

# AN7222N

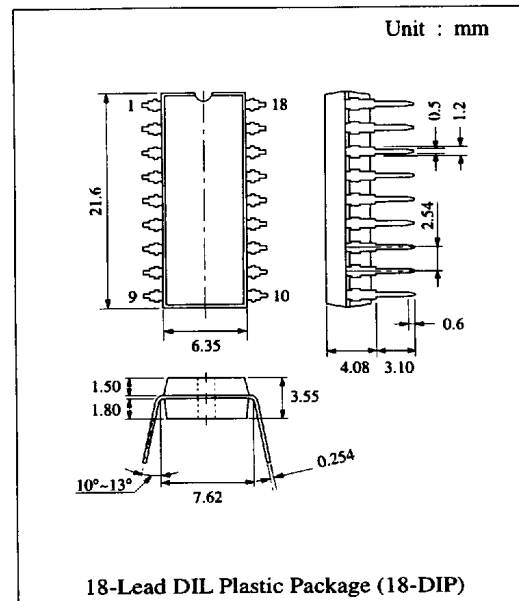
## AM Tuner, FM-AM IF Amplifier

### ■ Description

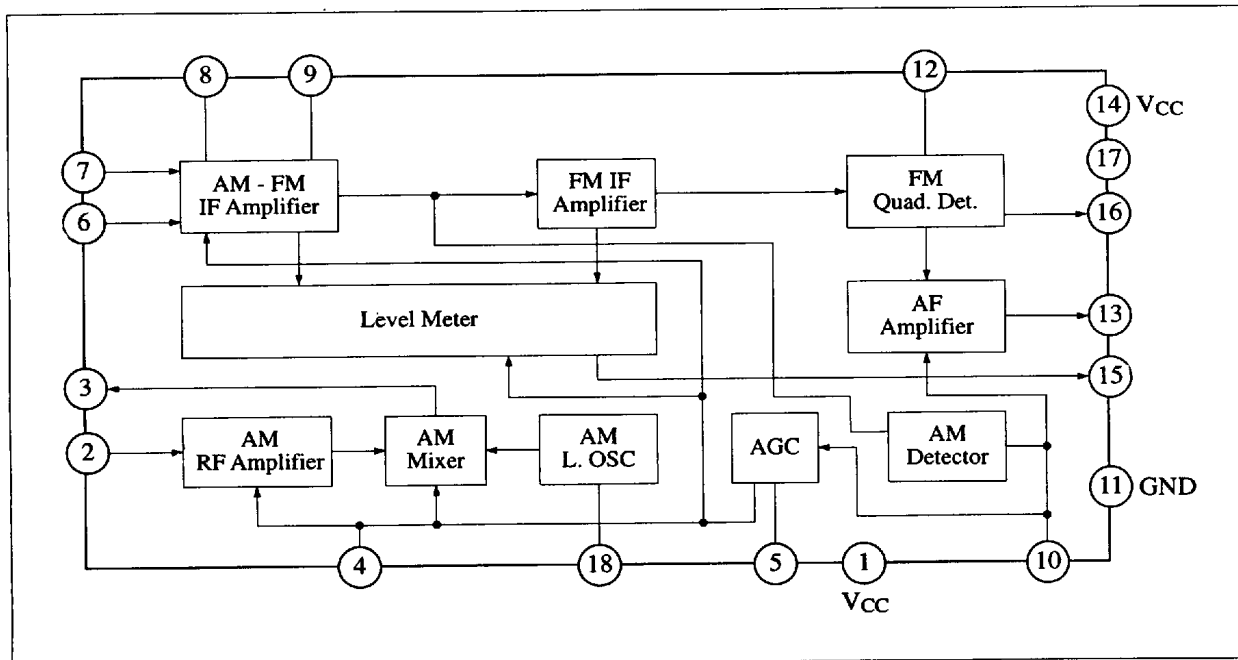
The AN7222N is a monolithic integrated circuit designed for high performance, multi-function FM-AM IF system of low voltage operation.

### ■ Features

- Wide operation voltage ( $V_{CC} = 2.8 \sim 9.6V$ )
- Built-in detectors for both FM and AM
- Built-in level meter output (for both FM and AM)
- High sensitivity for AM owing to RF amplifier
- Low power consumption
- AFC control terminal
- Fewer external components



### ■ Block Diagram



■ 6932652 0013862 0T0 ■

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### ■ Absolute Maximum Ratings (Ta=25°C)

| Item                          | Symbol           | Rating     | Unit |
|-------------------------------|------------------|------------|------|
| Supply Voltage                | V <sub>CC</sub>  | 9.6        | V    |
| Supply Current                | I <sub>CC</sub>  | 20         | mA   |
| Power Dissipation             | P <sub>D</sub>   | 192        | 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> = 2.8V ~ 9.6V

### ■ Electrical Characteristics (V<sub>CC</sub>=5V, Ta=25°C)

| Item   |                          | Symbol               | Condition  | min. | typ. | max. | Unit |
|--------|--------------------------|----------------------|--|------|------|------|------|
| F<br>M | Detector Output Voltage  | V <sub>O(FM)</sub>   | Input = 100dB                                    | 45   | 60   | 72   | mV   |
|        | Limiting Sensitivity     | V <sub>in(lim)</sub> | Measure V <sub>in</sub> at V <sub>O</sub> -3dB   | 41   | 44   | 47   | dBμ  |
|        | Meter Output Voltage (1) | V <sub>15-11</sub>   | Input = 60dB                                     | 150  | 450  | 750  | mV   |
|        | Meter Output Voltage (2) | V <sub>15-11</sub>   | Input = 100dB                                    | 970  | 1100 | 1250 | mV   |
|        | Offset Voltage           | V <sub>16-17</sub>   | Input = 0dB                                      | -250 | 0    | 250  | mV   |
| A<br>M | Detector Output Voltage  | V <sub>O(AM)</sub>   | Input = 60dB                                     | 45   | 58   | 70   | mV   |
|        | Sensitivity              | S <sub>(AM)</sub>    | Measure V <sub>in</sub> at V <sub>O</sub> = 10mV | 8.5  | 14   | 19.5 | dBμ  |

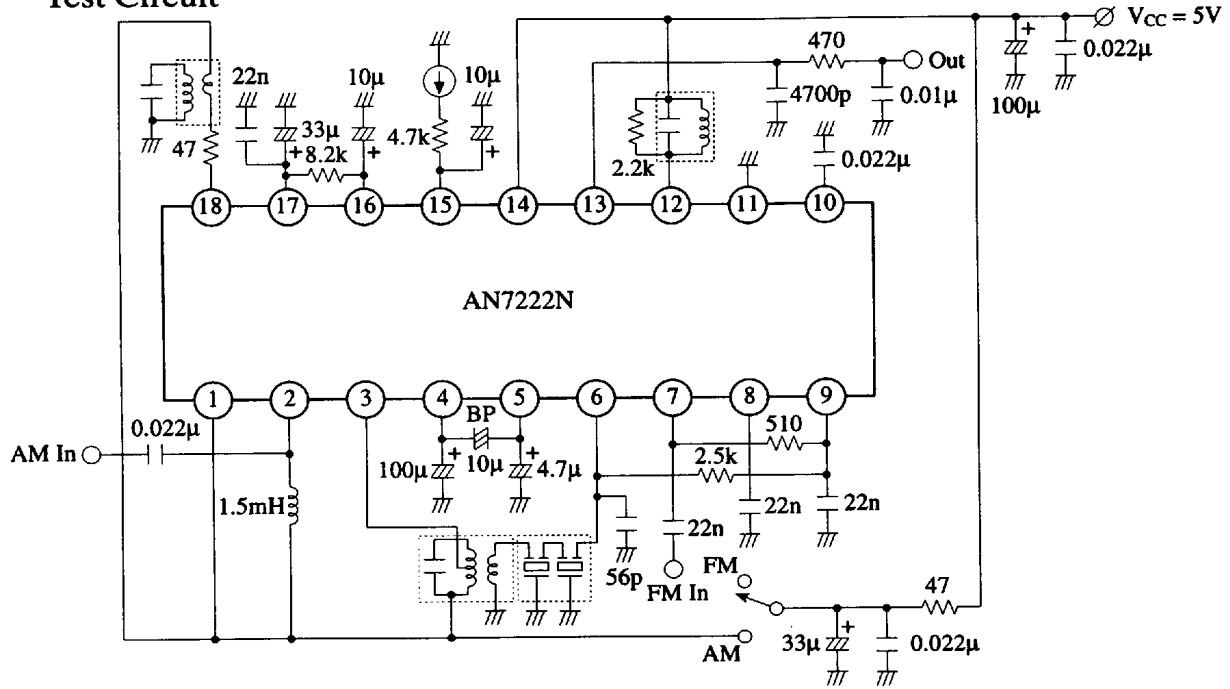
Note : FM: f = 10.7MHz, f<sub>dev</sub> = 22.5kHz, f<sub>m</sub> = 400Hz

AM: f = 1MHz, f<sub>m</sub> = 400Hz, Mod. = 30%

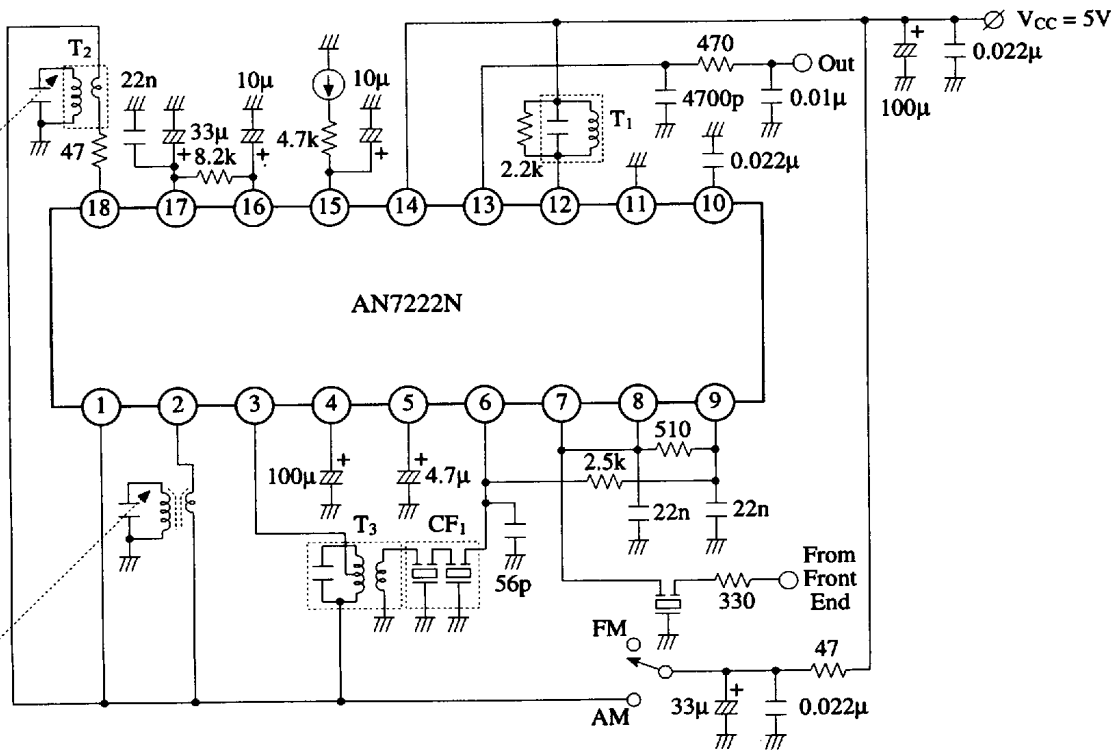
### ■ Pin

| Pin No. | Pin Name              | Pin No. | Pin Name              |
|---------|-----------------------|---------|-----------------------|
| 1       | V <sub>CC</sub> (AM)  | 10      | AM Detector Output    |
| 2       | AM RF Amplifier Input | 11      | GND                   |
| 3       | AM Mixer Output       | 12      | FM Detector Coil      |
| 4       | AGC Output (2)        | 13      | AF Output             |
| 5       | AGC Output (1)        | 14      | V <sub>CC</sub>       |
| 6       | AM IF Amplifier Input | 15      | Level Meter Output    |
| 7       | FM IF Amplifier Input | 16      | AFC Output            |
| 8       | IF By-pass            | 17      | Reference Voltage     |
| 9       | IF By-pass            | 18      | Local Oscillator Coil |

Test Circuit



Application Circuit



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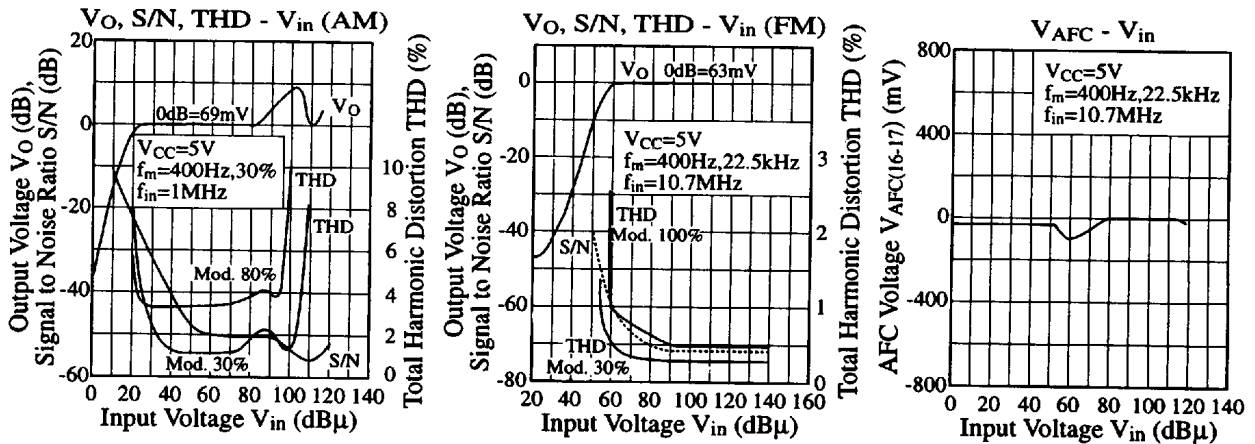
■ Coil Specifications

| 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 Mixer Output<br>455kHz | EIA-7S802A | Matsushita |                    | ③...② 35T<br>⑥...④ 10T<br>②...① 19T | 1500pF      | 60±30%     |

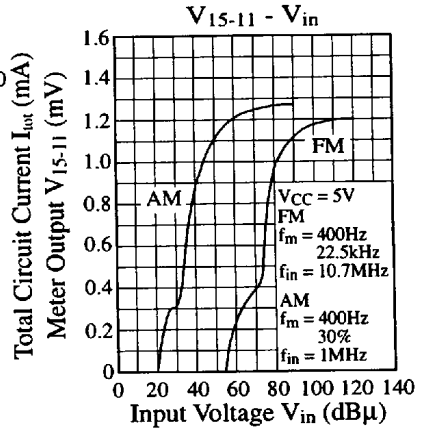
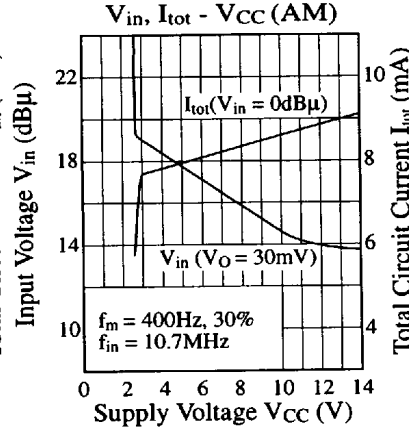
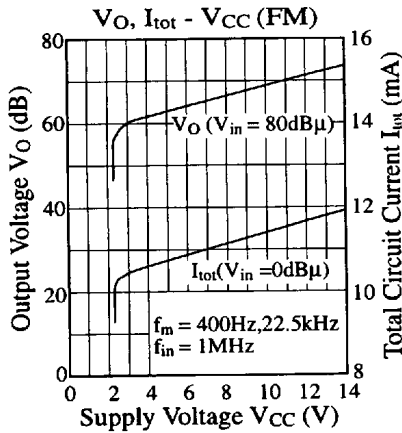
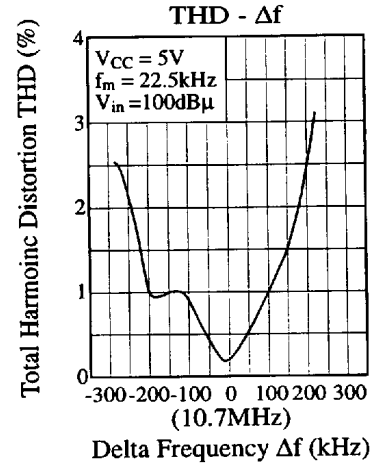
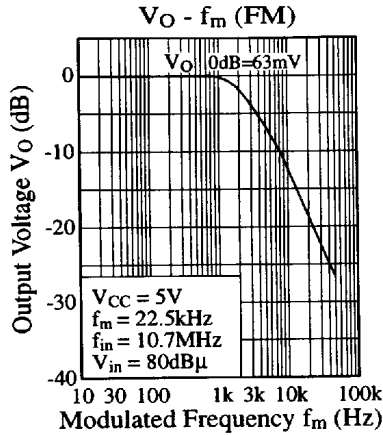
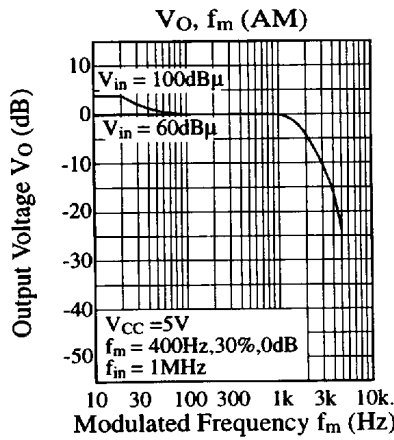
■ Ceramic Filter Specification

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

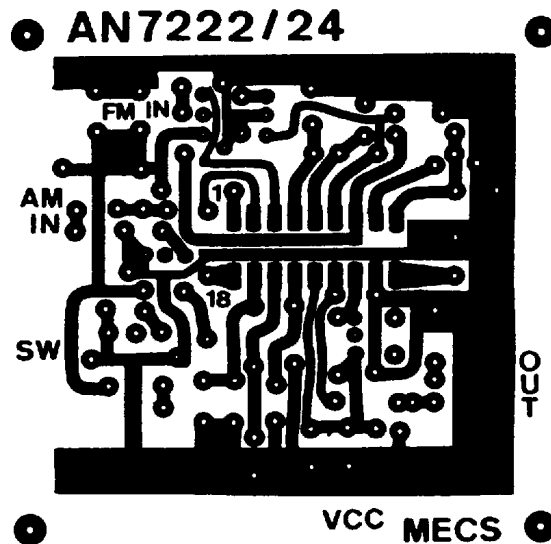
■ Characteristics Curve



■ Characteristics Curve (Continue)



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



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