

3V FM IF/AM TUNER SYSTEM

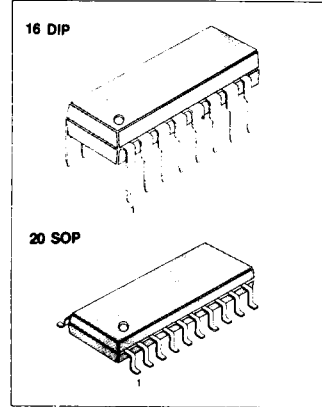
The KA2248 is a monolithic integrated circuit developed for the headphone stereo.

FUNCTIONS

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

FEATURES

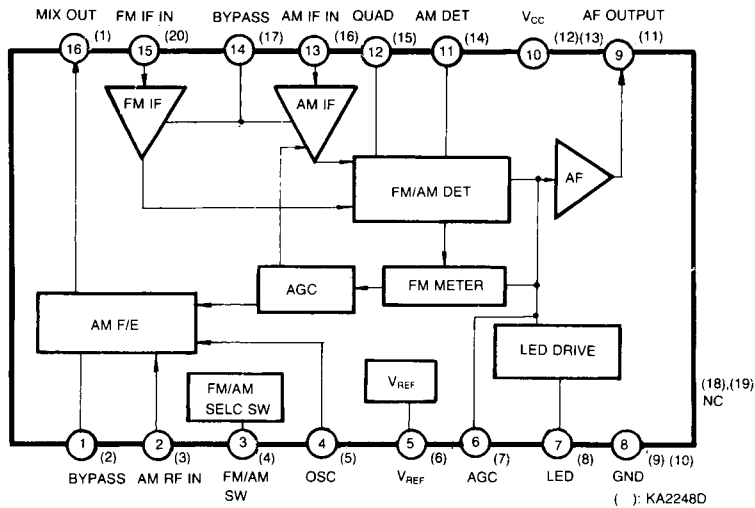
- Low quiescent current: AM: $I_{CCQ} = 3\text{mA (Typ)}$, $V_{CC} = 3\text{V}$
 FM: $I_{CCQ} = 8\text{mA (Typ)}$, $V_{CC} = 3\text{V}$
- Wide operating voltage range: $V_{CC} = 1.8\text{V} \sim 6\text{V}$.
- Built-in AM/FM function switch.
- Tuning indicator: direct LED driving capability: 10mA (Max) .
- One terminal AM/FM detector output.
- A minimum number of external parts required.



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2248A	16 DIP	-20°C ~ 70°C
KA2248D	20 SOP	

BLOCK DIAGRAM



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

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	6	V
Power Dissipation	KA2248A	600	mW
	KA2248D	350	
Operating Temperature	T_{OPR}	-20 ~ +70	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 ~ +125	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

($T_a = 25^\circ\text{C}$, $V_{CC} = 3\text{V}$, unless otherwise specified)

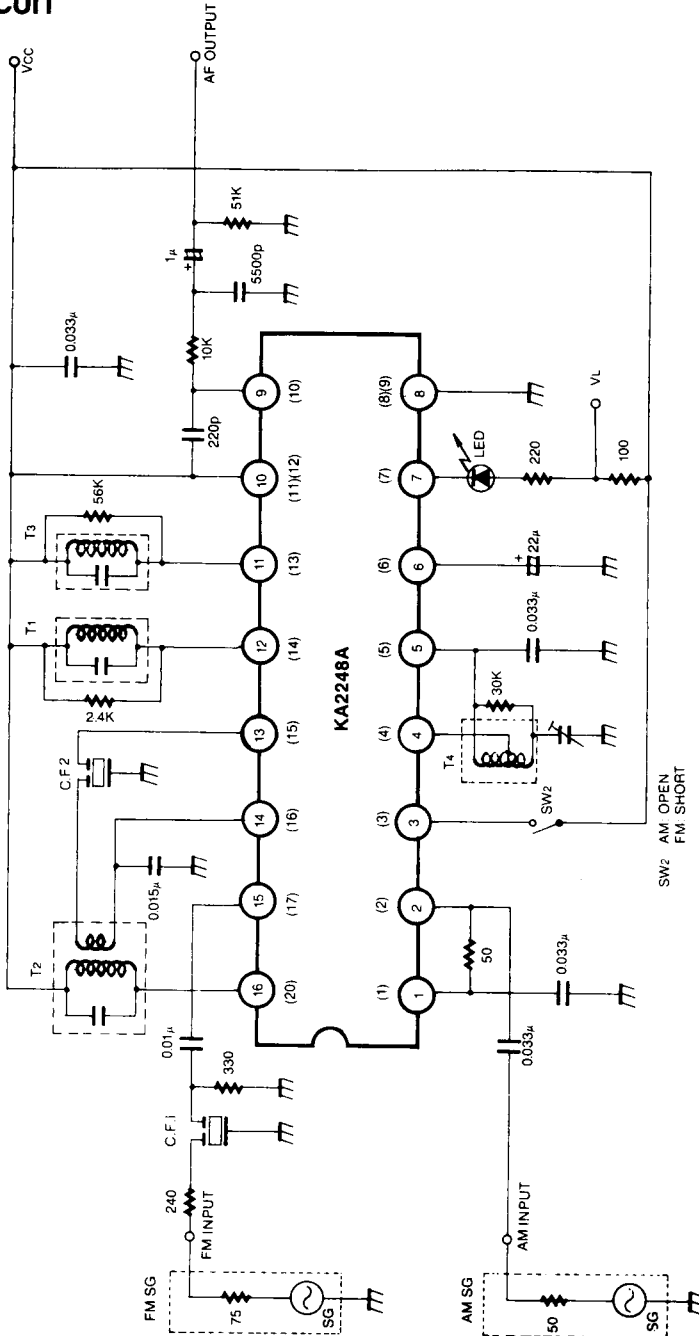
* FM Section ($f = 10.7\text{MHz}$, $f_m = 1\text{KHz}$, $\Delta f = 22.5\text{KHz}$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCQ}	$V_I = 0$		8	13	mA
-3dB Limiting Sensitivity	$V_{I(LIM)}$	$V_I = 86\text{dB}\mu$		46	52	$\text{dB}\mu$
Detector Voltage	$V_{O(DET)}$	$V_I = 86\text{dB}\mu$	60	85	120	mV
Signal to Noise Ratio	S/N	$V_I = 86\text{dB}\mu$	50	65		dB
Total Harmonic Distortion	THD	$V_I = 86\text{dB}\mu$		0.1	1.0	%
AM Rejection Ratio	AMR	$V_I = 86\text{dB}\mu$	30	45		dB
Tuning Indication Voltage	V_L	$I_{LAMP} = 1\text{mA}$		50	58	$\text{dB}\mu$
Output Resistance	R_O	$f = 1\text{KHz}$		0.7		$\text{K}\Omega$

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CCQ}	$V_I = 0$		3	7	mA
Voltage Gain	G_V	$V_I = 26\text{dB}\mu$	15	30	50	mV
Detector Voltage	$V_{O(DET)}$	$V_I = 60\text{dB}\mu$	35	50	70	mV
Signal to Noise Ratio	S/N	$V_I = 60\text{dB}\mu$	35	45		dB
Total Harmonic Distortion	THD	$V_I = 60\text{dB}\mu$		1.0	3.5	%
Oscillator Stop Voltage	V_{STOP}			1.2		V
Output Resistance	R_O	$f = 1\text{KHz}$		8.3		$\text{K}\Omega$
Tuning Indication Voltage	V_L	$I_{LAMP} = 1\text{mA}$		26	40	$\text{dB}\mu$

TEST CIRCUIT

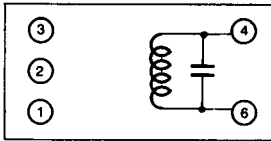


() : KA2248D

Fig. 2

COIL SPECIFICATIONS (BOTTOM VIEW)

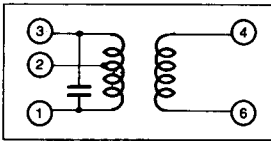
T1 FM IF (DET)



C _o (pF)	f (MHz)	Q _o	TURNS
4-6		4-6	4-6
100	10.7	150	14

Seoul Jupa
0.12mmφ UEW

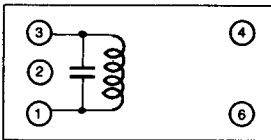
T2 AM IFT (MIX OUT)



C _o (PF)	f (KHz)	Q _o	TURNS		
			1-2	2-3	4-6
1-3		1-3	1-2	2-3	4-6
180	455	110	90	62	8

Seoul Jupa
0.07mmφ UEW

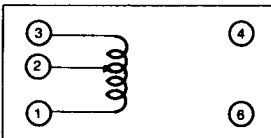
T3 AM IFT (DET)



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		1-2	2-3
796	288	120	13	75

Seoul Jupa
0.08mmφ UEW