

SINGLE ISOLATION AMPLIFIER

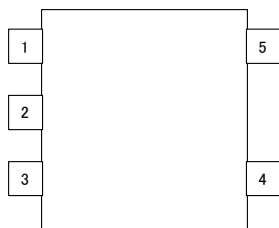
■ GENERAL DESCRIPTION

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



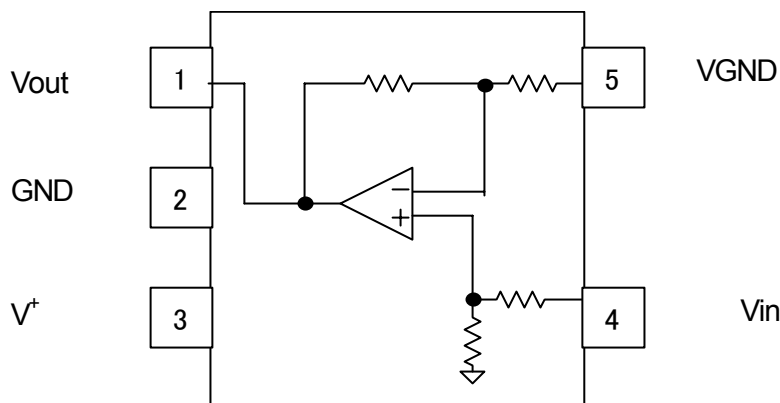
- 1: Vout
- 2: GND
- 3: V+
- 4: Vin
- 5: VGND

■ 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)

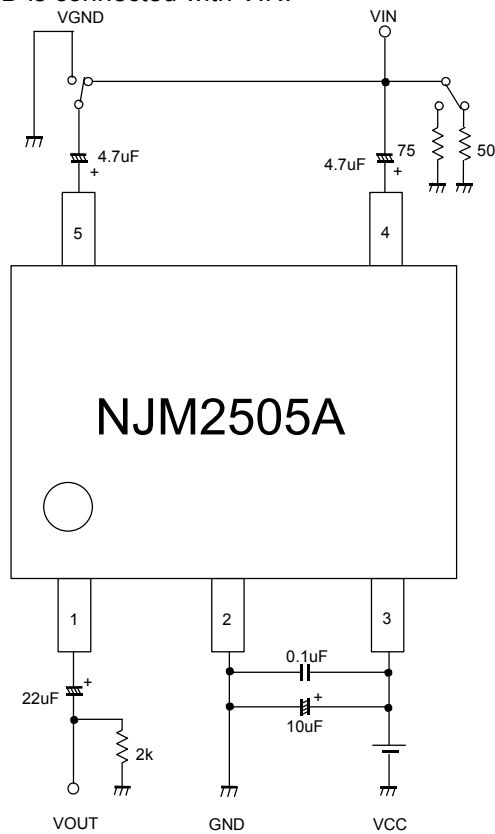
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------------|--------|----------------|------|------|------|------|
| Operating Voltage Range | Vopr | | 4.5 | - | 9.0 | V |

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

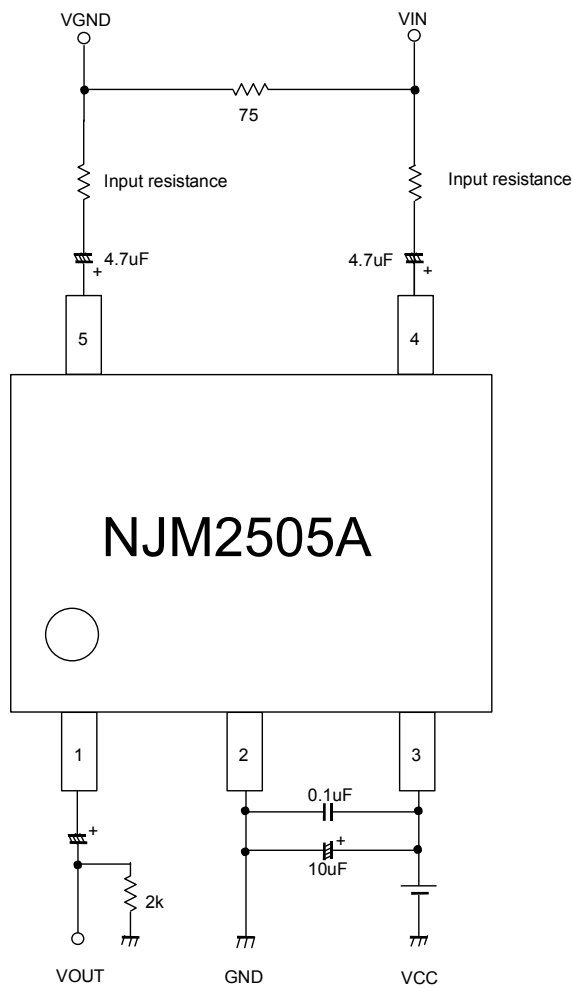
| PARAMETR | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|-----------------|-------------------------------------|------|------|------|------|
| Supply Current | I _{CC} | No Signal | - | 3.0 | 6.0 | mA |
| Maximum Output Voltage Level | Vom | Vin=100kHz, 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.

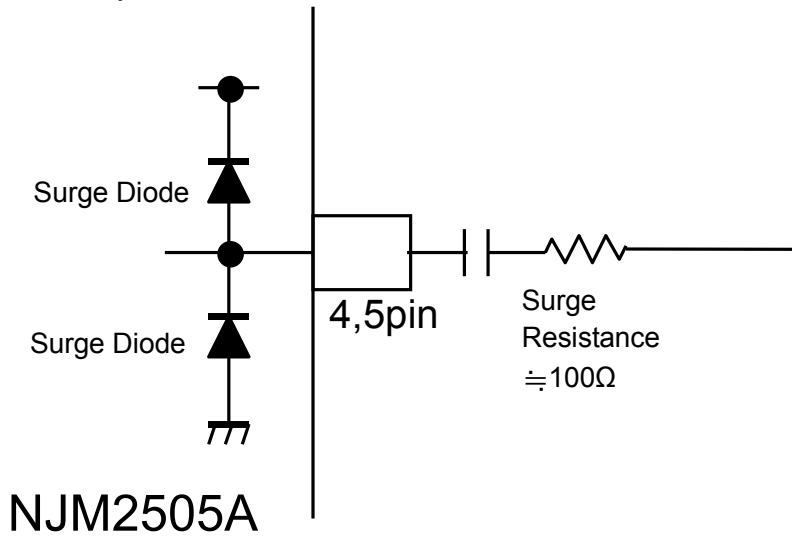


Fig1: External connection

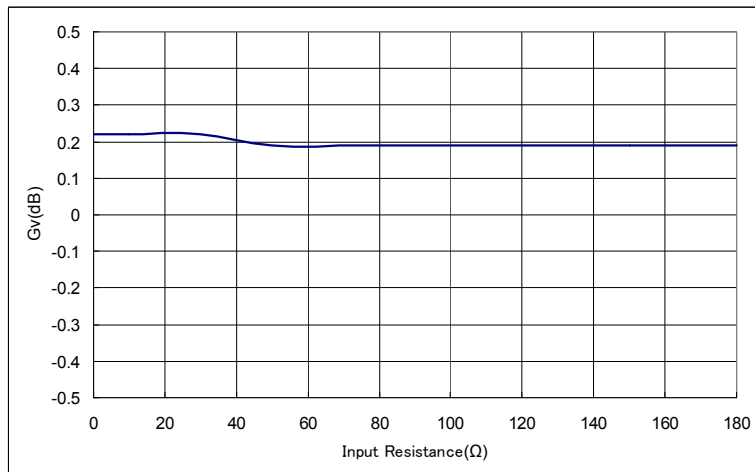


Fig2: Input resistance vs. Voltage gain

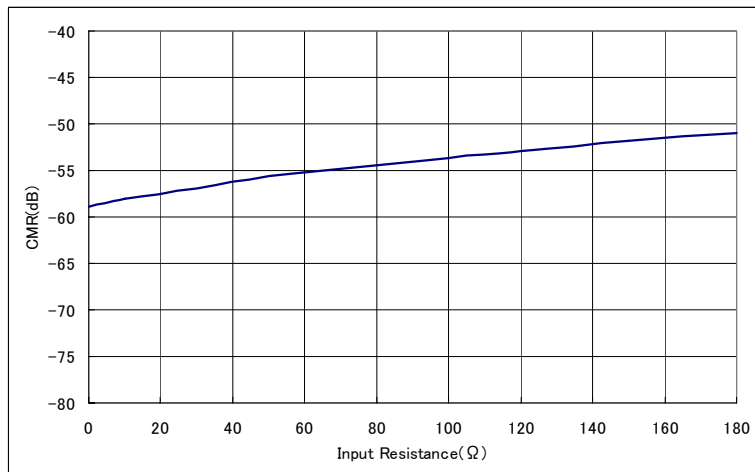


Fig3: Input resistance vs. Common mode rejection ratio

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.

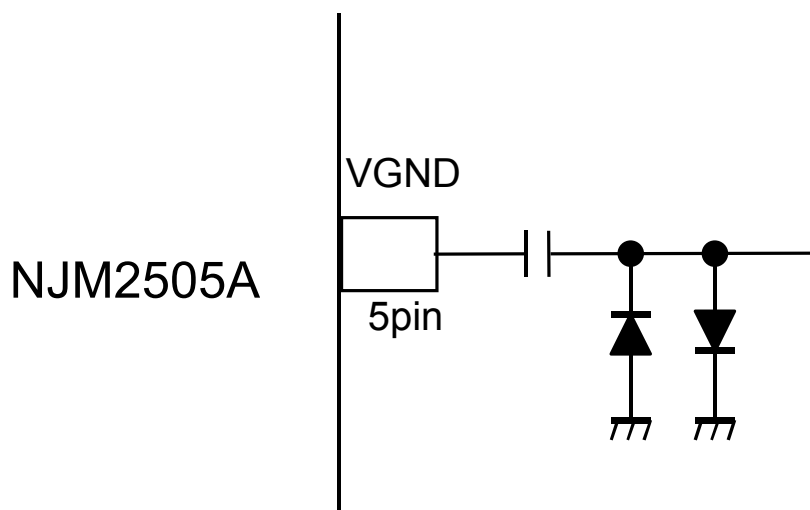


Fig4: External connection

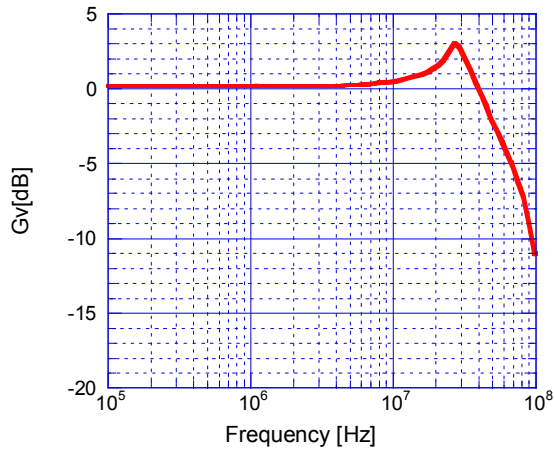
NJM2505A

■ EQUIVALENT CIRCUIT

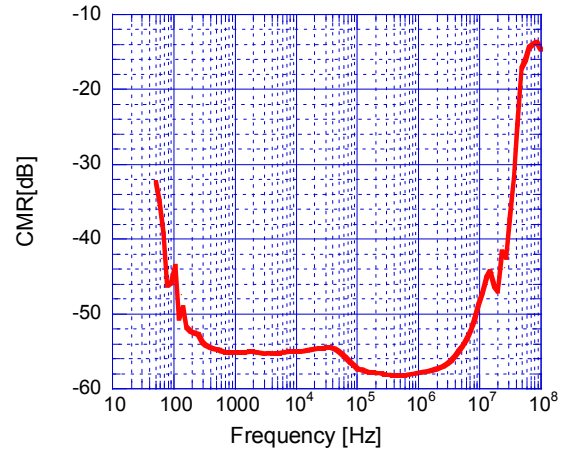
| Pin.No | Symbol | Inside Equivalent Circuit | Voitage |
|--------|----------------|---------------------------|---------|
| 1 | Vout | | 0.92V |
| 2 | GND | - | - |
| 3 | V ⁺ | - | - |
| 4 | Vin | | 1.67V |
| 5 | VGND | | 1.67V |

■ TYPICAL CHARACTERISTICS

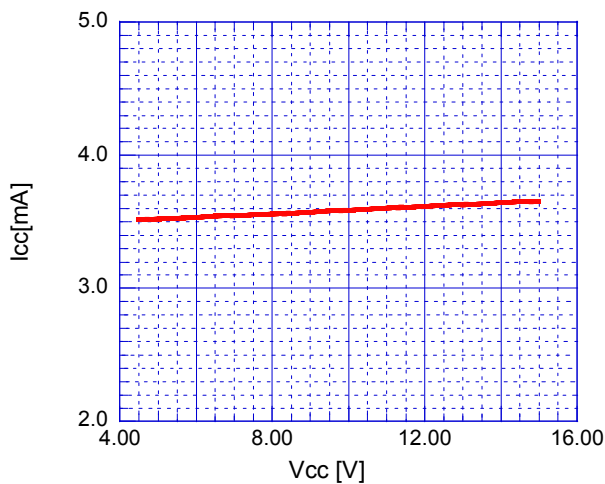
Voltage gain vs. Frequency
($V_{in}=100\text{kHz}, 1.0\text{Vp-p}, T_a=25^\circ\text{C}$)



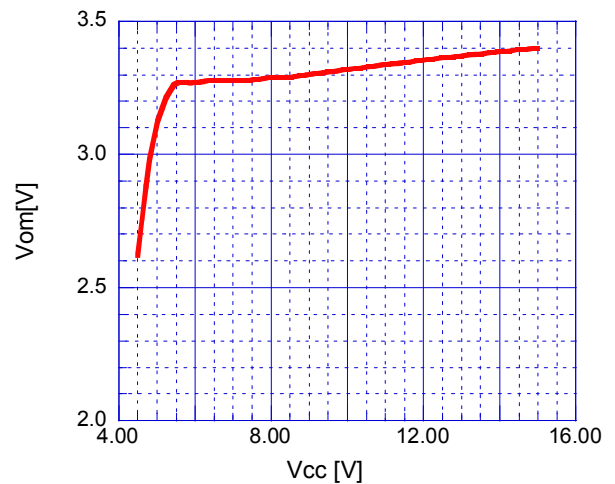
Common mode rejection ratio vs. Frequency
($V_{in}=1.0\text{Vp-p}, T_a=25^\circ\text{C}$)



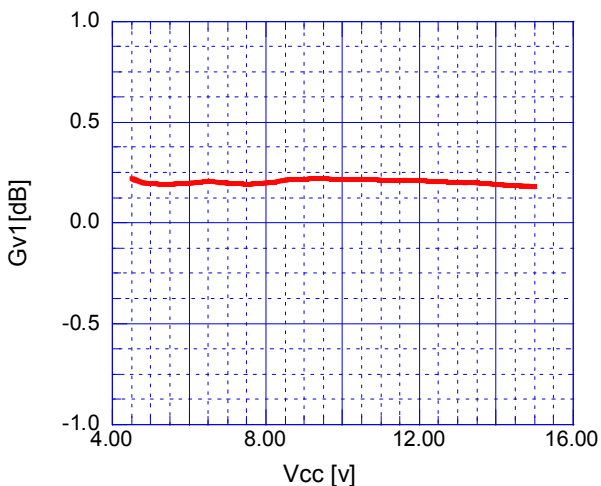
Supply current vs. Supply voltage
($T_a=25^\circ\text{C}$)



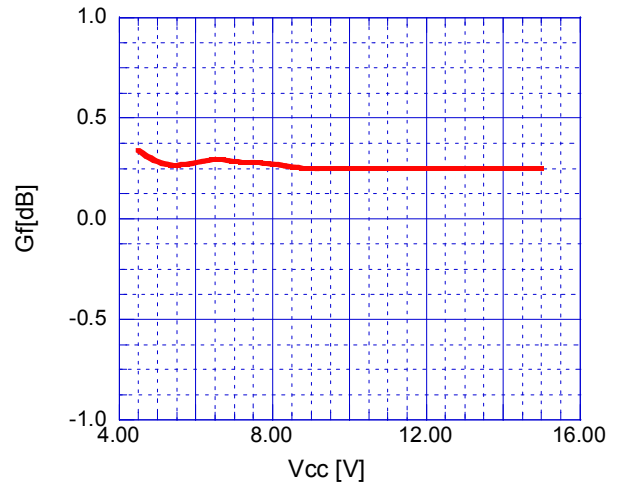
Maximum output voltage vs. Supply voltage
($V_{in}=100\text{kHz}, T_a=25^\circ\text{C}$)



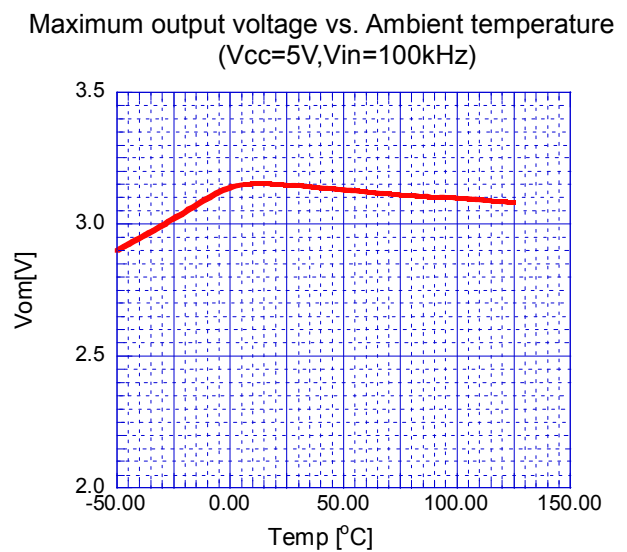
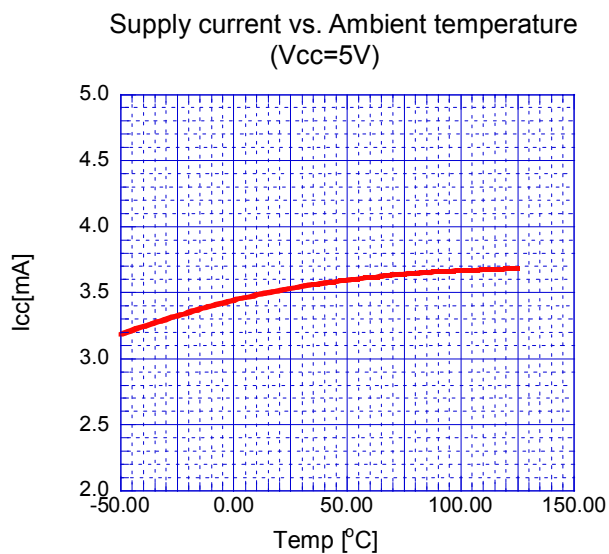
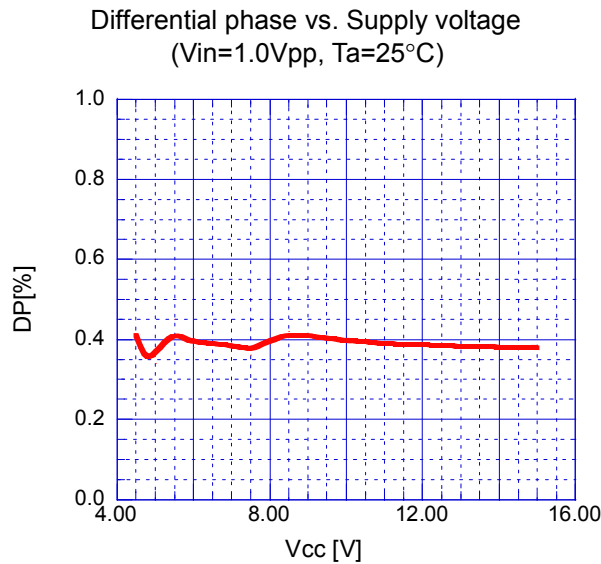
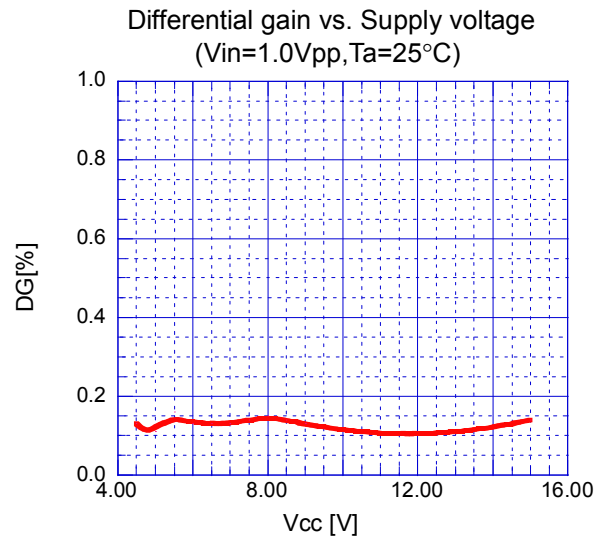
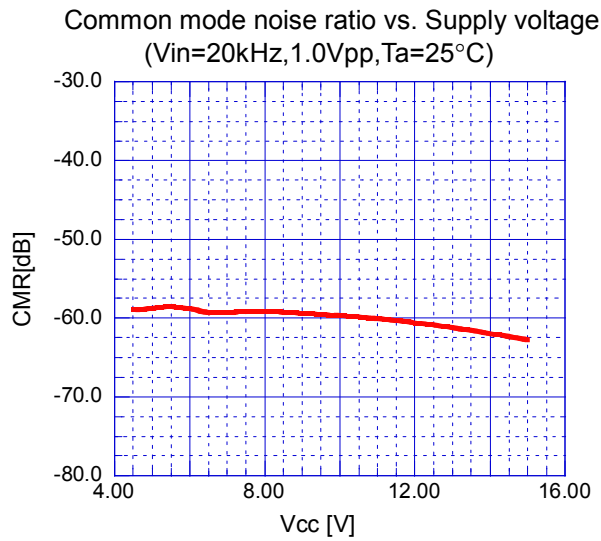
Voltage gain vs. Supply voltage
($V_{in}=100\text{kHz}, 1.0\text{Vpp}, T_a=25^\circ\text{C}$)



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

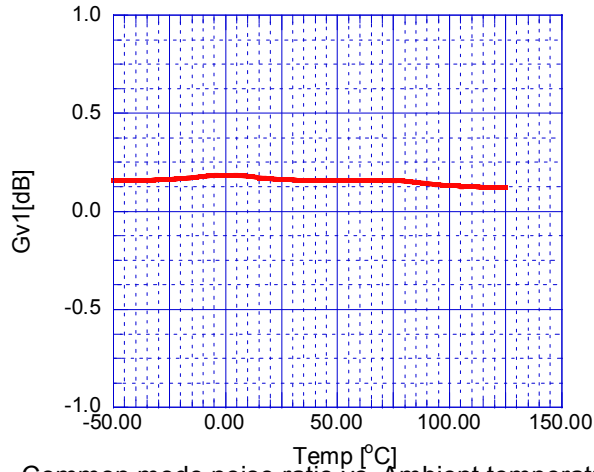


■ TYPICAL CHARACTERISTICS

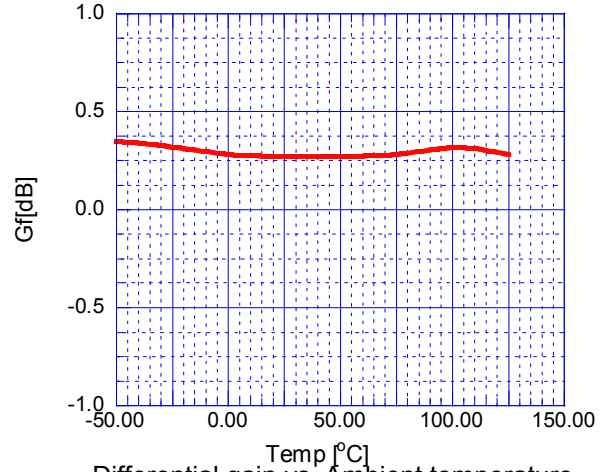


■ TYPICAL CHARACTERISTICS

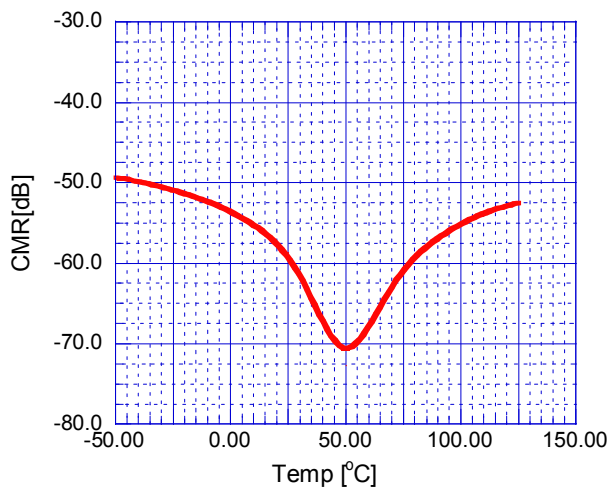
Voltage gain vs. Ambient temperature
($V_{cc}=5V, V_{in}=100kHz, 1.0V_{pp}$)



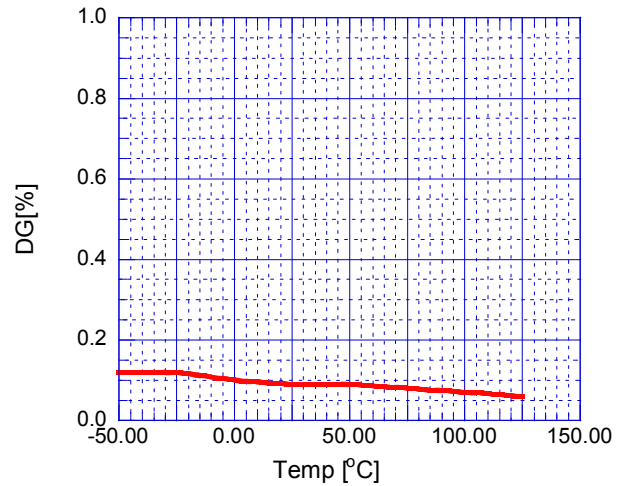
Frequency characteristics vs. Ambient temperature
($V_{cc}=5V, V_{in}=1.0V_{pp}$ 10MHz/1MHz)



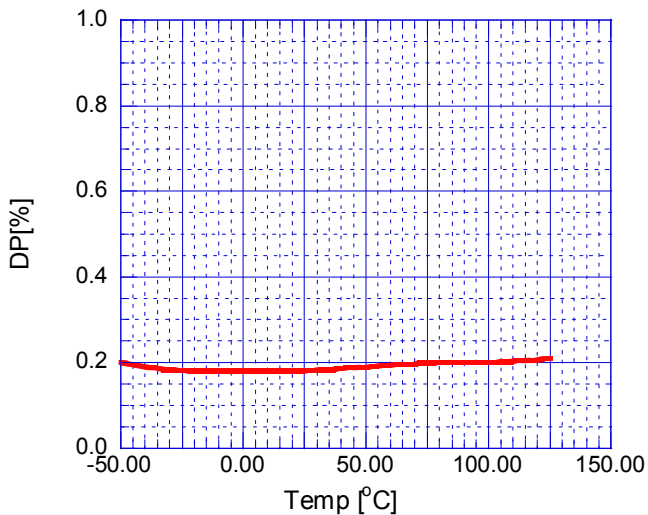
Common mode noise ratio vs. Ambient temperature
($V_{cc}=5V, V_{in}=20kHz, 1.0V_{pp}$)



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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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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