

LOW POWER VIDEO AMPLIFIER WITH Y-C MIXER

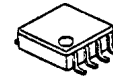
■ GENERAL DESCRIPTION

The **NJM2274A** is low voltage operation video amplifier with Y/C mixer and 75-ohm driver.

The NJM2274A is suitable for DSC, DVC, CCD camera and other portable video applications.

The NJM2274 is 0.5Vp-p input, and The NJM2274A is 1.0Vp-p input.

■ PACKAGE OUTLINE

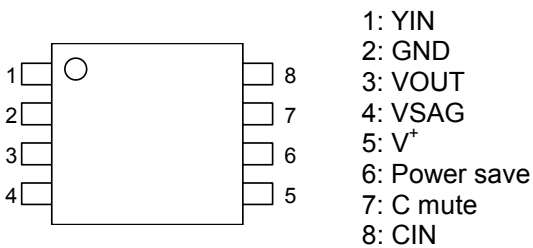


NJM2274AR

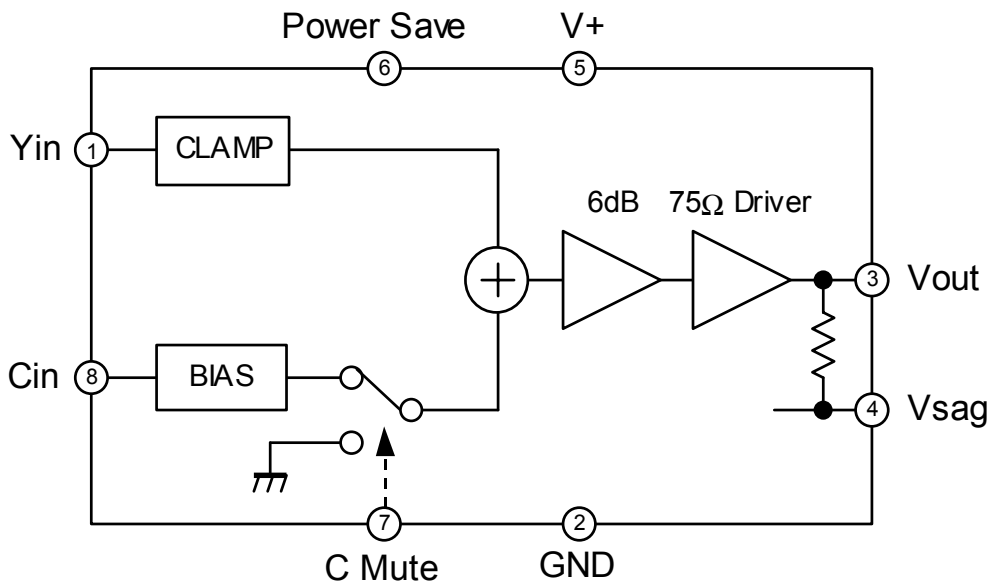
■ FEATURES

- Low Operating Voltage 2.8 to 5.5V
- Y/C MIX Circuit
- 6dB Amplifier, 75Ω Driver Circuit
- Y-input: Clamp
C-input: Bias
- Bipolar Technology
- Package Outline VSP8

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABOSOLUTE MAXIMUM RATINGS

(Ta=25°C)

| PARAMRTER | SYMBOL | RATINGS | UNIT |
|-----------------------------|----------------|-------------|------|
| Supply Voltage | V ⁺ | 7.0 | V |
| Power Dissipation | P _D | 580(Note1) | mW |
| Operating Temperature Range | Topr | -40 to +85 | °C |
| Storage Temperature Range | Tstg | -40 to +125 | °C |

(Note) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm 2 layers, FR-4)

■ RECOMMENDED OPEARATING CONDITION

(Ta=25°C)

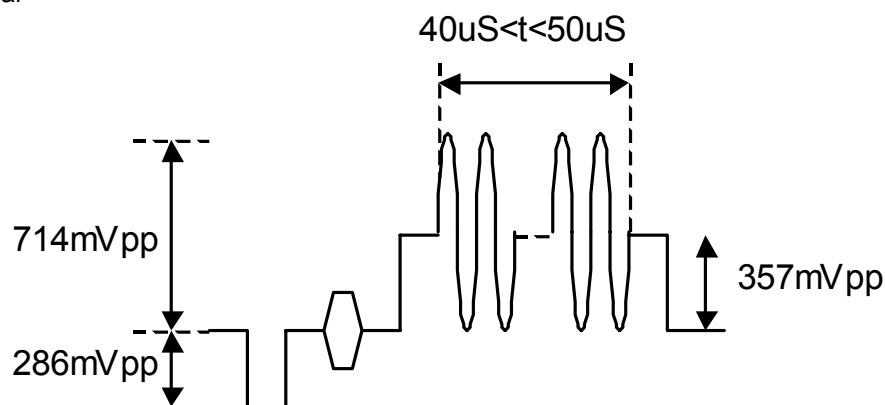
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------|--------|----------------|------|------|------|------|
| Operating Voltage | Vopr | | 2.8 | 3.0 | 5.5 | V |

■ ELECTRICAL CHARACTERISTICS (V⁺=3.0V, Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------------------------|-------------------|---|------|------|----------------|-----------------|
| Operating Current | I _{cc} | No Signal | - | 9.3 | 14.0 | mA |
| Operating Current (Power Save Mode) | I _{save} | Power Save Mode | - | 0.8 | 1.4 | mA |
| Maximum Output Voltage | V _{om} | f=1kHz, THD=1% | 2.2 | - | - | V _{pp} |
| Voltage Gain | G _v | Yin=100kHz, 1.0V _{pp} , Sine Video Signal (note) | 5.9 | 6.4 | 6.9 | dB |
| Frequency Characteristic | G _f | Yin=10MHz/100kHz, 1.0V _{pp} , Sine Video Signal (note) | -1.0 | 0 | +1.0 | dB |
| Differential Gain | DG | Yin=1.0V _{pp} , 10Step Video Signal | - | 2.5 | - | % |
| Differential Phase | DP | Yin=1.0V _{pp} , 10Step Video Signal | - | 1.0 | - | deg |
| Chroma Mute Cross talk | CT | Cin=4.43MHz, 0.2V _{pp} | - | -65 | - | dB |
| S/N Ratio | SN _v | Yin=0.2V _{pp} , 100%White Video Signal, Cin=AC gnd Wide Band 100kHz to 6MHz, R _L =75ohm | - | 66 | - | dB |
| Second Distortion | H _v | Yin=0.2V _{pp} , 3.58MHz Red Field Video Signal, Cin=AC gnd R _L =75ohm | - | -40 | - | dB |
| Input Resistance | R _{cin} | Chroma signal input | - | 20 | - | kΩ |
| Mute Switch Change Voltage | V _{thMH} | | 1.4 | - | V ⁺ | V |
| | V _{thML} | | 0 | - | 0.6 | |
| Power Save Switch Change Voltage | V _{thPH} | | 1.4 | - | V ⁺ | V |
| | V _{thPL} | | 0 | - | 0.6 | |

www.DataSheet4U.com

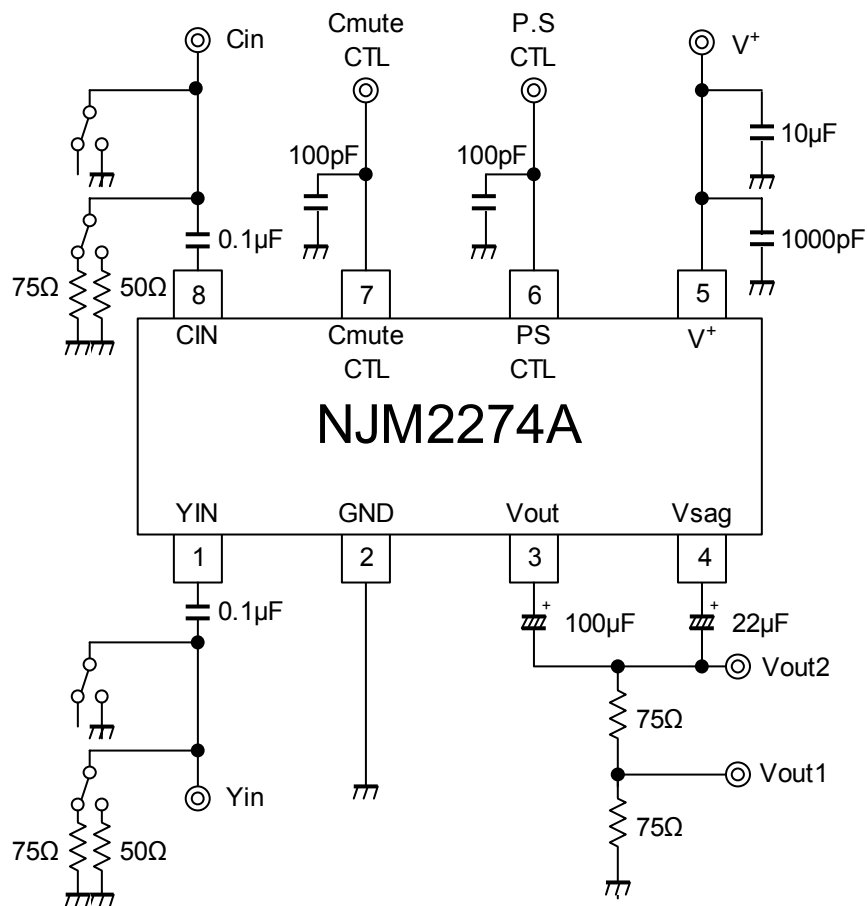
note) Sine Video Signal



■ CONTROL TERMINAL EXPLANATION

| PARAMETER | STATUS | NOTE |
|-------------|--------|--------------------------|
| Chroma Mute | H | Chroma Mute: ON |
| | L | Chroma Mute: OFF |
| | OPEN | Chroma Mute: OFF |
| Power Save | H | Power Save: OFF (Active) |
| | L | Power Save: ON (Mute) |
| | OPEN | Power Save: ON (Mute) |

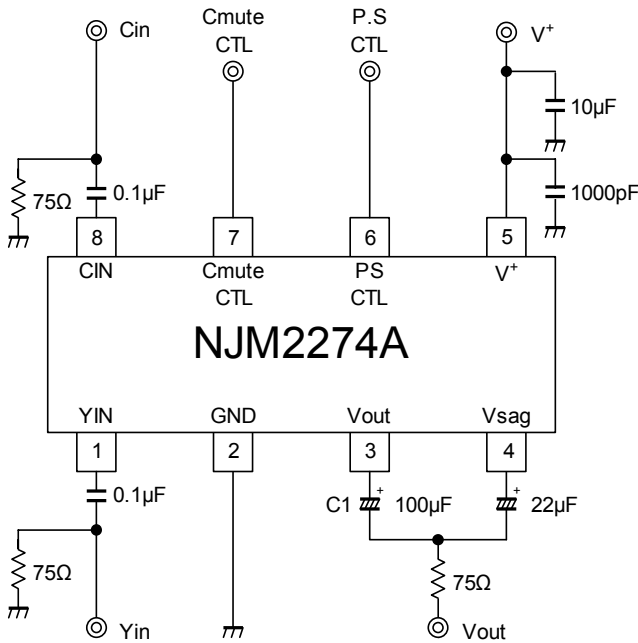
■ TEST CIRCUIT



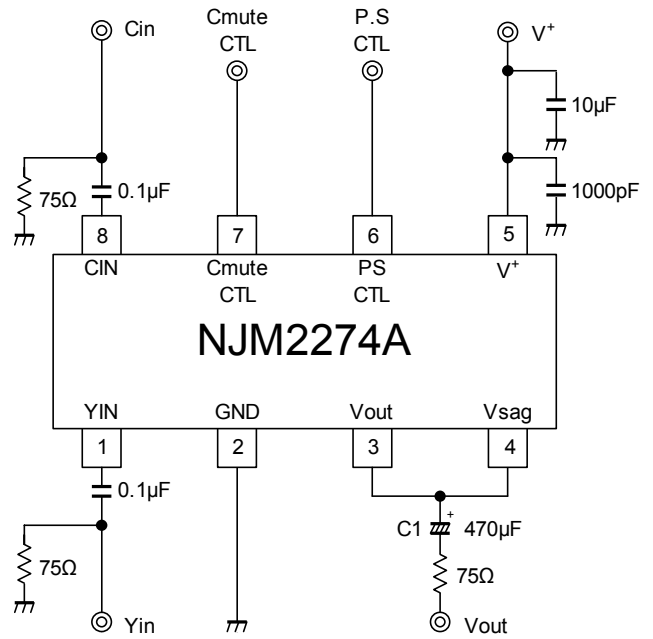
www.DataSheet4U.com

APPLICATION CIRCUIT

(1) Standard circuit



(2) SAG correction unused circuit



(1) Standard circuit

The SAG correction reduces output coupling capacitor values.

Adjust the C1 value, checking the waveform containing a lot of low frequency components like a bounce waveform (In case of worst condition). Change the capacitor of C1 into a large value to improve SAG.

(2) SAG correction unused circuit

Cancel the SAG correction to improve lost synchronization.

Connect the coupling capacitor after connecting the Vout pin and Vsag pin. The recommended value is 470μF or more.

www.DataSheet4U.com

(Note)

The NJM2274A can't drive two-line load of 150Ω.

■ TERMINAL DESCRIPTION

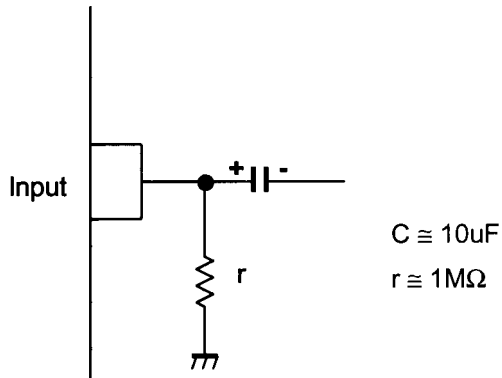
| PIN No. | SYMBOL | FUNCTION | VOLTAGE | EQUIVALENT CIRCUIT |
|---------|--------|-------------------------------|---------|--------------------|
| 1 | Yin | Luminance Signal Input | 1.3V | |
| 2 | GND | GND | 0V | |
| 3 | Vout | Composite Video Signal Output | 0.3V | |
| 4 | Vsag | SAG Correction | 0.38 | |

| PIN No. | SYMBOL | FUNCTION | VOLTAGE | EQUIVALENT CIRCUIT |
|---------|-----------------|----------------------------|---------|--------------------|
| 5 | V+ | Power Supply | - | |
| 6 | Power Save CTL. | Power Save Control | 0V | |
| 7 | Cmute CTL | Chroma Signal Mute Control | 0V | |
| 8 | Cin | Chroma Signal Input | 1.4V | |

www.DataSheet4U.com

APPLICATION

This IC requires $1\text{M}\Omega$ resistance between YIN pin and GND for clamp type input since the minute current causes an unstable pin voltage.



[CAUTION]
The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.