



## KA22241

### LINEAR INTEGRATED CIRCUIT

## DUAL EQUALIZER AMPLIFIER WITH ALC

### DESCRIPTION

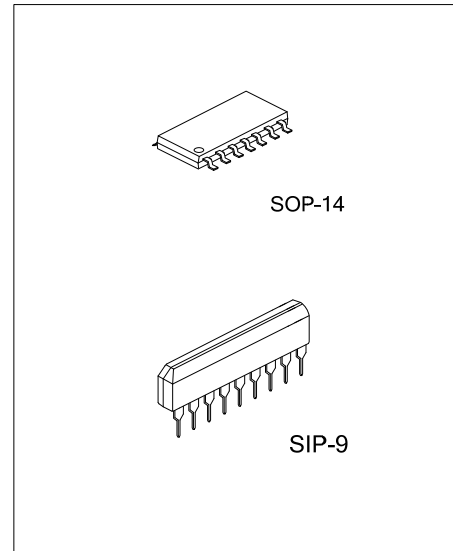
The UTC **KA22241** is a monolithic integrated circuit, consisting of dual equalizer amplifier with ALC, and it is suitable for stereo radio cassette tape recorders.

### 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

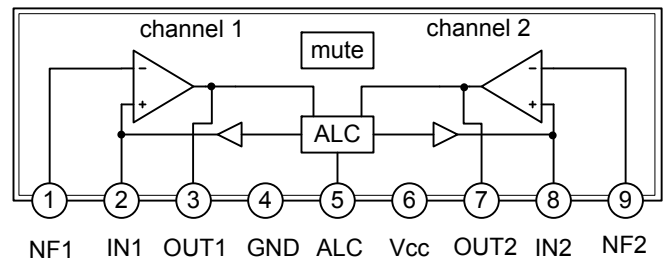
Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
KA22241-S14-T	KA22241L-S14-T	KA22241G-S14-T	SOP-14	Tube
KA22241-S14-R	KA22241L-S14-R	KA22241G-S14-R	SOP-14	Tape Reel
KA22241-G09-T	KA22241L-G09-T	KA22241G-G09-T	SIP-9	Tube



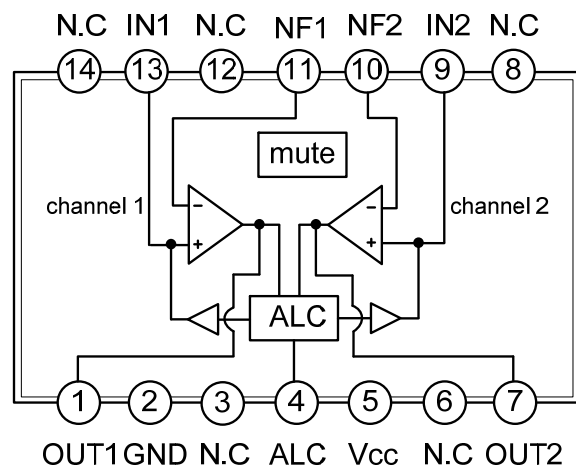
Lead-free: KA22241L  
Halogen-free: KA22241G

<p>KA22241L-S14-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) S14: SOP-14, G09: SIP-9 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ BLOCK DIAGRAM



**SIP-9**



**SOP-14**

■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>CC</sub>	16	V
Power Dissipation	SIP-9	550	mW
	SOP-14	450	
Operating Temperature	T <sub>OPR</sub>	-20 ~ 75	°C
Storage Temperature	T <sub>STG</sub>	-20 ~ 125	°C

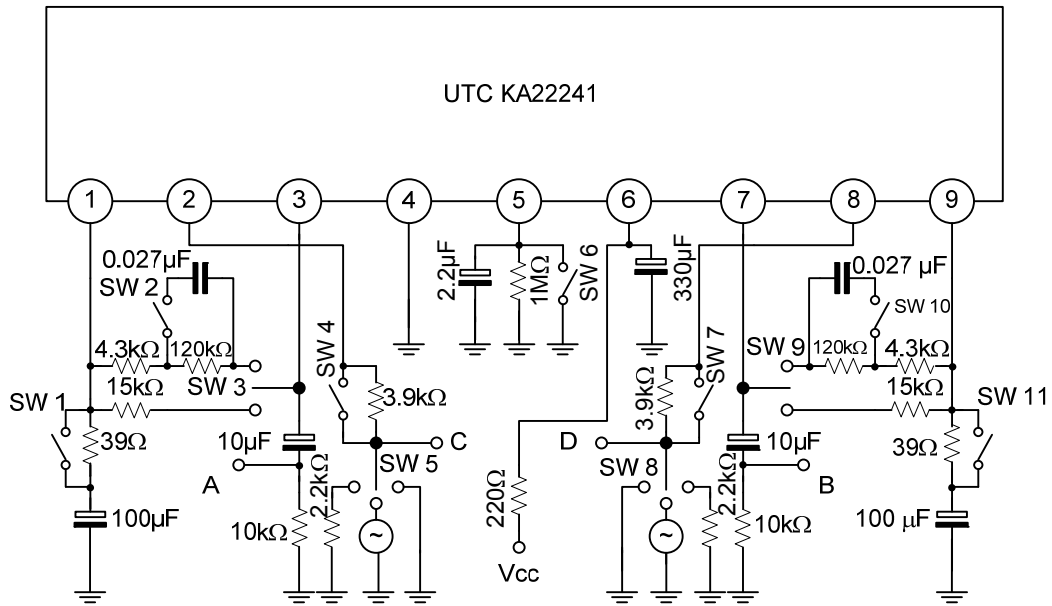
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

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

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Noise Voltage	V <sub>IN</sub>	R <sub>G</sub> =2.2KΩ BW(-3dB)=20HZ~20KHZ		1.0	2.0	μV
Output Voltage	V <sub>OUT</sub>	THD=1%	0.6	1.2		V
Quiescent Circuit Current	I <sub>CCQ</sub>	V <sub>IN</sub> =0	1.5	3.5	4.5	mA
Open Loop Voltage Gain	G <sub>VO</sub>	V <sub>OUT</sub> =0.3V	70	80		dB
Closed Loop Voltage Gain	G <sub>VC</sub>	V <sub>OUT</sub> =0.3V	45	48	50	dB
ALC Range	ΔV <sub>ALC</sub>	R <sub>O</sub> =3.9KΩ, THD=10%	40	45		dB
ALC Balance	CB <sub>ALC</sub>	V <sub>IN</sub> =1mV		0	2.5	dB
Total Harmonic Distortion	THD	V <sub>OUT</sub> =0.3V		0.1	0.3	%
Input Resistance	R <sub>IN</sub>		15	25	45	kΩ

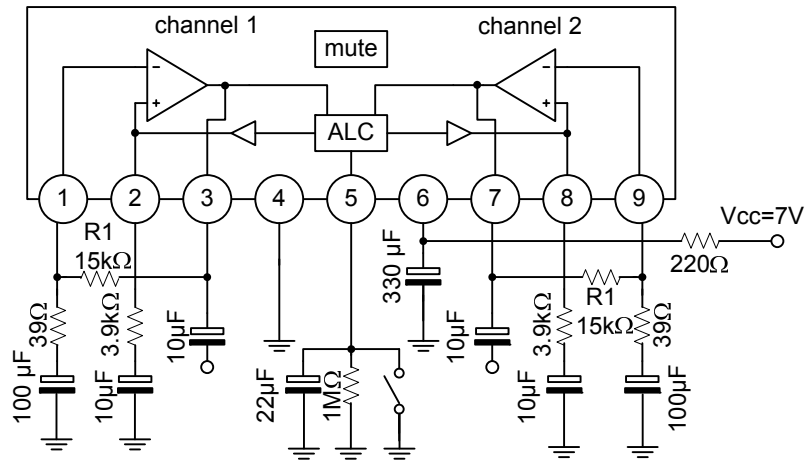
■ TEST CIRCUIT



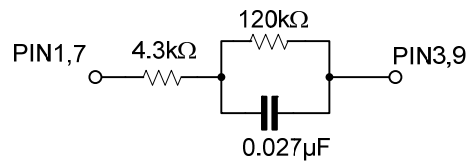
TEST METHOD

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
$\Delta V_{ALC}$	OFF	OFF	2	OFF	1	OFF	ON	3	1	OFF	ON
$CB_{ALC}$	OFF	OFF	2	OFF	1	OFF	OFF	1	2	OFF	OFF

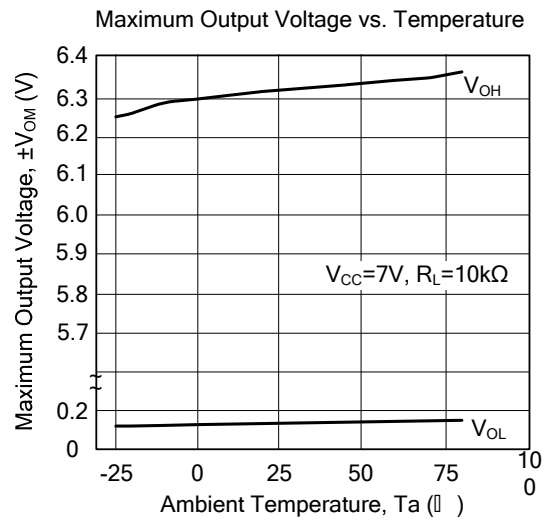
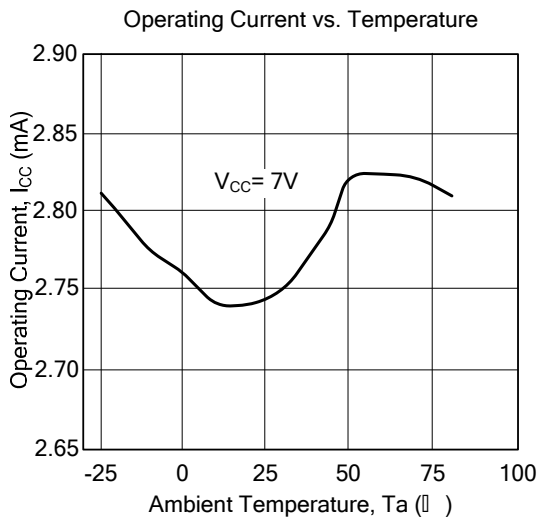
■ TYPICAL APPLICATION CIRCUIT



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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