

FM IF SYSTEM FOR CAR RADIOS

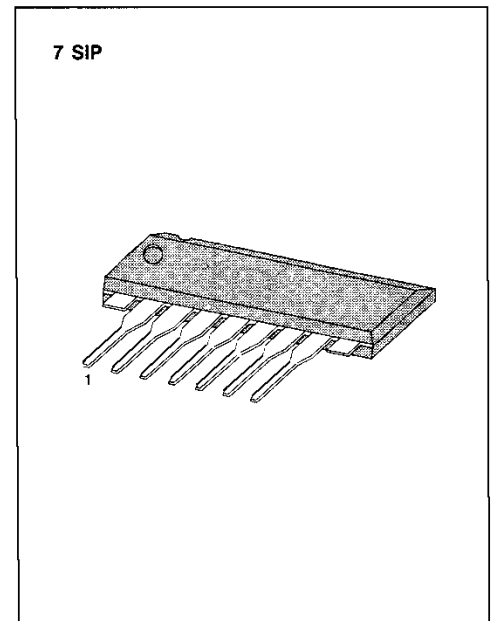
The KA2245 is a monolithic integrated circuit consisting of an FM IF amplifier and detector. It is suitable for car radios.

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.



ORDERING INFORMATION

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

BLOCK DIAGRAM

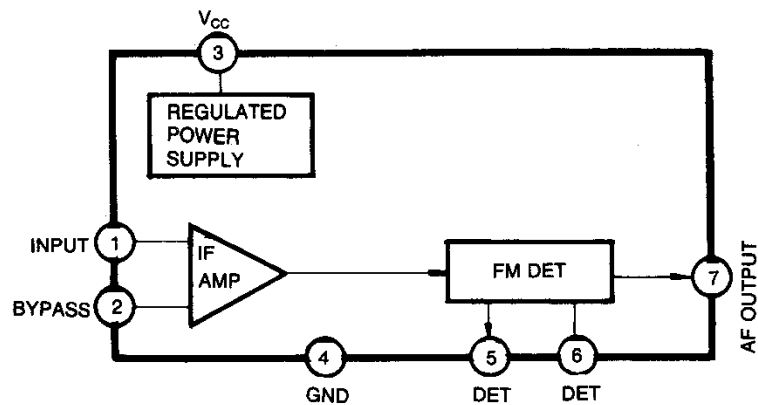


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta=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 |

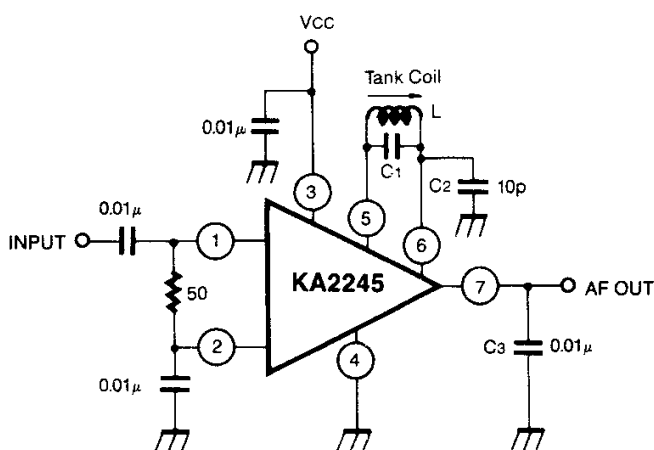
* : Derated above Ta=25°C in the proportion of 4mW/°C

ELECTRICAL CHARACTERISTICS

(Ta = 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 = 80dBμV, Δf = ±75KHz | | 50 | 55 | dBμ |
| AM Rejection Ratio | AMR | FM: Δf = ±75KHz dev AM: 30% Mod V _I = 80dBμV | | 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

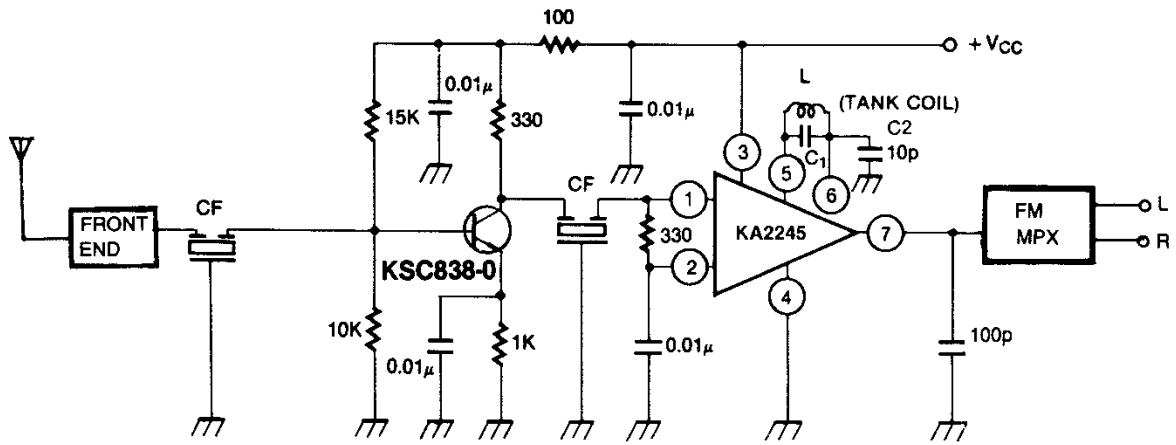
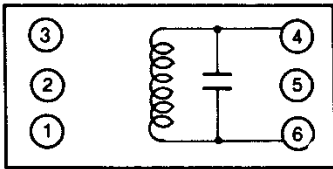


Fig. 3

$$f_o = \frac{1}{2\pi\sqrt{L(C_1 + \frac{C_2}{2})}}$$

COIL SPECIFICATIONS



| C _o (pF) | f (MHz) | O _o (%) | Turns | | |
|---------------------|---------|--------------------|-------|--|--|
| | | | 4-6 | | |
| 27 | 10.7 | 150 | 18 | | |