FM IF SYSTEM FOR CAR RADIOS

The KA2245 is a monolithic integrated circuit consisting of an FM IF amplifier and detector.
It is suitable for car radios.

FUNCTIONS

- 3-stage IF amplifier.
- Peak detector.

FEATURES

- Suitable for FM car radios.
- Wide operating supply voltage range: $V_{CC} = 8V \sim 14V$.
- High detector output voltage ($V_O = 500mV$, Typ).
- Excellent AM rejection: AMR = 50dB (Typ).
- High sensitivity: $V_{I (LIM)} = 50dB\mu V$ (Typ).
- Simplified single coil tuning.
- Low distortion (THD = 0.1%: Typ).
- Minimum number of external parts required.
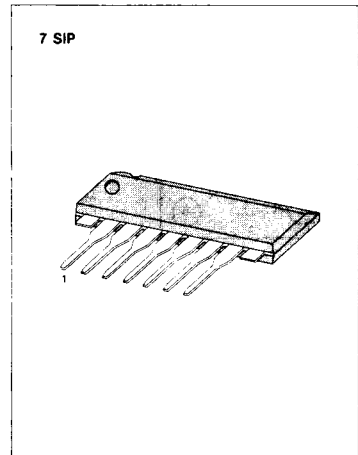
7 SIP

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2245	7 SIP	$-20°C \sim +70°C$

BLOCK DIAGRAM
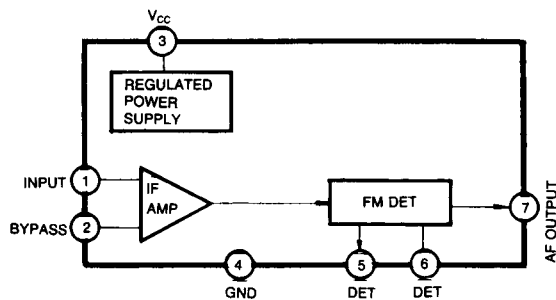
Fig. 1

ABSOLUTE MAXIMUM RATINGS ($T_a = 25°C$)

| Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	15	V
Input Voltage	V_I	0.7	V
Power Dissipation	P_D	400	mW
Operating Temperature	T_{OPR}	$-20 \sim +70$	°C
Storage Temperature	T_{STG}	$-40 \sim +125$	°C

* : Derated above Ta=25°C in the proportion of 4mW/°C

ELECTRICAL CHARACTERISTICS

($T_a = 25°C$, $V_{CC} = 12V$, f = 10.7MHz, fm = 400Hz)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I_{CCQ}	$V_I = 0$	8	12	15	mA
-3dB Limiting Sensitivity	$V_{I\,(LIM)}$	-3dB point from V_O $V_I = 80$dBμ, $\Delta f = \pm 75$KHz		50	55	dBμ
AM Rejection Ratio	AMR	FM: $\Delta f = \pm 75$KHz dev AM: 30% Mod $V_I = 80$dBμ		50		dB
Detector Output Voltage	V_O	$\Delta f = \pm 75$KHz dev $V_I = 80$dBμV	300	500	700	mV
Total Harmonic Distortion	THD	$\Delta f = \pm 22.5$KHz dev $V_I = 80$dBμV		0.2		%
Signal to Noise Ratio	S/N	$\Delta f = \pm 75$KHz dev $V_I = 80$dBμV		60		dB

TEST CIRCUIT
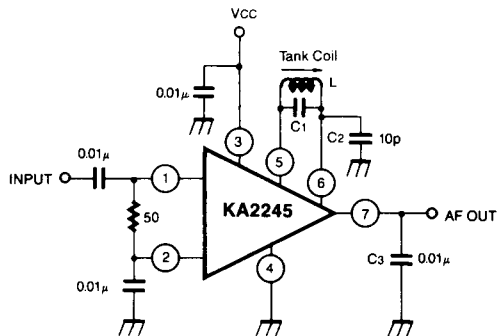
APPLICATION CIRCUIT
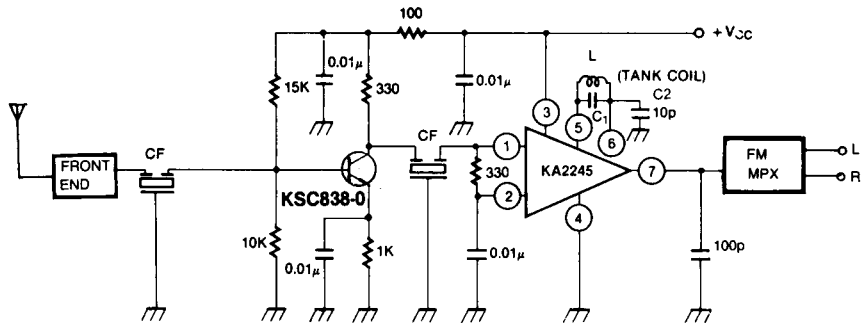
Fig. 3

$$\left(f_o = \frac{1}{2\pi\sqrt{L(C1 + \frac{C2}{2})}} \right)$$

COIL SPECIFICATIONS

C_o (pF)	f (MHz)	O_o (%)	Turns		
			4 – 6		
27	10.7	150	18		