

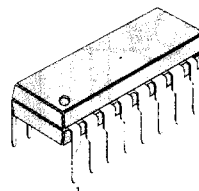
ONE CHIP TAPE RECORDER SYSTEM

The KA22130 is a monolithic integrated circuit consisting of preamplifier, ALC circuit, power amplifier in 16 pin plastic dual in line package.

FEATURES

- Suitable for play and recording mono cassette tape recorder.
- Wide operating supply voltage range: $V_{CC} = 4V \sim 12V$
- High gain preamplifier and power amplifier.
- Output power of power amplifier state
 $P_O = 1W$ at $V_{CC} = 6V$, $R_L = 4\Omega$, $THD = 10\%$.
- Soft tone quality at the time of output saturation.
- Wide ALC range and small variation in output voltage.
- Small shock noise at the time of power on/off due to built-in prevention circuit.
- Variable monitor capability due to recording amplifier consisting of preamplifier alone.
- Minimum number of external parts required.

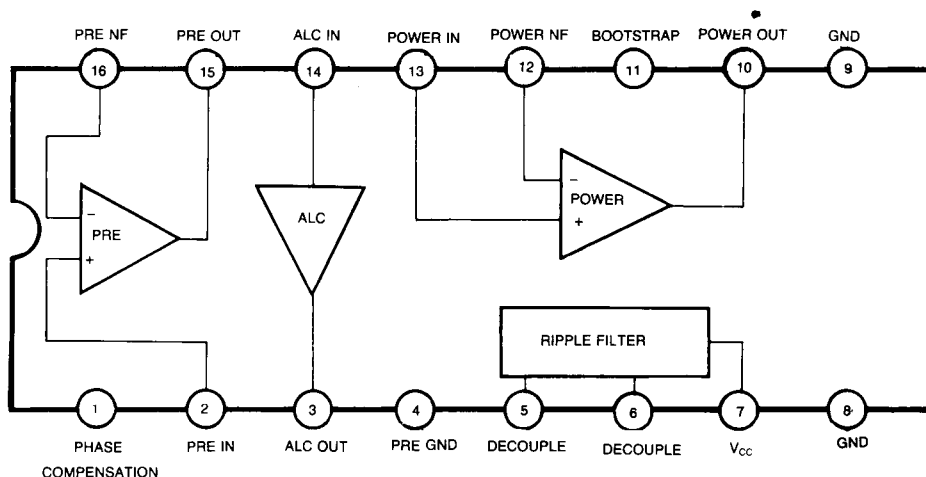
16 DIP



ORDERING INFORMATION

Device	Package	Operating Temperature
KA22130	16 DIP	$-20^{\circ}C \sim 70^{\circ}C$

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	13	V
Power Dissipation	P_D	1.5	W
Operating Temperature	T_{OPR}	$-20 \sim +70$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +150$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTIC($T_a = 25^\circ\text{C}$, $V_{CC} = 6\text{V}$, $f = 1\text{KHz}$, unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Quiescent Circuit Current	I _{CCQ}	V _{CC} = 6V, V _i = 0		18	30	mA
		V _{CC} = 9V, V _i = 0		23	40	mA
Pre Amplifier						
Open Loop Voltage Gain	G _{VO}	Open loop		85		dB
Closed Loop Voltage Gain	G _{VC}	Closed loop, Play		40		dB
Output Voltage	V _O	THD = 1%, Play	0.9	1.2		V
Input Resistance	R _i		21	30		KΩ
Equivalent Input Noise Voltag	V _{NI}	Play		1.0	2.0	μV
ALC Input Level	V _{I (ALC)}	THD = 1%, Rec	− 20	− 12		dBm
Power Amplifier						
Closed Loop Voltage Gain	G _{VC}	R _F = 51Ω	43	45	47	dB
Output Power	P _O	V _{CC} = 6V, R _L = 4Ω, THD = 10%	0.7	1.0		W
		V _{CC} = 7.5V, R _L = 4Ω, THD = 10%	1.0	1.5		W
		V _{CC} = 9V, R _L = 4Ω, THD = 10%	1.7	2.2		W
Total Harmonic Distortion	THD	P _O = 250mW		0.3	1.5	%
Input Resistance	R _i			30		KΩ
Output Noise Voltage	V _{NO}	R _G = 10KΩ		0.6	1.8	mV
Ripple Rejection Ratio	RR	R _G = 0Ω, V _R = 150mV, f = 100Hz	40	45		dB

TEST CIRCUIT

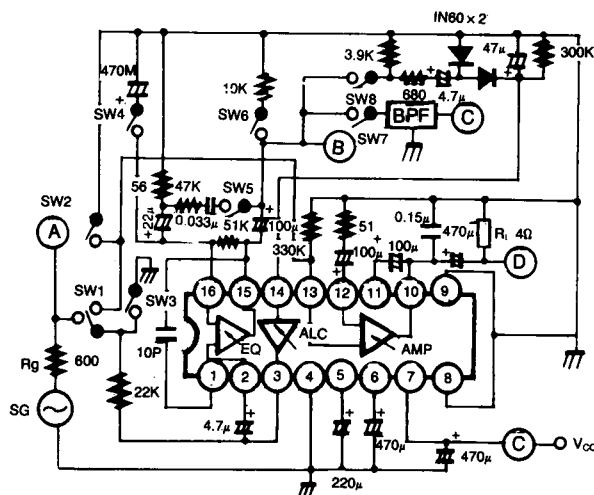


Fig. 2

TEST METHOD

Characteristic	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	Test Point	Test Method
Power Amplifier	I _{CCQ}		on	off	on	on	off	off		Test circuit current
	G _{VC}	2	off	off	off	on	on	off	A.D.	G _{VC} = 20 log V _O /V _I (dB)
	P _O	2	off	off	off	on	on	off	D	Test output voltage at THD = 10%
	THD	2	off	off	off	on	on	off	D	Test THD at output voltage V _O = 1V
	V _{NO}		on	off	off	on	on	off	D	Test output noise voltage
	RR		off	off	off	on	on	off	D	RR = 20 log V _{RO} /150 (dB) Test output ripple voltage (V _{RO})
Pre Amplifier	G _{VO}	1	off	off	on	off	on	off	A.B	A _{VO} = 20 log V _O /V _I (dB)
	V _O	1	off	off	off	on	on	off	B	Test output voltage at THD = 1%
	V _{NI}		off	on	off	on	on	off	C	Convert output noise voltage at R _G = 2.2KΩ, V _{NI} = V _{NO} /G _V
	V _{I(ALC)}	1	off	off	off	off	off	on	A.B	Test input voltage at THD = 1%

APPLICATION CIRCUIT

1. Mono cassette tape recorder

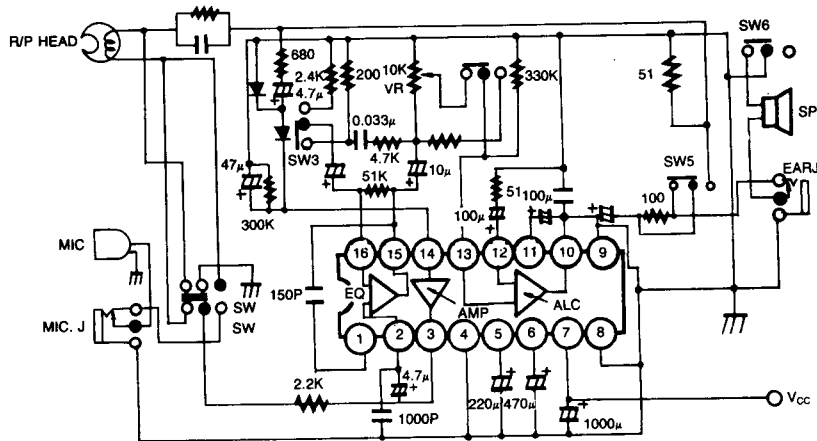


Fig. 3

2. Radio cassette tape recorder

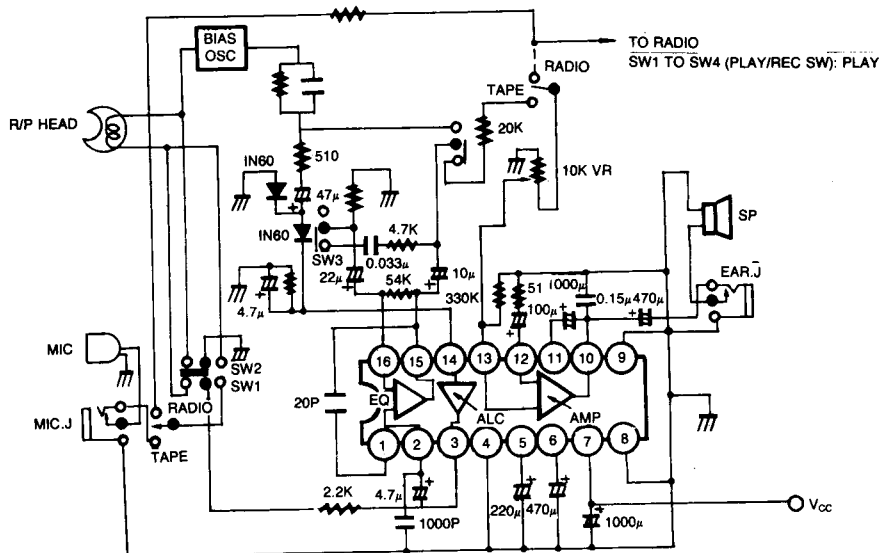


Fig. 4