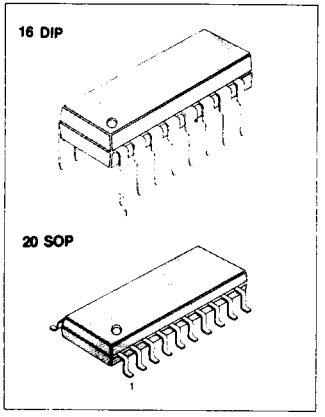
3V FM IF/AM TUNER SYSTEM

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



FUNCTIONS

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

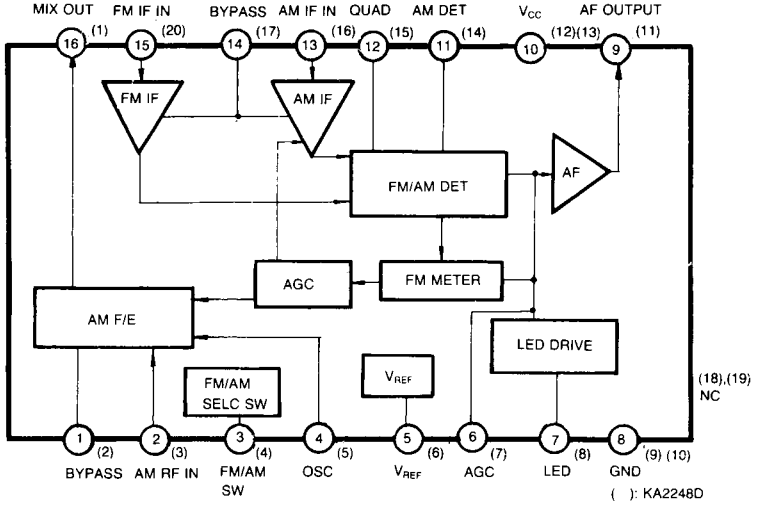
FEATURES

- **Low quiescent current: AM: I_{CCQ} = 3mA (Typ), V_{CC} = 3V**
  FM: I_{CCQ} = 8mA (Typ), V_{CC} = 3V
- **Wide operating voltage range: V_{CC} = 1.8V ~ 6V.**
- **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 (Ta = 25°C)

Characteristic		Symbol	Value	Unit
Supply Voltage		V_{CC}	6	V
Power Dissipation	KA2248A	P_D	600	mW
	KA2248D		350	
Operating Temperature		T_{OPR}	− 20 ~ + 70	°C
Storage Temperature		T_{STG}	− 40 ~ + 125	°C

ELECTRICAL CHARACTERISTICS

(T_a = 25°C, V_{CC} = 3V, unless otherwise specified)

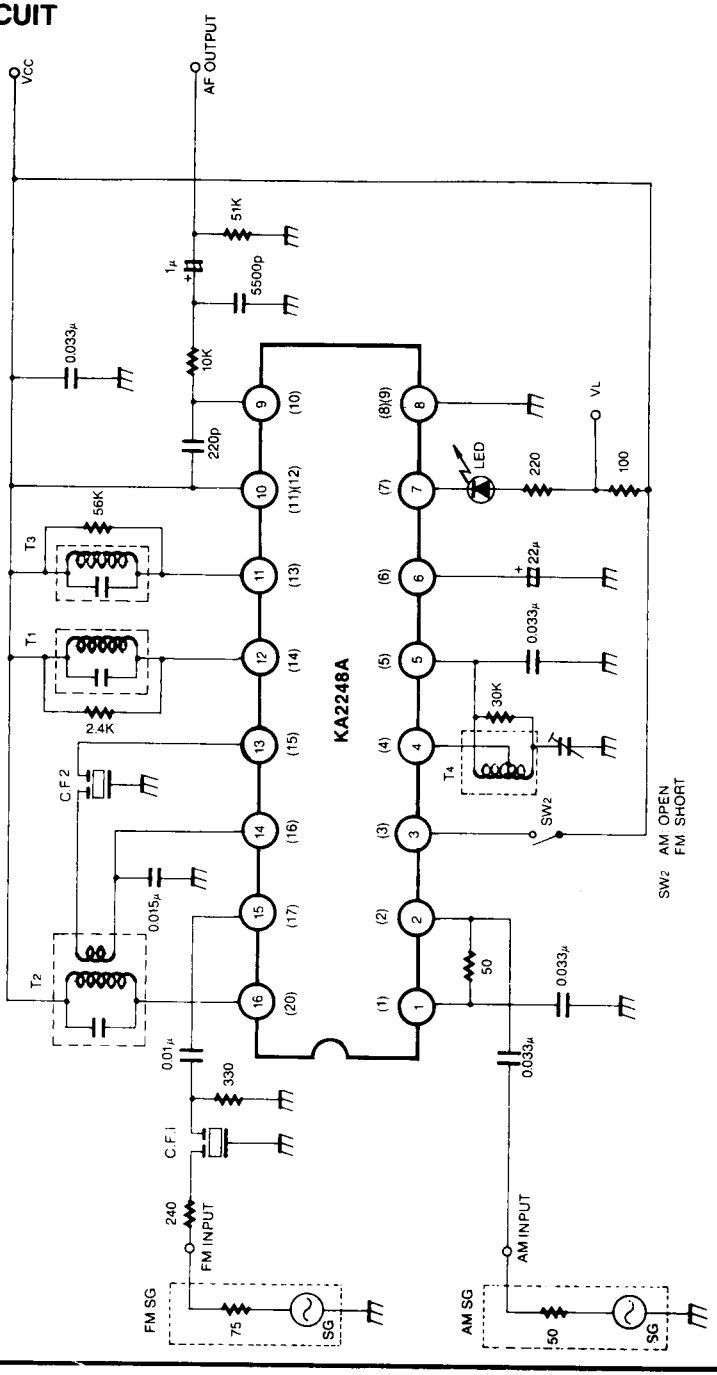
* **FM Section** (f=10.7MHz, fm=1KHz, Δf=22.5KHz)

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 = 86dBμ		46	52	dBμ
Detector Voltage	$V_{O\,(DET)}$	V_I = 86dBμ	60	85	120	mV
Signal to Noise Ratio	S/N	V_I = 86dBμ	50	65		dB
Total Harmonic Distortion	THD	V_I = 86dBμ		0.1	1.0	%
AM Rejection Ratio	AMR	V_I = 86dBμ	30	45		dB
Tuning Indication Voltage	V_L	I_{LAMP} = 1mA		50	58	dBμ
Output Resistance	R_O	f=1KHz		0.7		KΩ

* **AM Section** (f=1MHz, fm=1KHz, 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 = 26dBμ	15	30	50	mV
Detector Voltage	$V_{O\,(DET)}$	V_I = 60dBμ	35	50	70	mV
Signal to Noise Ratio	S/N	V_I = 60dBμ	35	45		dB
Total Harmonic Distortion	THD	V_I = 60dBμ		1.0	3.5	%
Oscillator Stop Voltage	V_{STOP}			1.2		V
Output Resistance	R_O	f=1KHz		8.3		KΩ
Tuning Indication Voltage	V_L	I_{LAMP} = 1mA		26	40	dBμ

TEST CIRCUIT

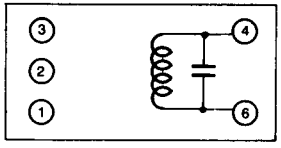


( ): KA2248D

Fig. 2

COIL SPECIFICATIONS (BOTTOM VIEW)

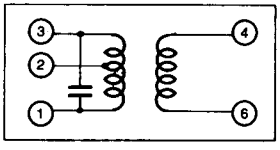
T1 FM IF (DET)



C_O (pF)	f (MHz)	Q_O	TURNS
4-6		4-6	4-6
100	10.7	150	14

Seoul Jupa
0.12mmϕ UEW

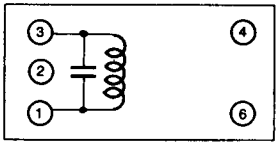
T2 AM IFT (MIX OUT)



C_O (PF)	f (KHz)	Q_O	TURNS		
1-3		1-3	1-2	2-3	4-6
180	455	110	90	62	8

Seoul Jupa
0.07mmϕ UEW

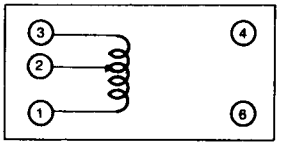
T3 AM IFT (DET)



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
0.08mmϕ UEW