

## FM IF/AM TUNER SYSTEM

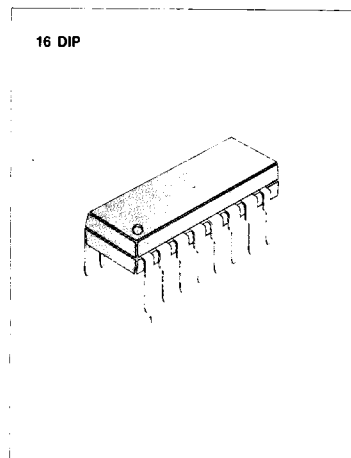
The KA22471 is a monolithic integrated circuit developed for the radio cassette tape recorder.

## 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:  $V_{CC} = 3\text{V} \sim 8\text{V}$ .



## ORDERING INFORMATION

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

## BLOCK DIAGRAM

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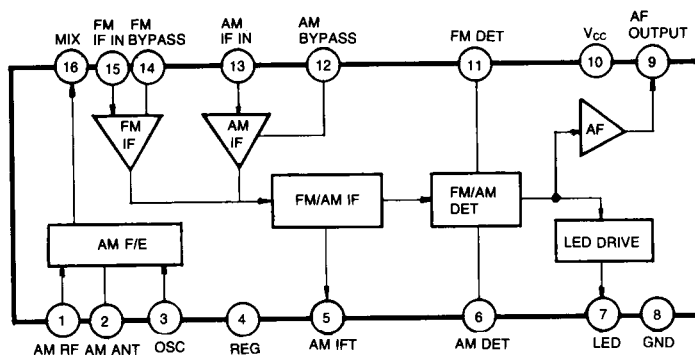


Fig. 1

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

( $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 5\text{V}$ , unless otherwise specified)

**FM Section** ( $f = 10.7\text{MHz}$ ,  $f_m = 400\text{Hz}$ ,  $\Delta f = \pm 22.5\text{KHz}$ )

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	$\text{dB}\mu$
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	$V_i = 80\text{dB}\mu$ , AM: $f_m = 1\text{KHz}$ , 30% 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	$\text{dB}\mu$

**AM Section** ( $f = 1\text{MHz}$ , 30% Mod,  $f_m = 400\text{Hz}$ )

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	$\text{mV}_i$
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		$\text{dB}\mu$
Oscillator Stop Voltage	$V_{STOP}$	$R_{DUMP} = \infty$		1.5		V



## APPLICATION CIRCUIT

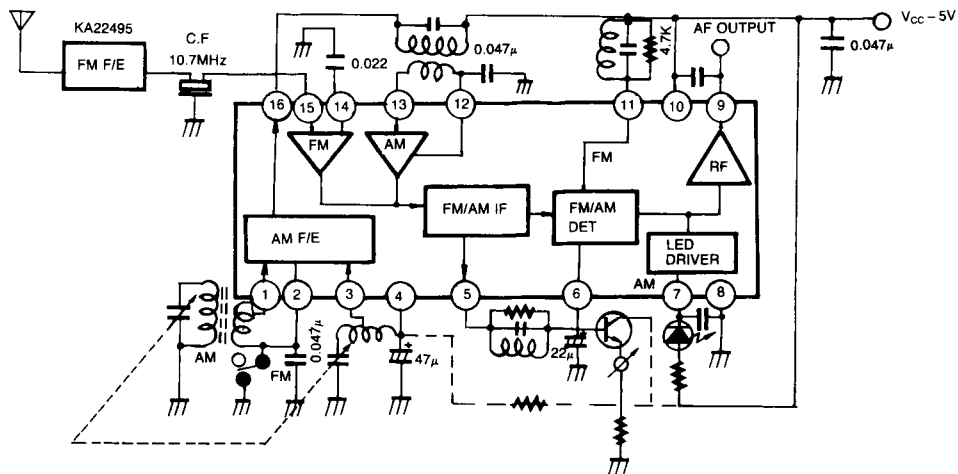


Fig. 3  
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