

# AN7220

## AM Tuner, FM-AM IF Amplifier Circuit

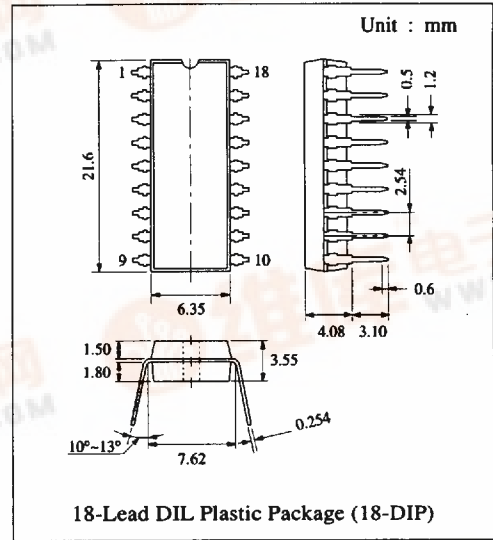
### ■ Description

The AN7220 is a monolithic integrated circuit designed for AM tuner, FM-AM IF Amp. in low voltage radio and radio/cassette tape recorder.

### ■ Features

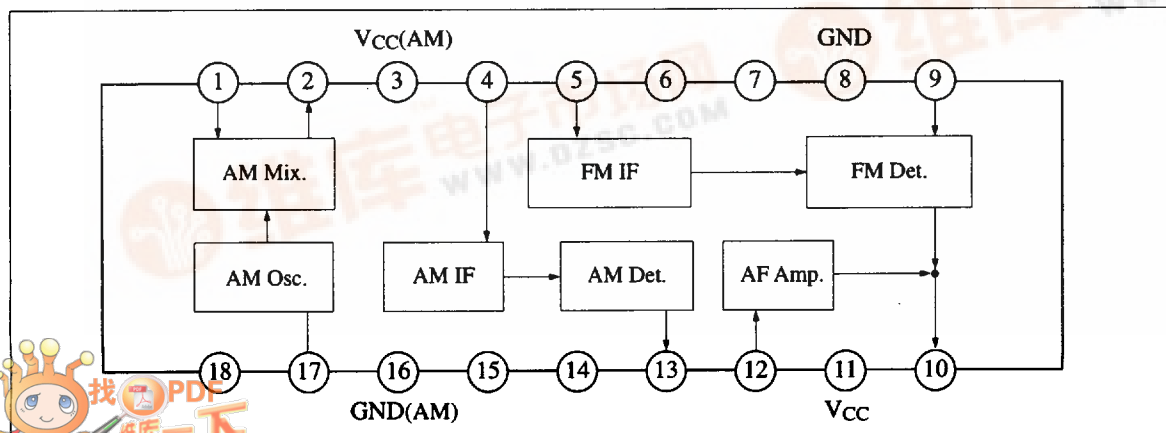
- Few external components
- Low power consumption
- Common IF Amp. for FM and AM

### ■ Pin



| Pin No. | Pin Name         | Pin No. | Pin Name           |
|---------|------------------|---------|--------------------|
| 1       | AM RF Amp. Input | 10      | AF Output          |
| 2       | AM Mix Output    | 11      | Vcc                |
| 3       | Vcc(AM)          | 12      | AM AF Amp. Input   |
| 4       | AM IF Amp. Input | 13      | AM Detector Output |
| 5       | FM IF Amp. Input | 14      | Tuning Indicator   |
| 6       | IF By-pass       | 15      | AGC Input          |
| 7       | IF By-pass       | 16      | GND (AM)           |
| 8       | GND              | 17      | Oscillator Coil    |
| 9       | FM Detector Coil | 18      | AGC                |

### ■ Block Diagram



# AN7220

## Absolute Maximum Ratings (Ta=25°C)

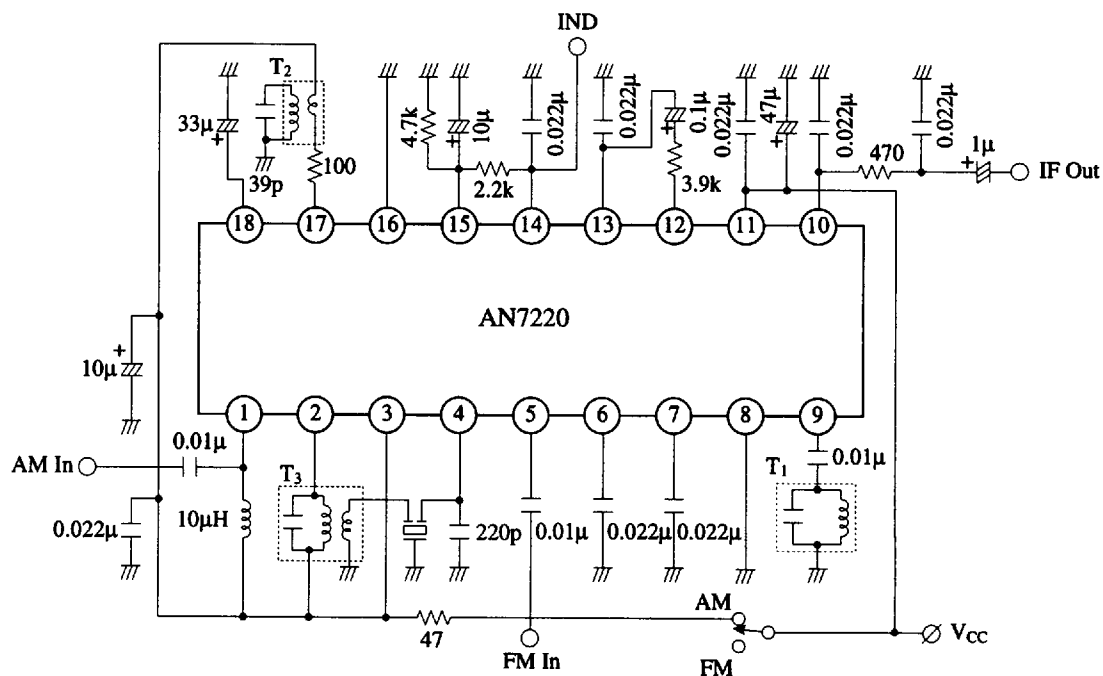
| Item                          | Symbol           | Rating     | Unit |
|-------------------------------|------------------|------------|------|
| Supply Voltage                | V <sub>CC</sub>  | 6.6        | V    |
| Supply Current                | I <sub>CC</sub>  | 10         | mA   |
| Power Dissipation             | P <sub>D</sub>   | 66         | mW   |
| Operating Ambient Temperature | T <sub>opr</sub> | -20 ~ +75  | °C   |
| Storage Temperature           | T <sub>stg</sub> | -55 ~ +150 | °C   |

Operating Supply Voltage Range: V<sub>CC</sub> = 2.0V ~ 6.6V

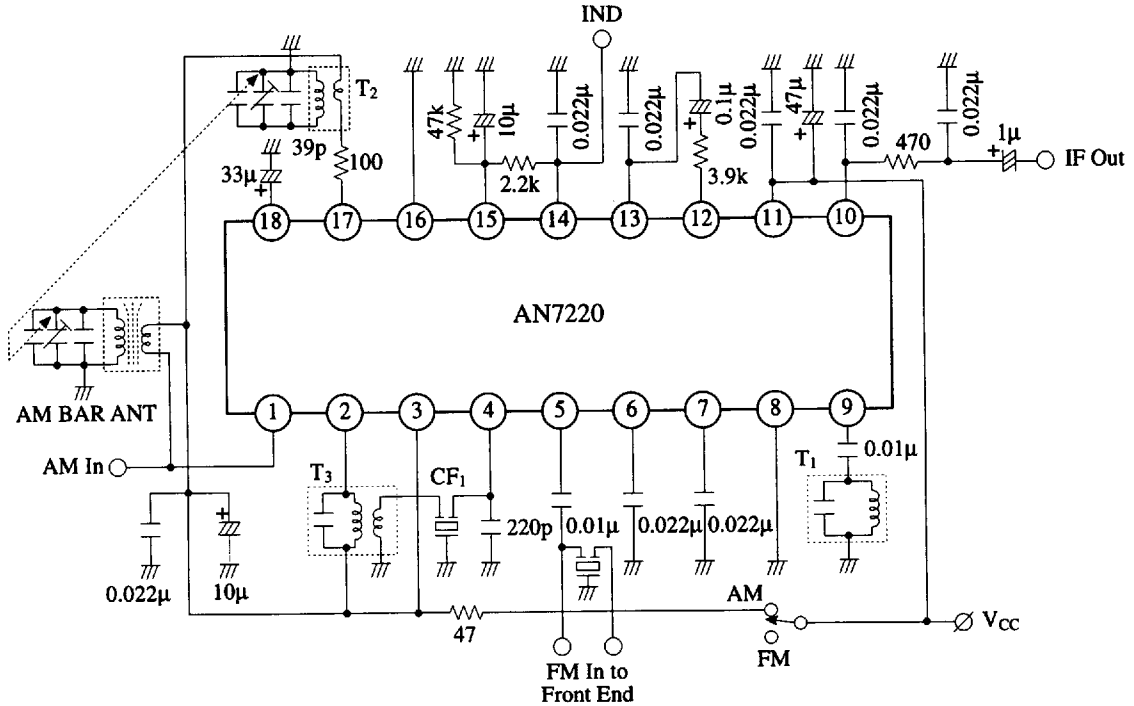
## Electrical Characteristics (V<sub>CC</sub>=3V, Ta=25°C)

| Item | Symbol                  | Condition   | min. | typ. | max. | Unit |
|------|-------------------------|---|------|------|------|------|
| FM   | Detector Output Voltage | V <sub>O</sub> V <sub>in</sub> = 60dBμ, f = 10.7MHz, f <sub>dev</sub> = 22.5kHz, f <sub>m</sub> = 400Hz | 16   | 21   | 26.5 | mV   |
|      | Limiting Sensitivity    | V <sub>in(lim)</sub> V <sub>O</sub> = -3dB  | 35   | 38   | 41   | dBμ  |
| AM   | Detector Output         | V <sub>O</sub> V <sub>in</sub> = 60dBμ, f = 1MHz, Mod = 30%, f <sub>m</sub> = 400Hz                     | 18.3 | 28.7 | 45.7 | mV   |
|      | Maximum Sensitivity     | S <sub>max</sub> V <sub>in</sub> = 20dBμ  | 3.3  | 6.5  | 11.2 | mV   |
|      | Indicator Voltage       | V <sub>14-8</sub> Without Signal  |      | 450  | 630  | mV   |

## Test Circuit



■ Application Circuit



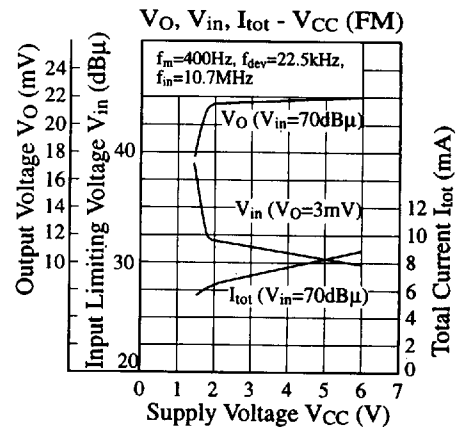
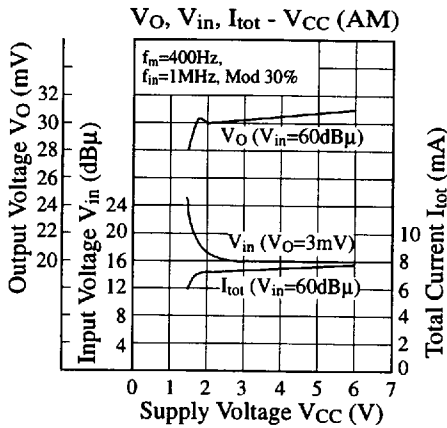
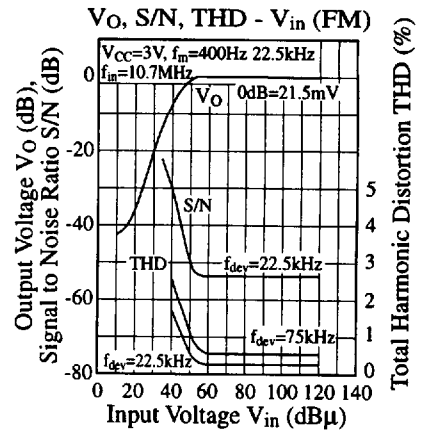
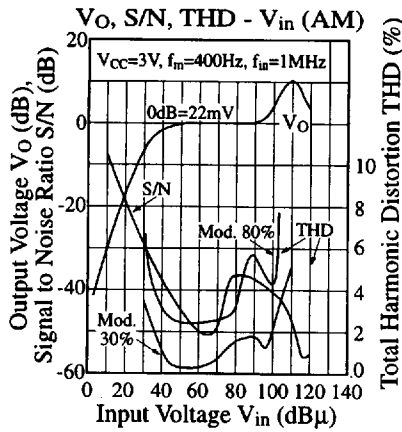
■ Coil Specifications

| Symbol         | Use, Freq.               | Type No.   | Maker      | Connection Diagram | Number of Turns                     | Tuning Cap. | Unloaded Q |
|----------------|--------------------------|------------|------------|--------------------|-------------------------------------|-------------|------------|
| T <sub>1</sub> | FM Quad Coil<br>10.7MHz  | EIF-7S752A | Matsushita |                    | ①...② 8T<br>②...③ 5T<br>④...⑥ 3T    | 100pF       | 90±20%     |
| T <sub>2</sub> | AM MW OSC Coil           | ELL-7S754  | Matsushita |                    | ①...② 4T<br>②...③ 125T<br>④...⑥ 7T  | -           | 95±20%     |
| T <sub>3</sub> | AM Mix. Output<br>455kHz | EIA-7S802A | Matsushita |                    | ③...② 35T<br>⑥...④ 10T<br>②...① 19T | 1500pF      | 60±30%     |

■ Ceramic Filter Specification

| Symbol          | Use   | Type No.  | Maker | Center Freq. | Bandwidth   | Loss  |
|-----------------|-------|-----------|-------|--------------|-------------|-------|
| CF <sub>1</sub> | AM IF | CFM2-455B | Toko  | 455kHz       | 7kHz (-6dB) | 2.6dB |

■ Characteristics Curve



■ Printed Circuit Board Layout (Scale: 1:1)

