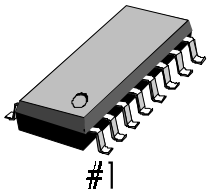
## INTRODUCTION

The KA22429D is a monolithic integrated circuit designed for Portable FM radios.
It consists of an RF input stage, mixer, IF, mute control and loop (earphone drive) Amp.
It is suitable for a pocket-size radio.

16–SOP–225




## FUNCTIONS

- RF input stage
- Mixer
- Mute control
- Local OSC
- IF Amp
- Earphone drive amp

## FEATURES

- Minimum number of external parts required
- Single trimmer tuning
- No FM det coil
- FLL IF detect system (76kHz)
- Operating voltage: $V_{CC}$ = 1.8V ~ 6.0V

## ORDERING INFORMATION

| Device | Package | Operating Temperature |
|---|---|---|
| KA22429D | 16–SOP–225 | –10°C ~ + 70°C |

## BLOCK DIAGRAM

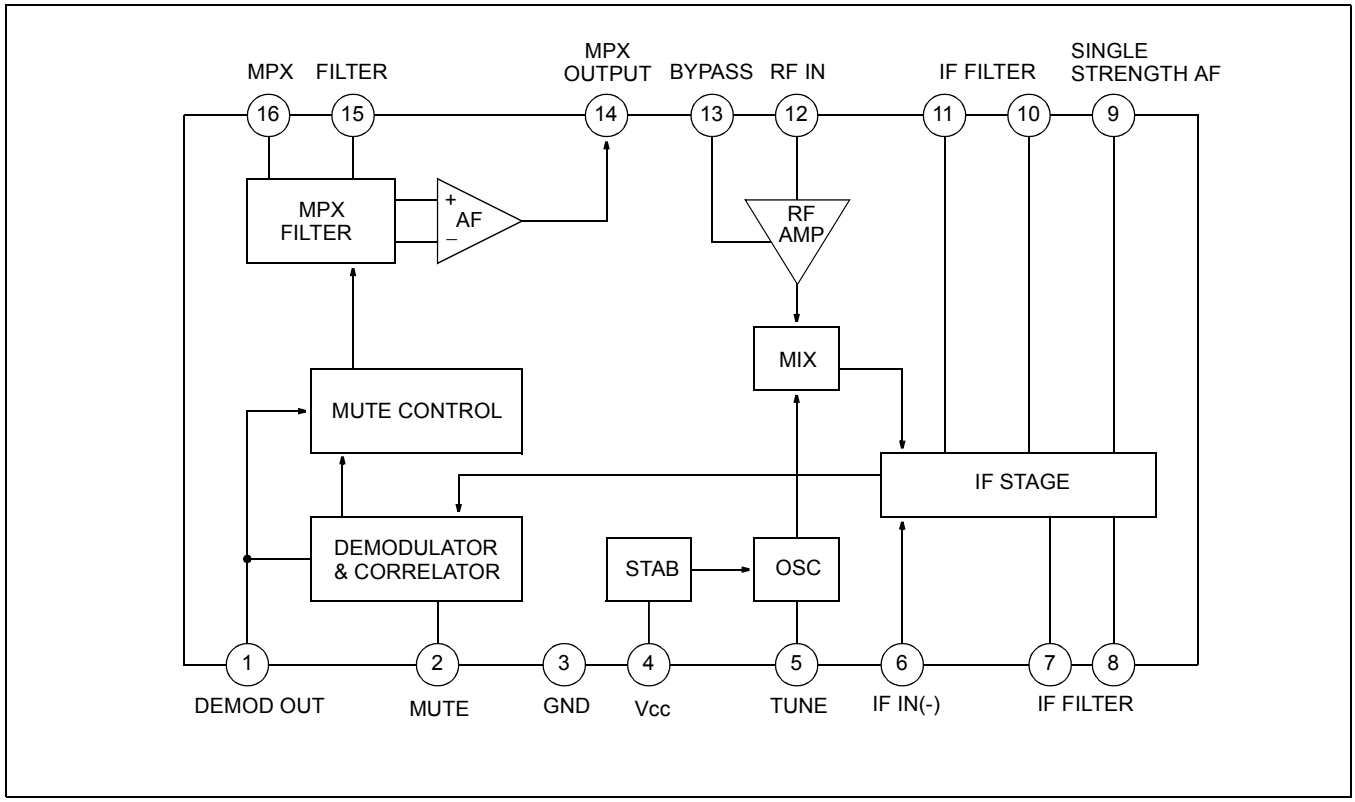



**Figure 1.**

## ABSOLUTE MAXIMUM RATINGS ( Ta = 25°C )

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Supply Voltage | $V_{CC}$ | 7 | V |
| Oscillator Voltage | $V_{OSC}$ | –0.5 ~ + 0.5 | V |
| Operating Temperature | $T_{OPR}$ | –10 ~ + 70 | °C |
| Storage Temperature | $T_{STG}$ | –55 ~ + 150 | °C |
| Thermal Resistance Junction to Ambient | $R_{EJA}$ | 300 | K/W |

## ELECTRICAL CHARACTERISTICS

MONO CONDITION: f = 98MHz, $f_m$ = 1kHz, Δf = ± 22.5kHz, V = 50dBμ, Ta = 25°C, $V_{CC}$ = 3V
STEREO CONDITION: f = 98MHz, $f_m$ = 1kHz, Δf = ± 22.5kHz, V = 60dBμ (Modulated with pilot Δf = 6.75kHz)

| Characteristic | | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Quiescent Circuit Current | | $I_{CCQ}$ | VI = 0 | – | 6.3 | – | mA |
| MONO | Sensitivity | $S_{VI1}$<br>$S_{VI2}$ | –3dB: Mute Disable<br>SIN = 26dB: Mute Enable | – | 12<br>17 | – | dBμ<br>dBμ |
| | Signal to Noise Ratio | S/N1 | – | – | 60 | – | dB |
| | Total Harmonic Distortion | THD1<br>THD2 | Δf = ± 22.5kHz<br>Δf = ± 75kHz | – | 0.7<br>2.3 | – | %<br>% |
| | AM Rejection Ratio | AMR | AM: fm = 1kHz, m = 80%<br>FM: fm = 1kHz, Δf = 75kHz | – | 50 | – | dB |
| | Oscillator Voltage | $V_{OSC}$ | – | – | 250 | – | mV |
| | AFC Range | ΔAFC | – | – | 160 | – | kHz |
| | Mute Range | MR | – | – | 120 | – | kHz |
| | Band Width | BW | ΔVO = 3dB<br>Pre-Emphasis t = 5kHz | – | 10 | – | kHz |
| | AM Output Voltage | $V_{O1}$ | – | – | 90 | – | mV |
| STEREO | Sensitivity | $S_{VI3}$ | S/N = 46dB | – | 49 | – | dBμ |
| | Signal to Noise Ratio | $S/N_2$ | – | – | 53 | – | dB |
| | Channel Separation | CS | – | – | 20 | – | dB |
| | AF Output Voltage | $V_{O2}$ | – | – | 80 | – | mV |

## TEST CIRCUIT

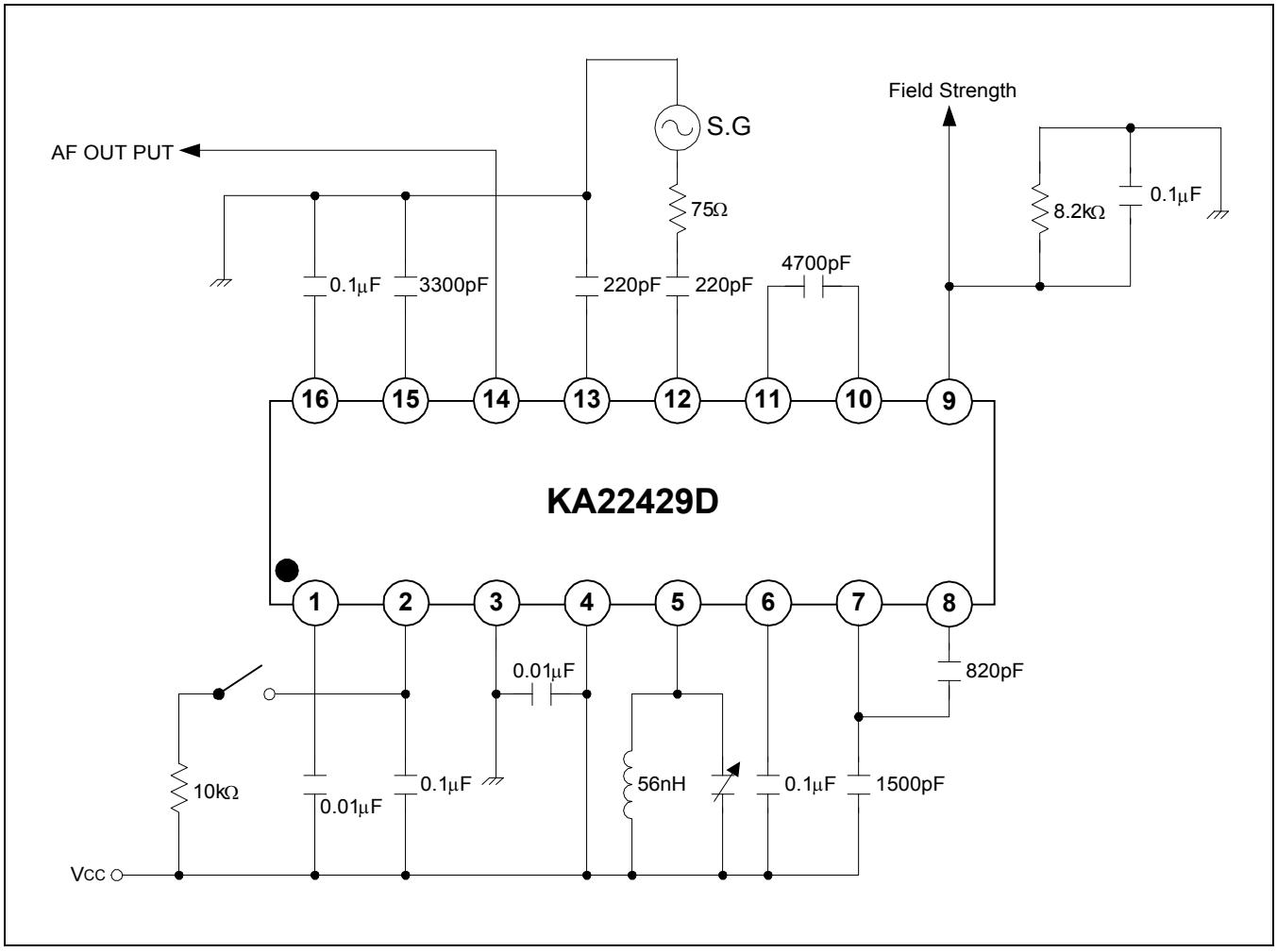



**Figure 2. Test Circuit for Mono Operation**

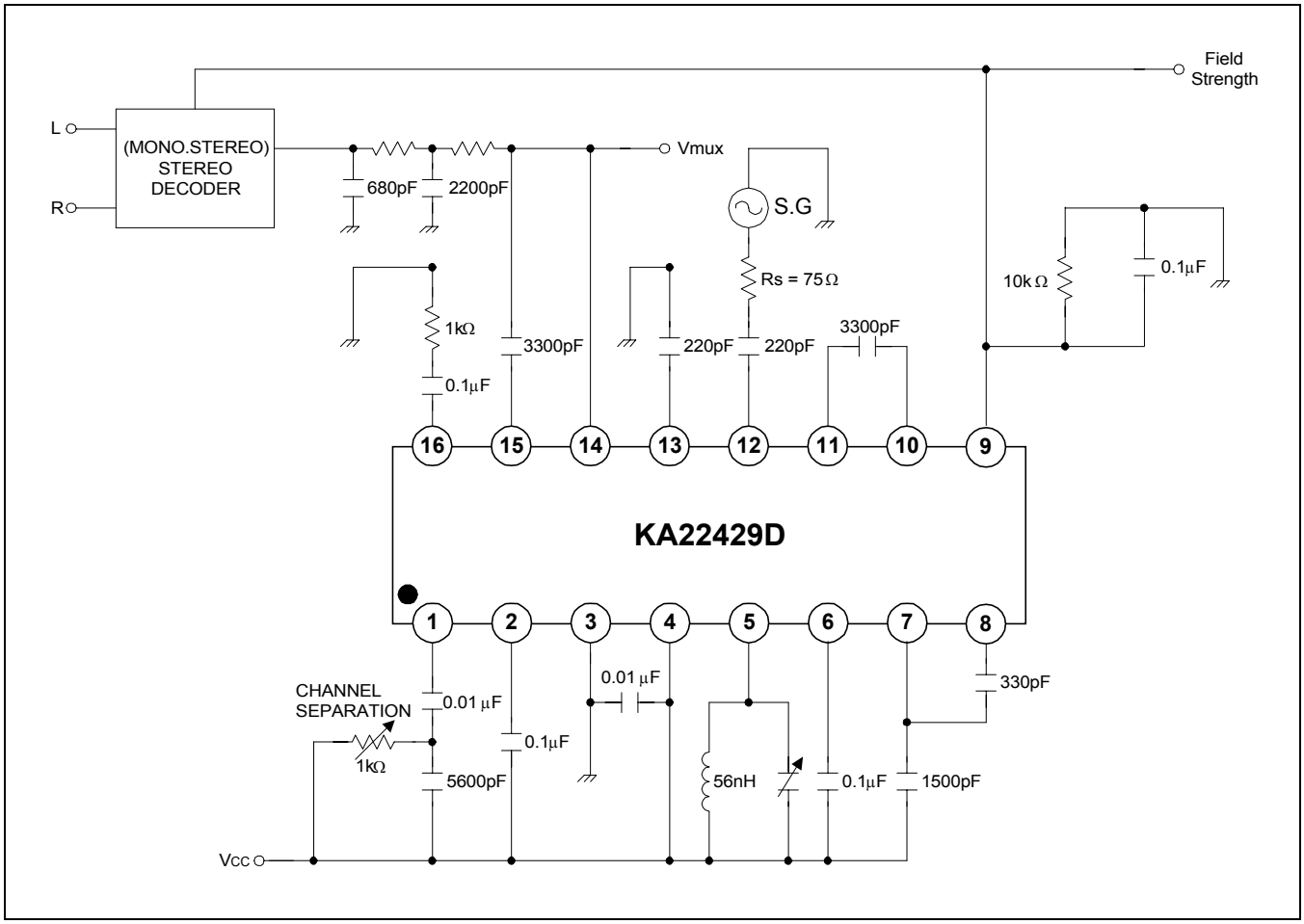



**Figure 3. Test Circuit for Stereo Operation**

## APPLICATION CIRCUIT

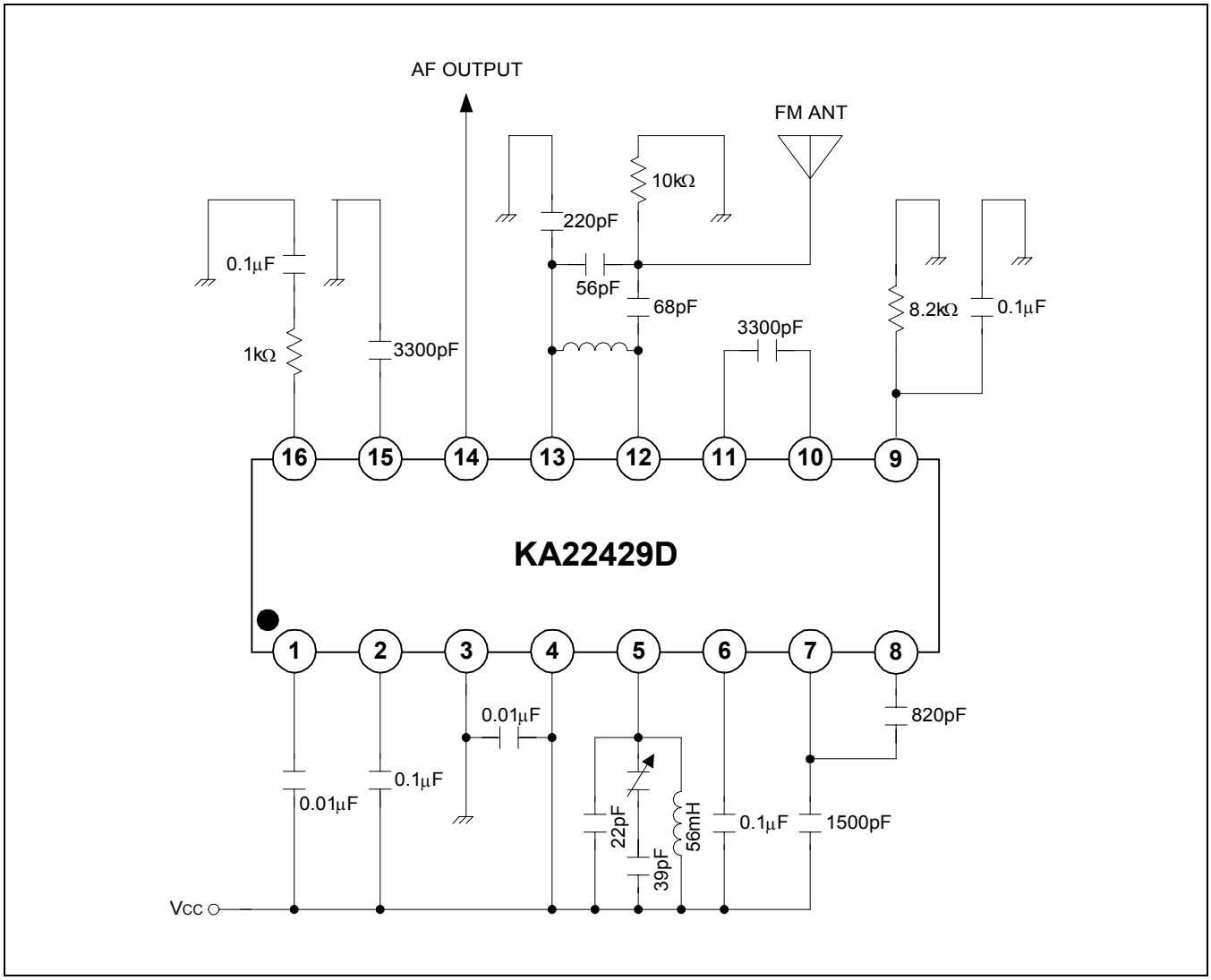



**Figure 4.**