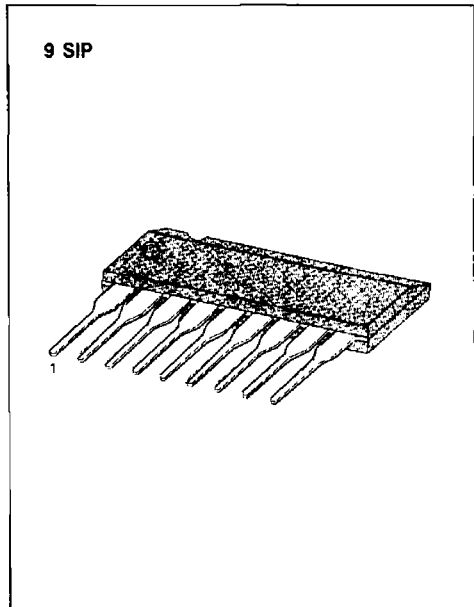


## DUAL EQUALIZER AMPLIFIER WITH ALC

The KA2224 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;  $V_{NI} = 1.0\mu V$  (Typ)
- High open loop voltage gain; 80 dB (Typ)
- Wide operating supply voltage range;  $V_{CC} = 4.5V \sim 14V$
- Good ALC response balance between channels
- Not necessary the input coupling capacitor
- Not necessary diode or transistor for ALC
- Built in power supply muting circuit
- Minimum number of external parts required



### ORDERING INFORMATION

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

### BLOCK DIAGRAM

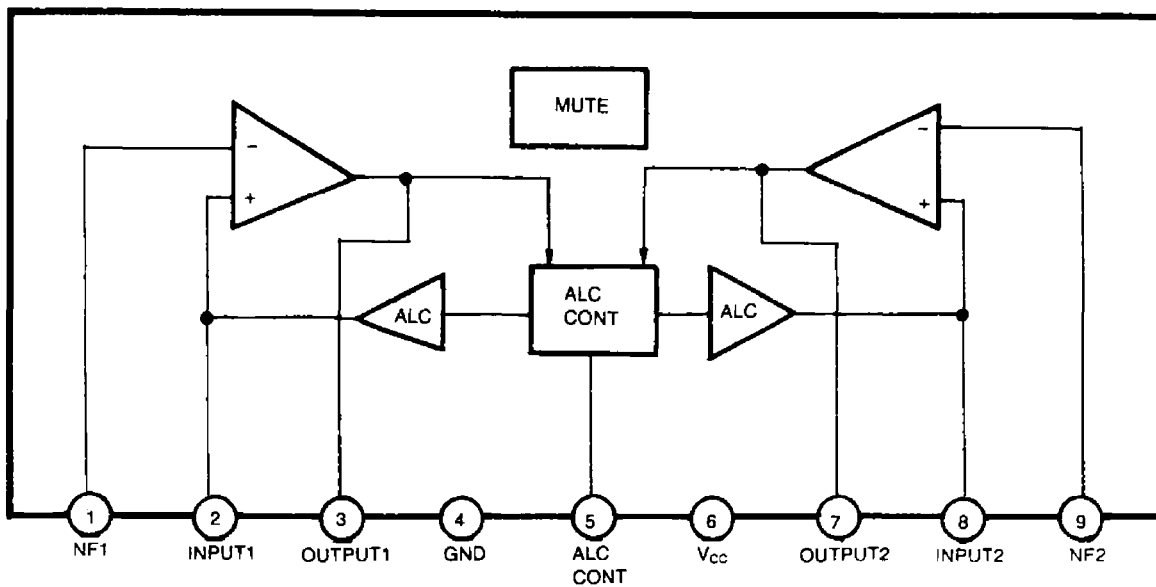


Fig. 1

**ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)**

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	16	V
Power Dissipation	P <sub>D</sub>	*550	mW
Operating Temperature	T <sub>OPR</sub>	-20 ~ +75	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +125	°C

\* : Derated above Ta = 25°C in the proportion of 5.5mW/°C

**ELECTRICAL CHARACTERISTICS**

(Ta = 25°C, V<sub>CC</sub> = 7V, f = 1KHz, unless otherwise specified)

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

### TEST CIRCUIT

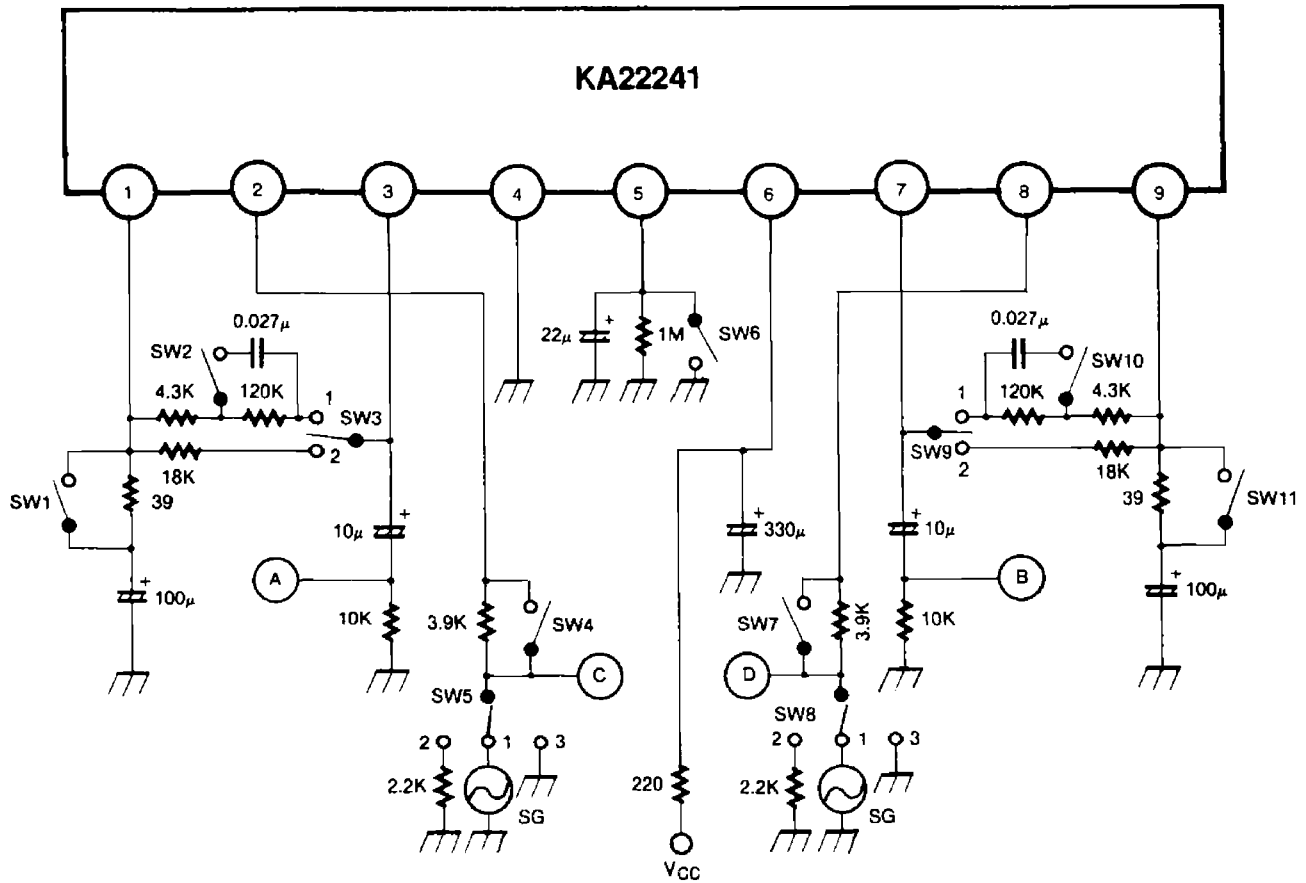


Fig. 2

### TEST METHOD

Symbol	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	
I <sub>CCO</sub>	ON	OFF	1	ON	3	ON	ON	3	1	OFF	ON	
G <sub>VO</sub>	ON	OFF	1	ON	1	ON	ON	3	1	OFF	ON	
G <sub>VC</sub> 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 <sub>o</sub> CH-1	OFF	ON	1	ON	1	ON	ON	3	1	OFF	ON	
V <sub>Ni</sub>	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 <sub>ALC</sub> CH-1	OFF	OFF	2	OFF	1	OFF	ON	3	1	OFF	ON	
CB <sub>ALC</sub>	OFF	OFF	2	OFF	1	OFF	OFF	1	2	OFF	OFF	

# APPLICATION CIRCUIT

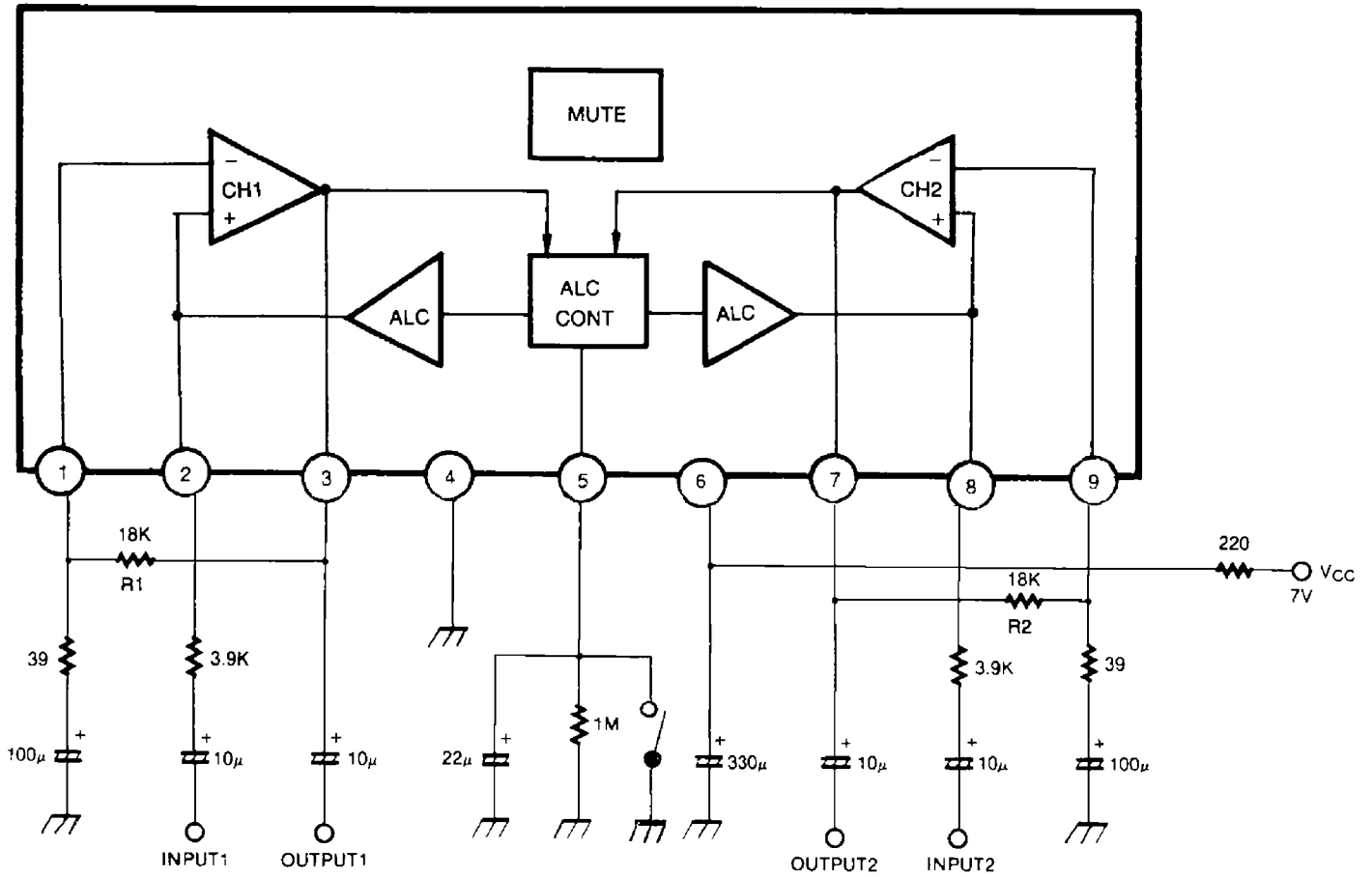


Fig. 3

## NOTE

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

