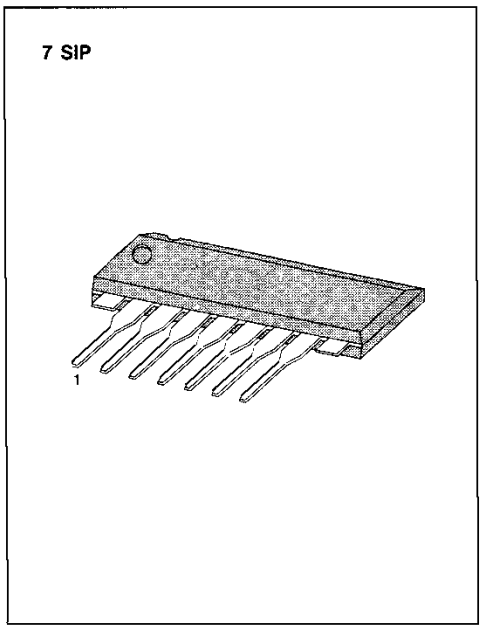
FM IF SYSTEM FOR CAR RADIOS

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 ~ 14V.**
- **High detector output voltage (V_O = 500mV, Typ).**
- **Excellent AM rejection: AMR = 50dB (Typ).**
- **High sensitivity: $V_{I\ (LIM)}$ = 50dBμV (Typ).**
- **Simplified single coil tuning.**
- **Low distortion (THD = 0.1%: Typ).**
- **Minimum number of external parts required.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2245	7 SIP	−20°C ~ +70°C

BLOCK DIAGRAM

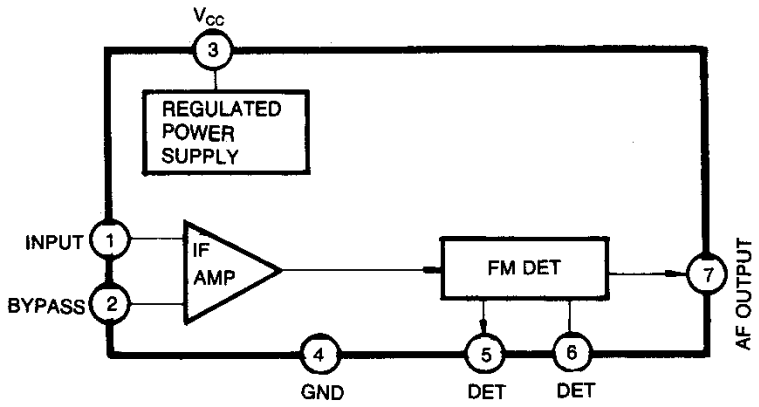


Fig. 1

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 ~ +70	°C
Storage Temperature	T_{STG}	−40 ~ +125	°C

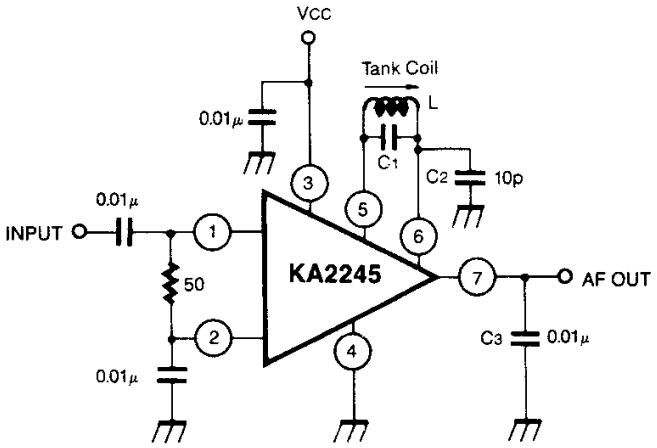
* : Derated above Ta=25°C in the proportion of 4mW/°C

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 = 80dBμ, Δf = ±75KHz		50	55	dBμ
AM Rejection Ratio	AMR	FM: Δf=±75KHz dev AM: 30% Mod V_I = 80dBμ		50		dB
Detector Output Voltage	V_O	Δf=±75KHz dev V_I = 80dBμV	300	500	700	mV
Total Harmonic Distortion	THD	Δf=±22.5KHz dev V_I = 80dBμV		0.2		%
Signal to Noise Ratio	S/N	Δf=±75KHz dev V_I = 80dBμV		60		dB

TEST CIRCUIT



APPLICATION CIRCUIT

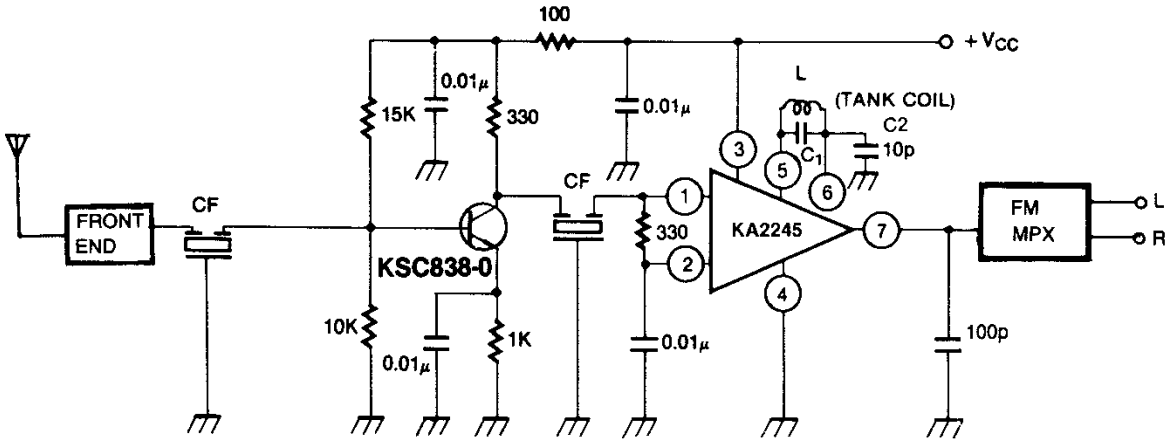
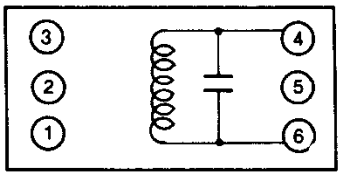


Fig. 3

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

COIL SPECIFICATIONS



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

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