



KA22241

LINEAR INTEGRATED CIRCUIT

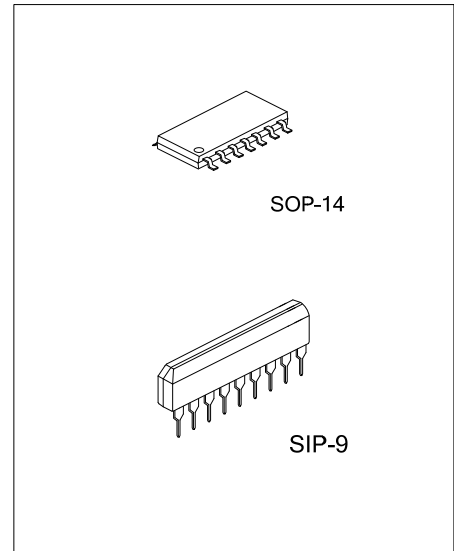
DUAL EQUALIZER AMPLIFIER WITH ALC

DESCRIPTION

The UTC **KA22241** is a monolithic integrated circuit, consisting of 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 $V_{NI}=1.0\mu V$ (Typical)
- * High open loop voltage gain: $G_v=80dB$ (Typical)
- * Good ALC response balance between channels
- * Not necessary the input coupling capacitor
- * Not necessary the diode or transistor for ALC
- * Built in power supply muting circuit
- * Minimum number of external parts required



ORDERING INFORMATION

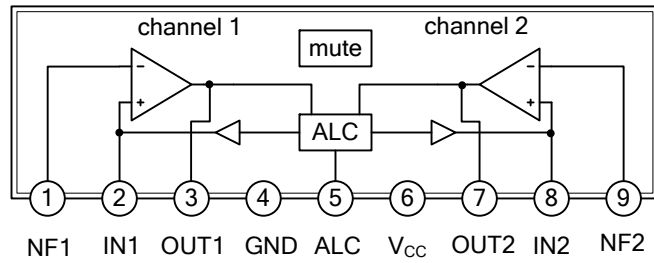
Ordering Number	Package	Packing
KA22241G-G09-T	SIP-9	Tube
KA22241G-S14-R	SOP-14	Tape Reel

<p>KA22241G-G09-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel, T: Tube (2) G09: SIP-9, S14: SOP-14 (3) G: Halogen Free and Lead Free</p>
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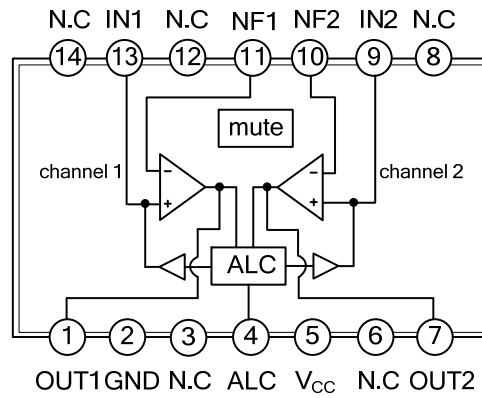
MARKING

SIP-9	SOP-14
<p>UTC □□□□ → Data Code KA22241G □□ → Lot Code 1 2 3 4 5 6 7 8 9</p>	<p>14 13 12 11 10 9 8 → Date Code UTC □□□□ KA22241G □□ → Lot Code 1 2 3 4 5 6 7</p>

■ BLOCK DIAGRAM



SIP-9



SOP-14

■ ABSOLUTE MAXIMUM RATING ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	16	V
Power Dissipation	SIP-9	550	mW
	SOP-14	450	
Operating Temperature	T_{OPR}	-20 ~ 75	$^\circ\text{C}$
Storage Temperature	T_{STG}	-20 ~ 125	$^\circ\text{C}$

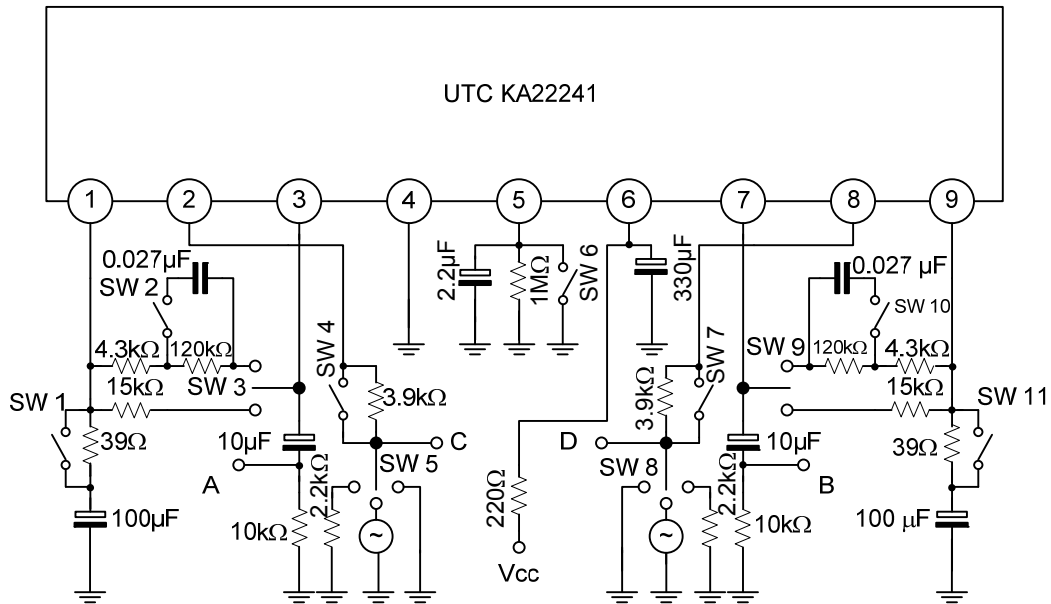
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, $V_{CC}=7\text{V}$, $f=1\text{KHZ}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Noise Voltage	V_{IN}	$R_G=2.2\text{K}\Omega$ $BW(-3\text{dB})=20\text{HZ}\sim 20\text{KHZ}$		1.0	2.0	μV
Output Voltage	V_{OUT}	THD=1%	0.6	1.2		V
Quiescent Circuit Current	I_{CCQ}	$V_{IN}=0$	1.5	3.5	4.5	mA
Open Loop Voltage Gain	G_{VO}	$V_{OUT}=0.3\text{V}$	70	80		dB
Closed Loop Voltage Gain	G_{VC}	$V_{OUT}=0.3\text{V}$	45	48	50	dB
ALC Range	ΔV_{ALC}	$R_O=3.9\text{K}\Omega$, THD=10%	40	45		dB
ALC Balance	CB_{ALC}	$V_{IN}=1\text{mV}$		0	2.5	dB
Total Harmonic Distortion	THD	$V_{OUT}=0.3\text{V}$		0.1	0.3	%
Input Resistance	R_{IN}		15	25	45	$\text{k}\Omega$

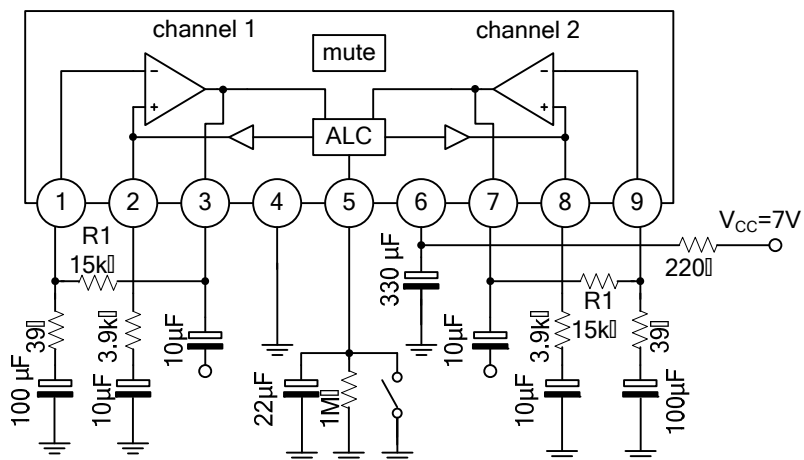
■ TEST CIRCUIT



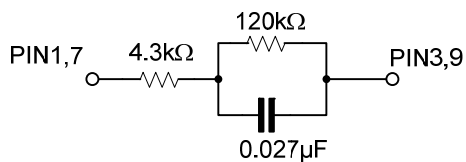
TEST METHOD

SYMBOL	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11
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}	OFF	ON	1	ON	1	ON	ON	3	1	OFF	ON
THD	OFF	ON	1	ON	1	ON	ON	3	1	OFF	ON
V_{OUT}	OFF	ON	1	ON	1	ON	ON	3	1	OFF	ON
V_{NI-1}	OFF	ON	1	ON	2	ON	ON	3	1	OFF	ON
V_{NI-2}	ON	OFF	1	ON	3	ON	ON	2	1	ON	OFF
ΔV_{ALC}	OFF	OFF	2	OFF	1	OFF	ON	3	1	OFF	ON
CB_{ALC}	OFF	OFF	2	OFF	1	OFF	OFF	1	2	OFF	OFF

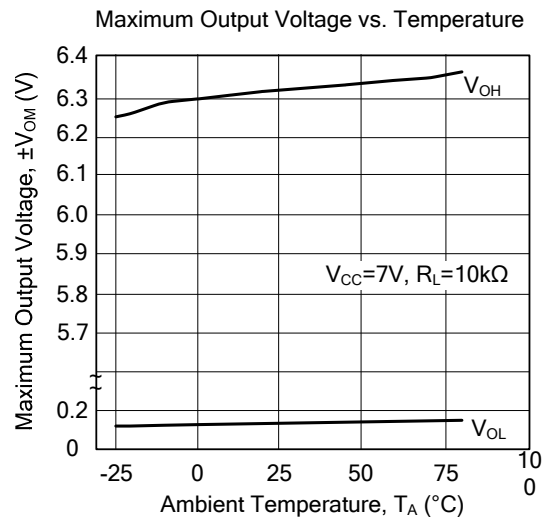
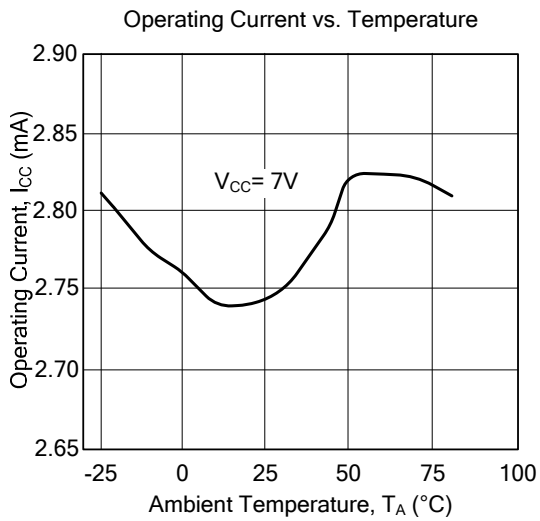
■ TYPICAL APPLICATION CIRCUIT



Note: On playback, connect the time constant circuit as follows below, instead of R1 of PINS 1, 3, 7, 9, which are used in the NAB.



TYPICAL CHARACTERISTICS



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