



KA22241

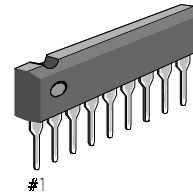
DUAL EQ AMP WITH ALC

INTRODUCTION

The KA22241 is a monolithic integrated circuit consisting of a dual equalizer amplifier with ALC, and it is suitable for stereo radio cassette-tape recorders.

FEATURES

- Dual equalizer amplifier with built-in ALC circuit Low noise; $V_{NI} = 1.0\mu$ (Typ)
- High open loop voltage gain: 80dB (Typ)
- Wide operating supply voltage range: $V_{CC} = 4.5V \sim 14V$
- Good ALC response balance between channels
- Input coupling capacitor unnecessary
- Diode or transistor for ALC unnecessary
- Minimum number of external parts required

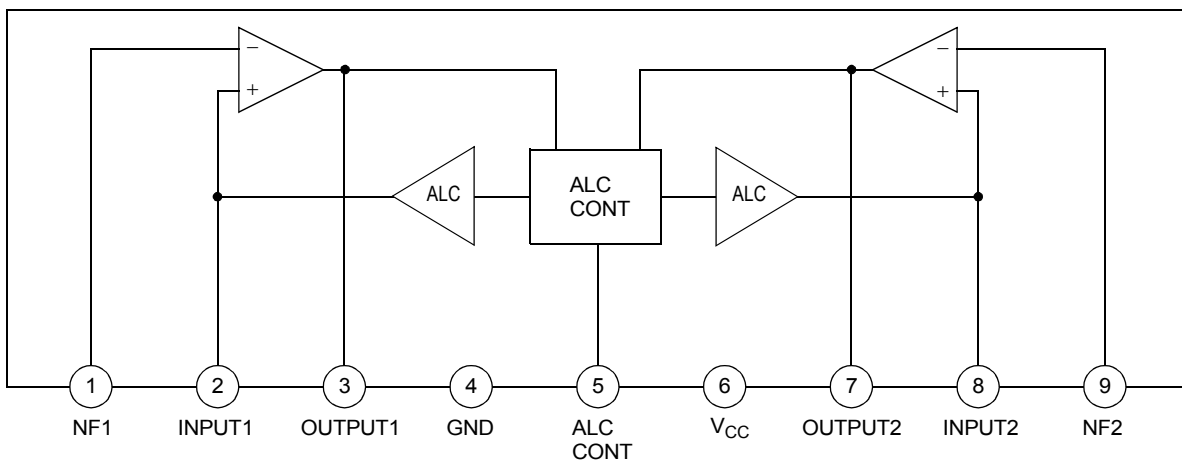


9-SIP

ORDERING INFORMATION

| Device | Package | Operating Temperature |
|---------|---------|-----------------------|
| KA22241 | 9-SIP | -20°C ~ +75°C |

BLOCK DIAGRAM



**KA22241****DUAL EQ AMP WITH ALC****ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)**

| Characteristic | Symbol | Value | Unit |
|-----------------------|------------------|------------|------|
| Supply Voltage | V _{CC} | 16 | V |
| Power Dissipation | P _D | (NOTE) 550 | mW |
| Operating Temperature | T _{OPR} | -20 ~ +75 | °C |
| Storage Temperature | T _{STG} | -20 ~ +125 | °C |

NOTE: Derated above T_A = 25 °C in the propotion of 5.5 mW/°C

ELECTRICAL CHARACTERISTICS

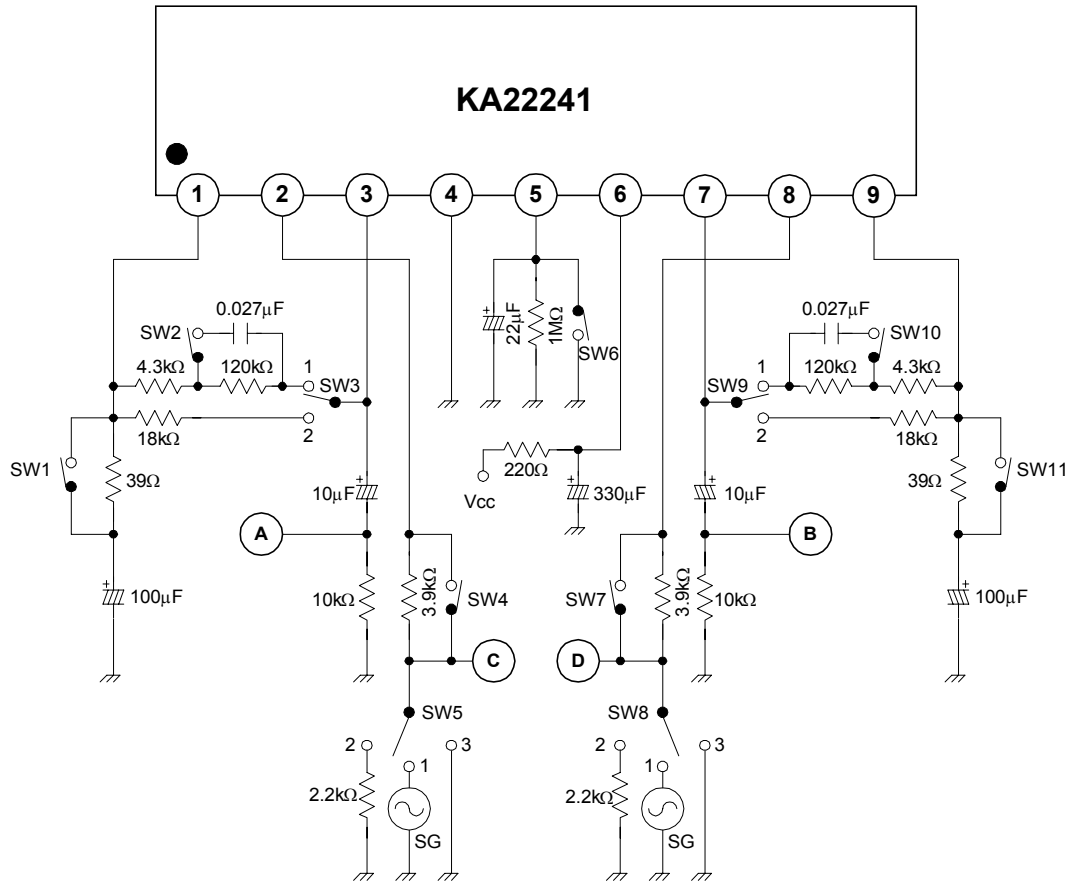
(T_a = 25°C, V_{CC} = 7V, f = 1kHz, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------|-------------------|---|------|------|------|------|
| Quiescent Circuit Current | I _{CCQ} | V _I = 0 | 1.5 | 3.5 | 4.5 | mA |
| Open Loop Voltage Gain | G _{VO} | V _O = 0.3V | 70 | 80 | - | dB |
| Closed Loop Voltage Gain | G _{VC} | V _O = 0.3V | 45 | 48 | 50 | dB |
| Output Voltage | V _O | THD = 1% | 0.6 | 1.2 | - | V |
| Total Harmonic Distortion | THD | V _O = 0.3V | - | 0.1 | 0.3 | % |
| Equivalent Input Noise Voltage | V _{NI} | R _G =2.2kΩ, BW (-3dB)=20Hz ~ 20kHz | - | 1.0 | 2.0 | μV |
| Input Resistance | R _I | - | 15 | 25 | 45 | kΩ |
| ALC Range | ΔV _{ALC} | R _G = 3.9kΩ, THD = 10% | 40 | 45 | - | dB |
| ALC Balance | CB _{ALC} | V _I = 1mV | - | 0 | 2.5 | dB |



KA22241 TEST CIRCUIT

DUAL EQ AMP WITH ALC





KA22241

DUAL EQ AMP WITH ALC

TEST METHOD

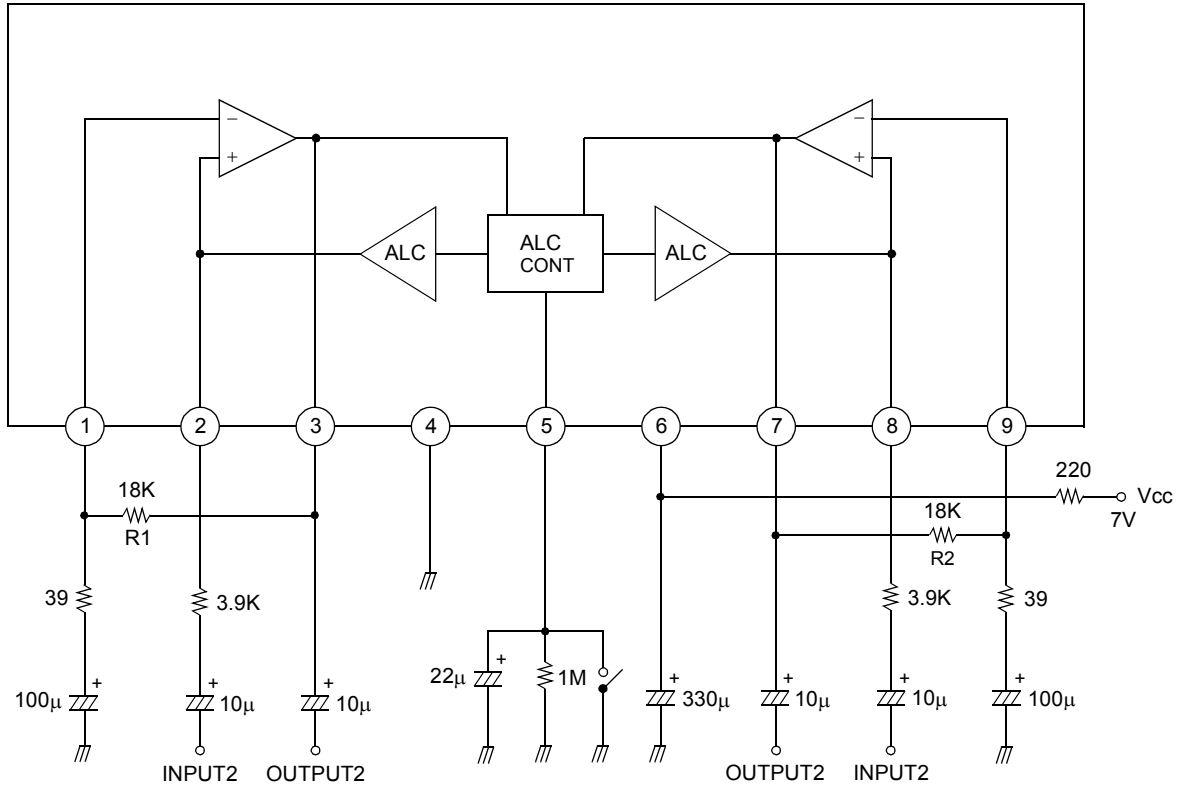
| Symbol | | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 |
|------------------|-------|-----|-----|----|-----|----|-----|-----|----|----|-----|-----|
| I_{CCQ} | | ON | OFF | 1 | ON | 3 | ON | ON | 3 | 1 | OFF | ON |
| G_{VO} | | ON | OFF | 1 | ON | 1 | ON | ON | 3 | 1 | OFF | ON |
| G_{VC} | CH -1 | OFF | ON | 1 | ON | 1 | ON | ON | 3 | 1 | OFF | ON |
| THD | CH -1 | OFF | ON | 1 | ON | 1 | ON | ON | 3 | 1 | OFF | ON |
| V_O | CH -1 | OFF | ON | 1 | ON | 1 | ON | ON | 3 | 1 | OFF | ON |
| V_{NI} | CH -1 | OFF | ON | 1 | ON | 2 | ON | ON | 3 | 1 | OFF | ON |
| | CH -2 | ON | OFF | 1 | ON | 3 | ON | ON | 2 | 1 | ON | OFF |
| ΔV_{ALC} | CH -1 | OFF | OFF | 2 | OFF | 1 | OFF | ON | 3 | 1 | OFF | ON |
| CB_{ALC} | | OFF | OFF | 2 | OFF | 1 | OFF | OFF | 1 | 2 | OFF | OFF |



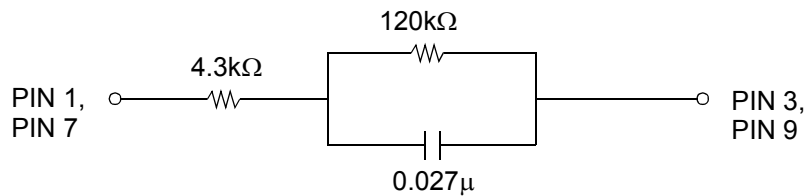
KA22241

DUAL EQ AMP WITH ALC

APPLICATION CIRCUIT



NOTE: ON playback, connect the time constant circuit as shown below, instead of R1 of Pins 1, 3 and R2 of Pins 7, 9, which are used in the NAB.





KA22241 APPLICATION CIRCUIT

DUAL EQ AMP WITH ALC

