

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.

FUNCTIONS

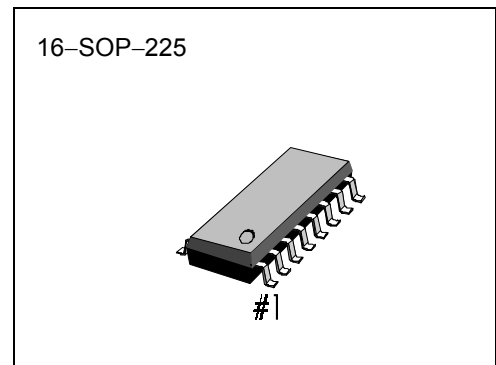
- RF input stage
- Mixer
- Mute control
- Local OSC
- IF Amp
- Earphone drive amp

FEATURES

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

ORDERING INFORMATION

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



BLOCK DIAGRAM

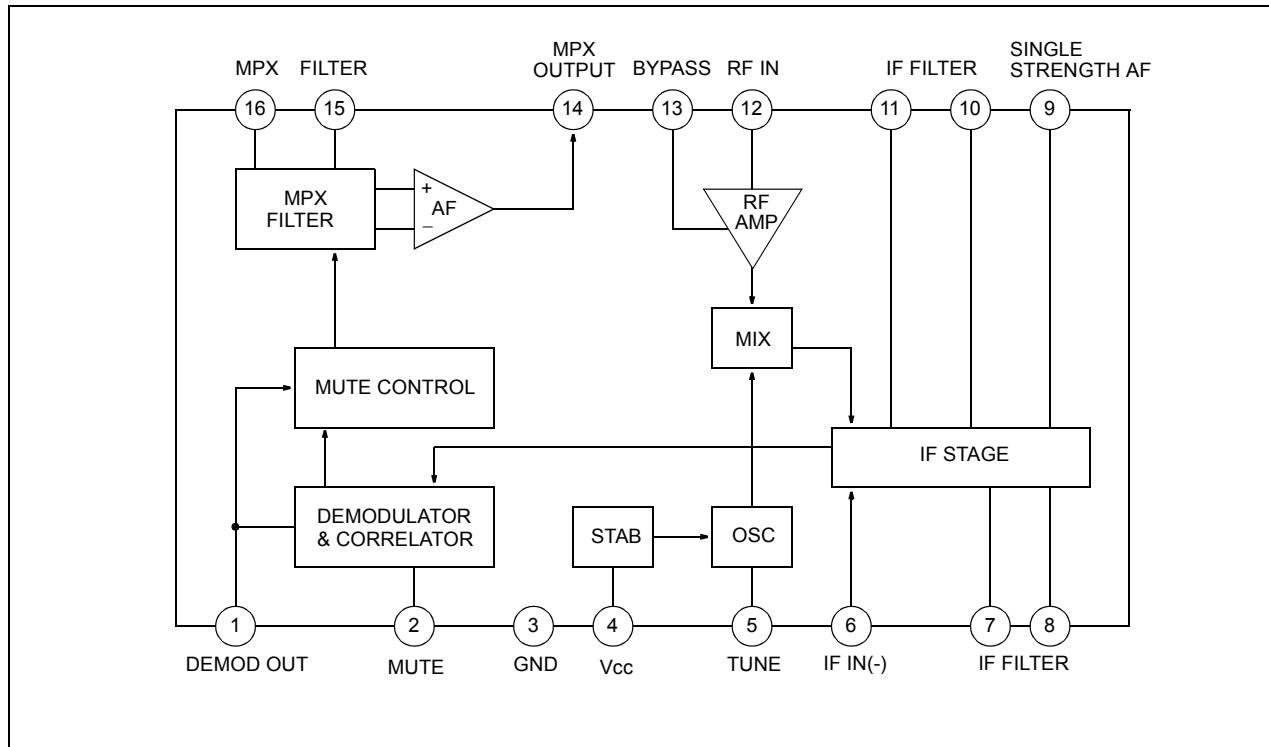


Figure 1.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ + 150	$^\circ\text{C}$
Thermal Resistance Junction to Ambient	R_{EJA}	300	K/W

ELECTRICAL CHARACTERISTICS

MONO CONDITION: $f = 98\text{MHz}$, $f_m = 1\text{kHz}$, $\Delta f = \pm 22.5\text{kHz}$, $V = 50\text{dB}\mu$, $T_a = 25^\circ\text{C}$, $V_{CC} = 3\text{V}$

STEREO CONDITION: $f = 98\text{MHz}$, $f_m = 1\text{kHz}$, $\Delta f = \pm 22.5\text{kHz}$, $V = 60\text{dB}\mu$ (Modulated with pilot $\Delta f = 6.75\text{kHz}$)

Characteristic		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Quiescent Circuit Current		I_{CCQ}	$V_I = 0$	–	6.3	–	mA
MONO	Sensitivity	S_{VI1}	–3dB: Mute Disable	–	12	–	$\text{dB}\mu$
		S_{VI2}	SIN = 26dB: Mute Enable	–	17	–	$\text{dB}\mu$
	Signal to Noise Ratio	S/N1	–	–	60	–	dB
	Total Harmonic Distortion	THD1	$\Delta f = \pm 22.5\text{kHz}$	–	0.7	–	%
		THD2	$\Delta f = \pm 75\text{kHz}$	–	2.3	–	%
	AM Rejection Ratio	AMR	AM: $f_m = 1\text{kHz}$, $m = 80\%$ FM: $f_m = 1\text{kHz}$, $\Delta f = 75\text{kHz}$	–	50	–	dB
	Oscillator Voltage	V_{OSC}	–	–	250	–	mV
	AFC Range	ΔAFC	–	–	160	–	kHz
	Mute Range	MR	–	–	120	–	kHz
Band Width	BW	$\Delta\text{VO} = 3\text{dB}$ Pre-Emphasis $t = 5\text{kHz}$	–	10	–	kHz	
AM Output Voltage	V_{O1}	–	–	90	–	mV	
STEREO	Sensitivity	S_{VI3}	S/N = 46dB	–	49	–	$\text{dB}\mu$
	Signal to Noise Ratio	S/N ₂	–	–	53	–	dB
	Channel Separation	CS	–	–	20	–	dB
	AF Output Voltage	V_{O2}	–	–	80	–	mV

TEST CIRCUIT

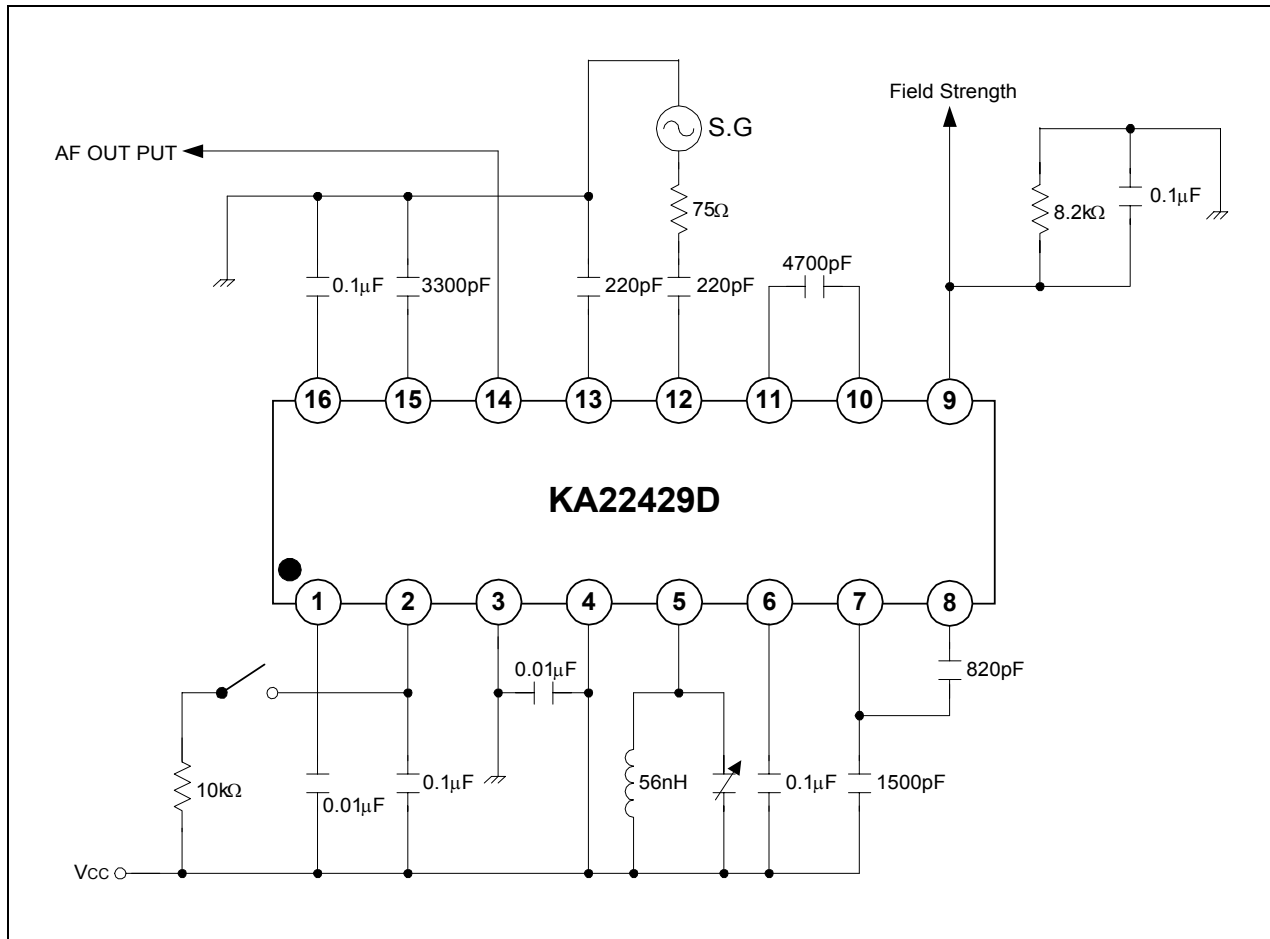


Figure 2. Test Circuit for Mono Operation

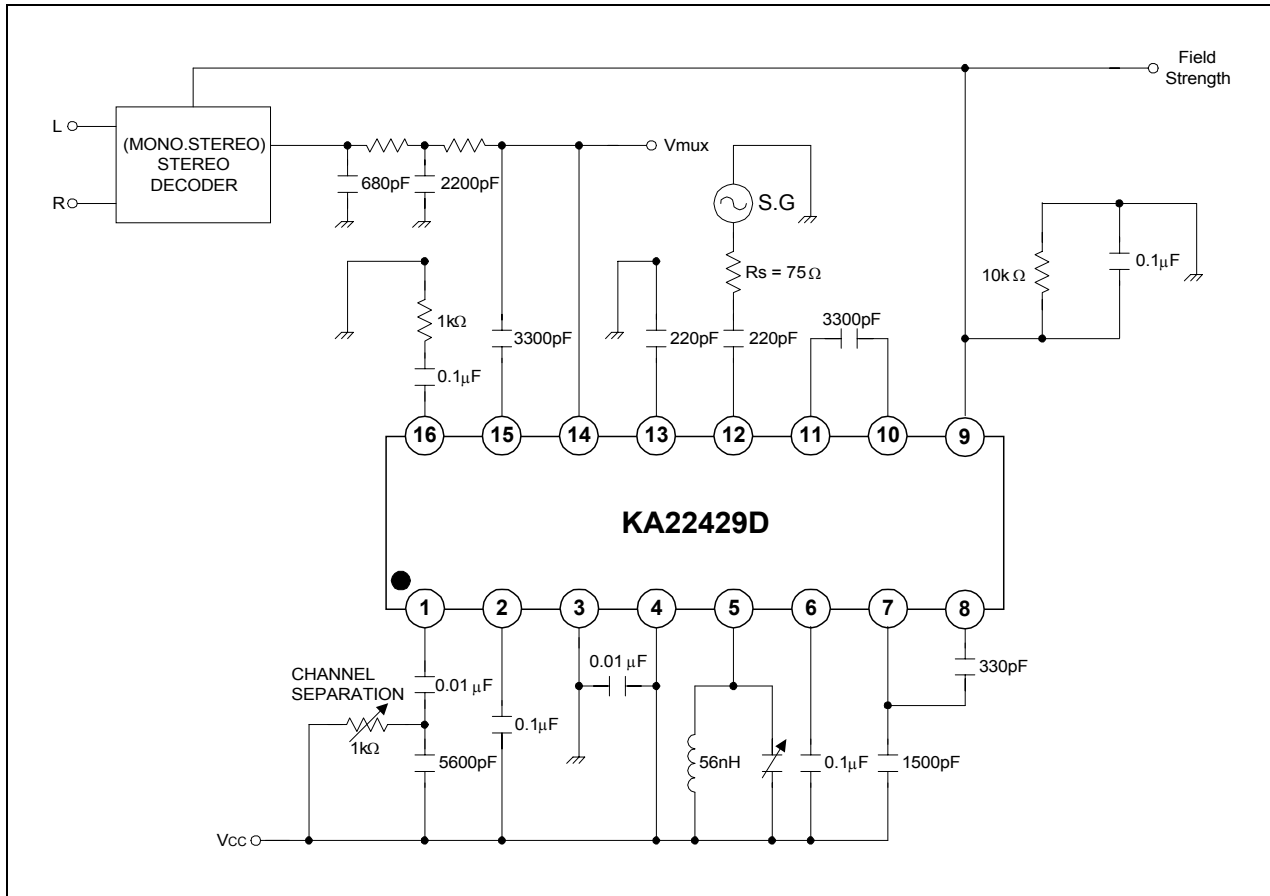


Figure 3. Test Circuit for Stereo Operation

APPLICATION CIRCUIT

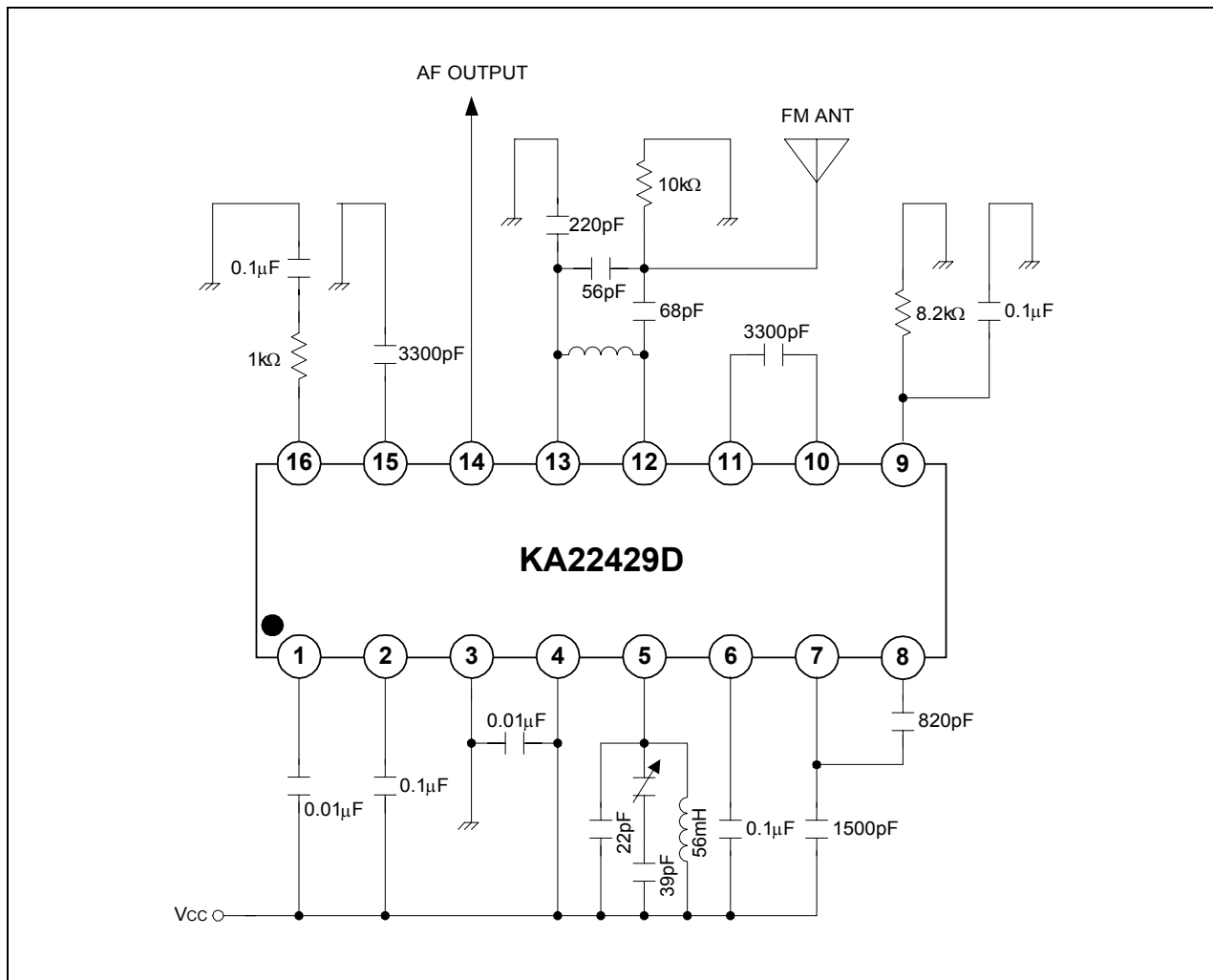


Figure 4.