

KA22471

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捷多邦 专业PCB打样工厂 24小时加急出货

# LINEAR INTEGRATED CIRCUIT

## FM IF/AM TUNER SYSTEM

The KA22471 is a monolithic integrated circuit developed for the radio cassette tape recorder.

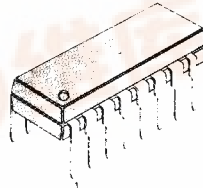
## FUNCTIONS

- AM SECTION: Converter, IF amplifier, Detector, Tuning indicator.
- FM SECTION: IF amplifier, Quadrature detector, Tuning indicator.

## FEATURES

- Low quiescent circuit current.  
AM: 7mA (Typ) FM: 10mA (Typ)
- A minimum number of external parts required.
- Built-in AM/FM function switch.
- Tuning indicator: direct LED driving capability:  $I_{LAMP} = 10\text{mA (MAX)}$
- One terminal AM/FM detector output.
- Advanced performance at high input signal.
- Operating supply voltage range:  $V_{CC} = 3\text{V} \sim 8\text{V}$ .

16 DIP



## ORDERING INFORMATION

Device	Package	Operating Temperature
KA22471	16 DIP	-20°C ~ +70°C

## BLOCK DIAGRAM

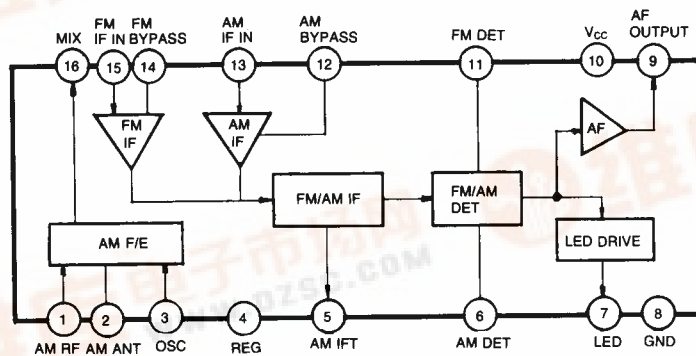


Fig. 1



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

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	8	V
Power Dissipation	$P_D$	600	mW
Operating Temperature	$T_{OPR}$	-20 ~ +70	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +125	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS

(T<sub>a</sub> = 25°C, V<sub>CC</sub> = 5V, unless otherwise specified)FM Section (f = 10.7MHz, f<sub>m</sub> = 400Hz, Δf = ±22.5KHz)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	$I_{CCQ}$	$V_i = 0$		10	15	mA
-3dB Limiting Sensitivity	$V_{i(LIM)}$	$V_o (V_i = 80\text{dB}\mu) - 3\text{dB down}$		40	46	dB $\mu$
Detector Output Voltage	$V_{O(DET)}$	$V_i = 66\text{dB}\mu, R_{DUMP} = 4.7\text{K}\Omega$	57	85	114	mV
Total Harmonic Distortion	THD	$V_i = 80\text{dB}\mu$		0.05		%
AM Rejection Ratio	AMR	$V_i = 80\text{dB}\mu, \text{AM: } f_m = 1\text{KHz, } 30\% \text{ Mod}$		38		dB
Signal to Noise Ratio	S/N	$V_i = 80\text{dB}\mu$		65		dB
Signal Meter Output	$V_M$	$V_i = 100\text{dB}\mu$	1.55	1.7	1.85	V
Tuning Indication Voltage	$V_L$	$I_{LAMP} = 1\text{mA}$		46	52	dB $\mu$

AM Section (f = 1MHz, 30% Mod, f<sub>m</sub> = 400Hz)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	$I_{CCQ}$	$V_i = 0$		7	10	mA
Voltage Gain	$G_V$	$V_i = 26\text{dB}\mu$	20	30	60	mV <sub>i</sub>
Detector Output Voltage	$V_{O(DET)}$	$V_i = 60\text{dB}\mu$	65	95	125	mV
Total Harmonic Distortion	THD	$V_i = 60\text{dB}\mu$		1.0		%
Signal to Noise Ratio	S/N	$V_i = 60\text{dB}\mu$		47		dB
Signal Meter Output	$V_M$	$V_i = 100\text{dB}\mu$	1.55	1.7	1.85	V
Tuning Indication Voltage	$V_L$	$I_{LAMP} = 1\text{mA}$		32		dB $\mu$
Oscillator Stop Voltage	$V_{STOP}$	$R_{DUMP} = \infty$		1.5		V

TEST CIRCUIT

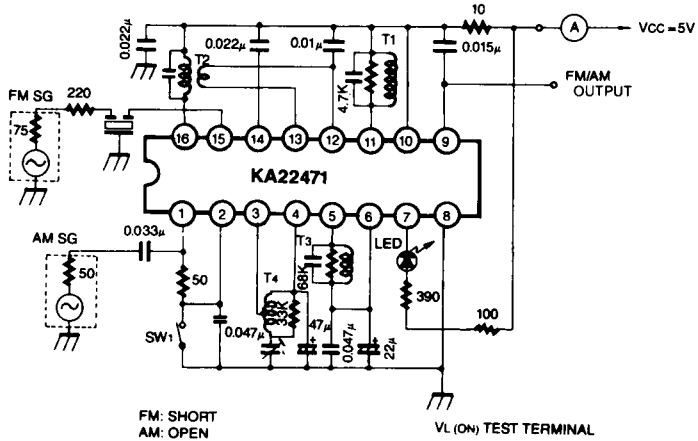
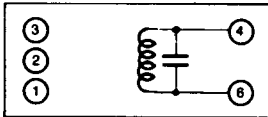


Fig. 2

COIL SPECIFICATIONS

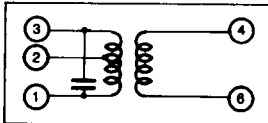
T1 FM IF (DET)



$C_o$ (pF)	$f$ (MHz)	$Q_o$	TURNS
4-6		4-6	4-6
47	10.7	150	14

Seoul Jupa  
0.12mmφ UEW

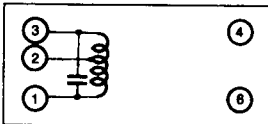
T2 AM IFT (MIX OUT)



$C_o$ (PF)	$f$ (KHz)	$Q_o$	TURNS		
1-3		1-3	1-2	2-3	4-6
180	455	110	90	62	8

Seoul Jupa  
0.07mmφ UEW

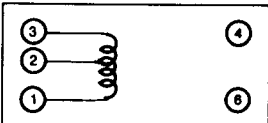
T3 AM IFT (DET)



$C_o$ (pF)	$f$ (KHz)	$Q_o$	TURNS
1-3		1-3	1-3
180	455	110	152

Seoul Jupa  
0.07mmφ UEW

T4 (MW OSC)



$f$ (KHz)	$L$ (μH)	$Q_o$	TURNS	
	1-3	1-3	1-2	2-3
796	288	120	13	75

Seoul Jupa  
0.06mmφ UEW

APPLICATION CIRCUIT

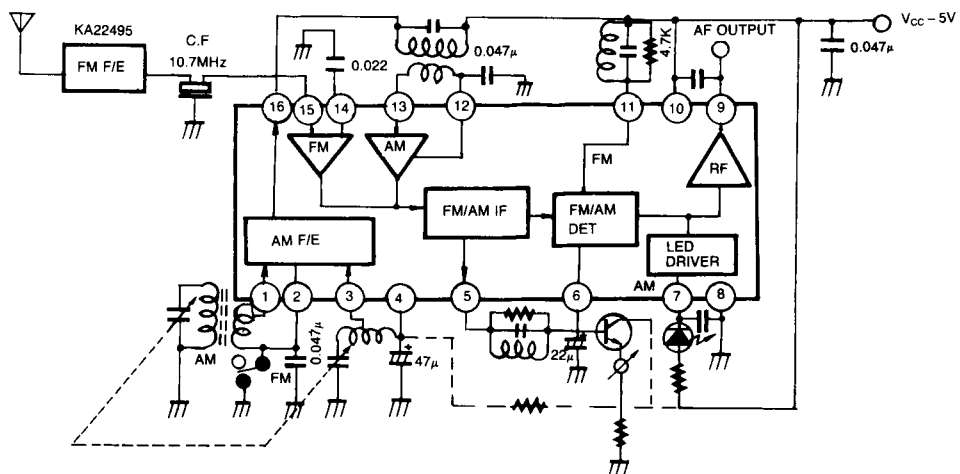


Fig. 3