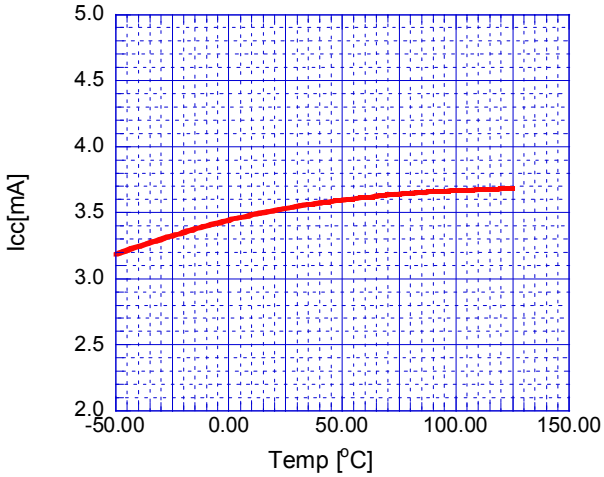
Differential gain vs. Supply voltage
(Vin=1.0Vpp,Ta=25°C)



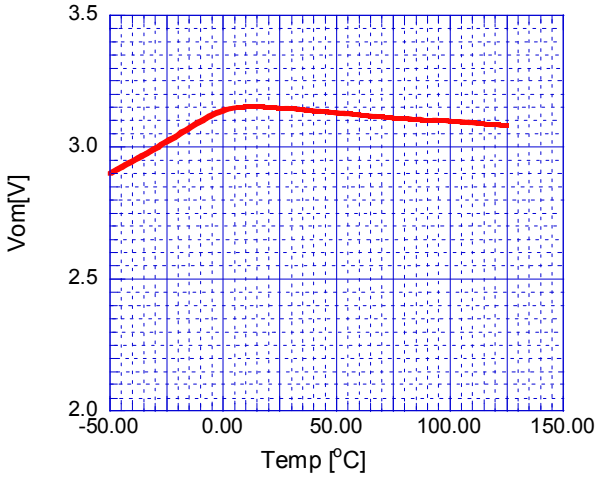
Differential phase vs. Supply voltage
(Vin=1.0Vpp, Ta=25°C)



Supply current vs. Ambient temperature
(Vcc=5V)

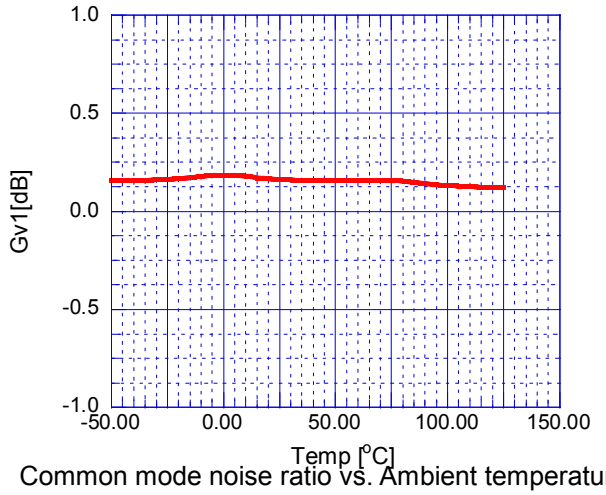


Maximum output voltage vs. Ambient temperature
(Vcc=5V,Vin=100kHz)

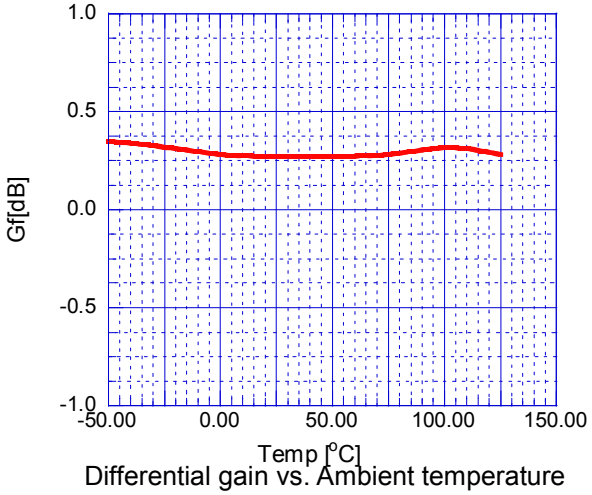


■ TYPICAL CHARACTERISTICS

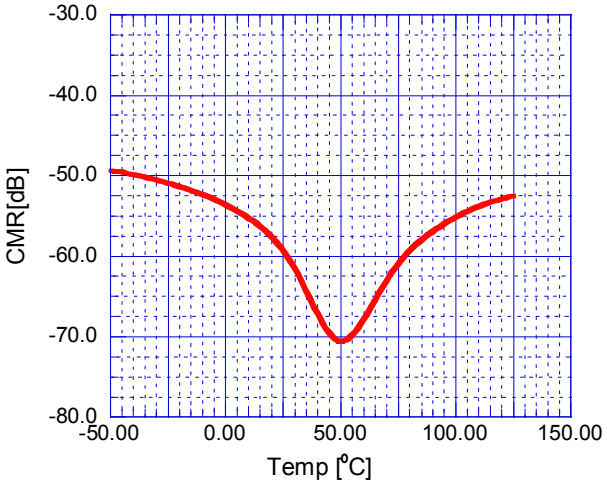
Voltage gain vs. Ambient temperature
(Vcc=5V,Vin=100kHz,1.0Vpp)



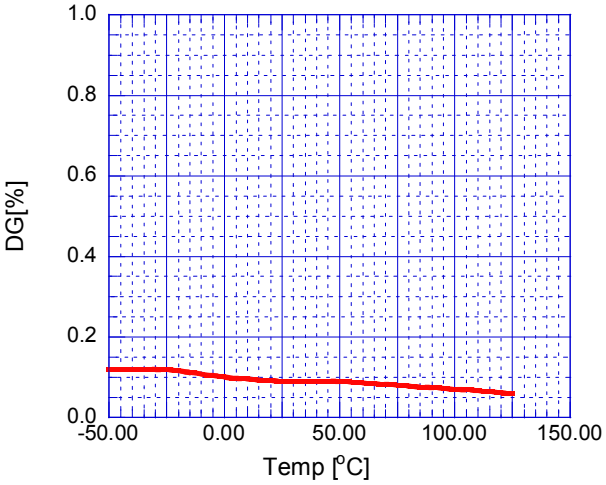
Frequency characteristics vs. Ambient temperature
(Vcc=5V,Vin=1.0Vpp 10MHz/1MHz)



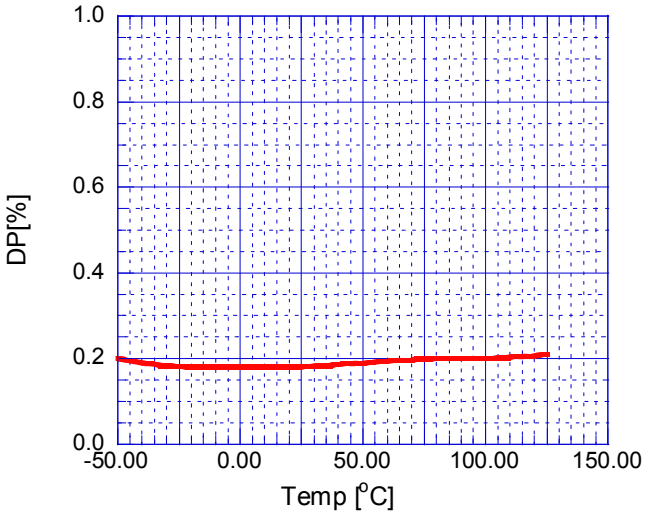
Common mode noise ratio vs. Ambient temperature
(Vcc=5V,Vin=20kHz,1.0Vpp)



Differential gain vs. Ambient temperature
(Vcc=5V,Vin=1.0Vpp)



Differential phase vs. Ambient temperature
(Vcc=5V,Vin=1.0Vpp)



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