

FM RECEIVER CIRCUIT FOR BATTERY SUPPLY

—YD9088

DESCRIPTION

The YD9088 is a bipolar integrated circuit for use in mono portable and pocket radios. It is used when a minimum of peripheral components (of small dimensions and low costs) is important. The circuit contains a frequency-locked-loop (FLL) system with an intermediate Frequency (IF) of about 70kHz. Selectivity is achieved by active RC-filters. De-tuning related to the IF and too weak input signals is suppressed by the mute circuit.

FEATURES

- *Equipped with all stages of a mono receiver from antenna to audio output
- *Mute circuit
- *Search tuning with a single varicap diode
- *Mechanical tuning with integrating AFC
- *AM application supported
- *Power supply polarity protection
- *Power supply voltage down to 1.8V

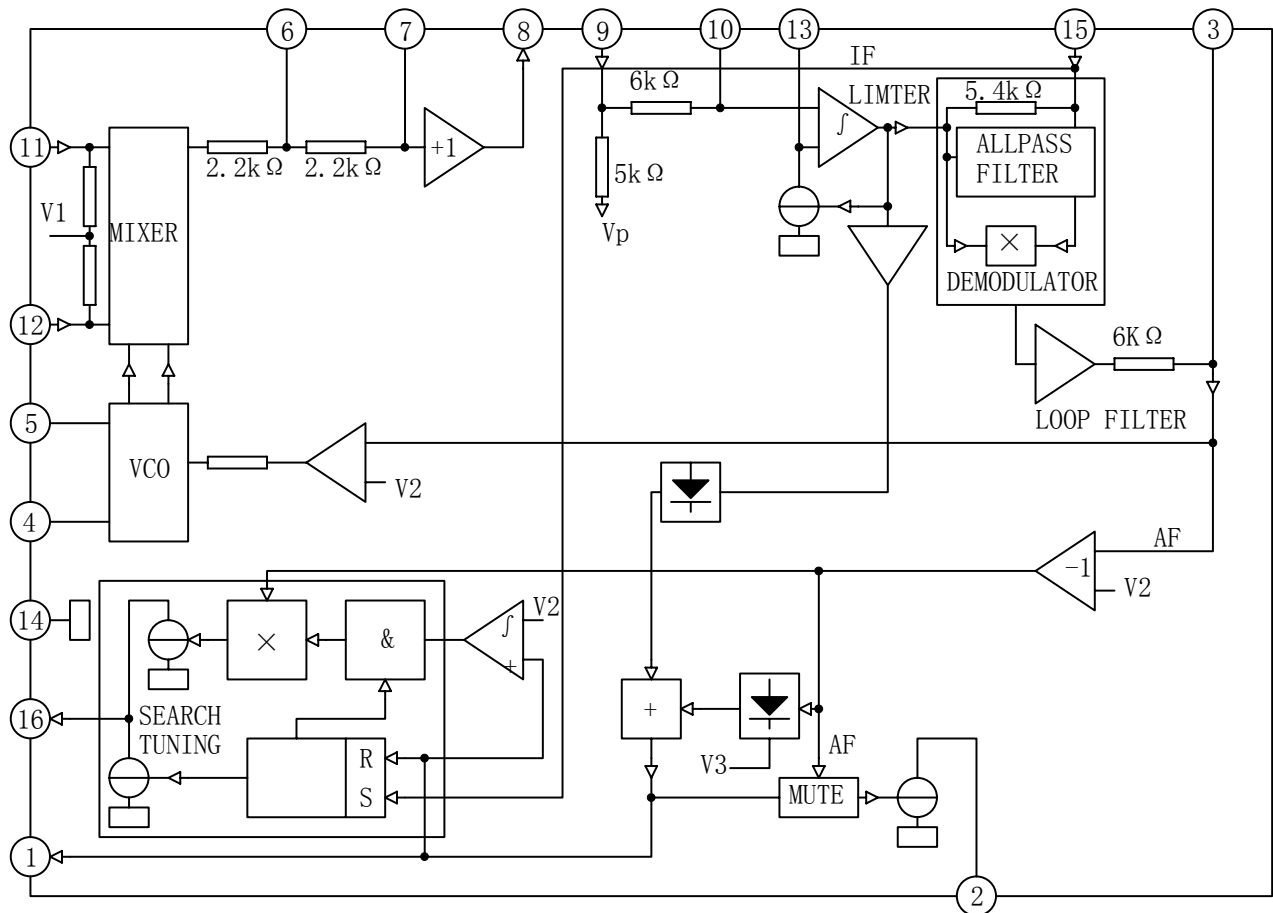
WuXi YouDa Electronics Co., Ltd

Add: No.5 Xijin Road, National Hi-Tech Industrial Development Zone, Wuxi Jiangsu China

Tel: 86-510-85205117 86-510-85205106 **Fax:** 86-510-85205110 **Website:** www.e-youda.com

SHENZHEN OFFICE Tel: 86-755-83740369 **Fax:** 86-755-83741418

BLOCK DIAGRAM

ABSOLUTE MAXIMUM RATINGS (T_{amb}=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply voltage	V _{cc}	5	V
Operating temperature	T _{opr}	-10~+70	°C
Storage temperature	T _{stg}	-55~+150	°C

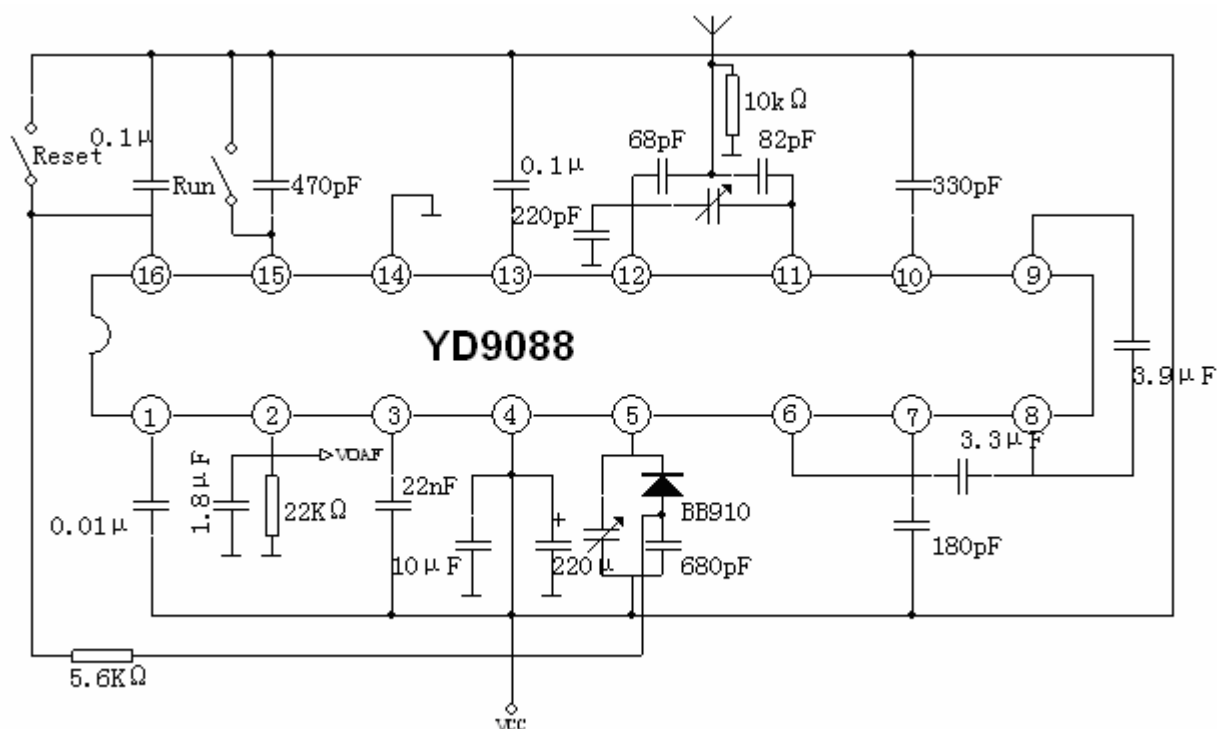
ELECTRICAL CHARACTERISTICS (V_{CC}=3V, T_{amb}=25°C, Unless otherwise specified)**DC CHARACTERISTICS**

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V _p	1.8	3	5	V
Supply Current	I _p	4.2	5.2	6.6	mA
DC Voltage On Pin1	V ₁	2.50	2.55	2.60	V
DC Voltage On Pin3	V ₃	2.64	2.69	2.74	V
DC Voltage On pin6 and Pin7	V _{6,7}	2.38	2.44	2.50	V
DC Voltage On Pin8	V ₈	1.60	1.67	1.74	V
DC Voltage On Pin9, Pin10 and Pin13	V _{9,10,13}	2.42	2.47	2.52	V
DC Voltage On Pin11 and Pin12	V _{11,12}	0.91	0.94	0.98	V
DC Voltage On Pin15	V ₁₅	2.06	2.12	2.18	V
AF Output Vurrent On Pin2	I ₂	45	60	80	μ A
Oscillator Vurrent On Pin5	I ₅	275	375	500	μ A

AC CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
RF Sensitivity Input Voltage (RMS value)	Vi(rms)	V _{oAF} =-3dB, V _{oAF} =0dB at Vin=1mV	Mute off		3	6	μ V
			Mute on	3	6	12	
		(S+N)/N=26dB				5	10
Signal Handing		Δ f=±75kHz, THD<10%		100	200		mV
Signal Plus Noise-to-noiseRatio	(S+N)/N			52	56		dB
Signal Harmonic Distortion	THD	Δ f=±22.5kHz			1	1.4	%
		Δ f=±75kHz			2.4	3.3	%
AM Rejection	AMR	FM:1kHz, ±75kHz AM:1kHz, m=0.8		47	52		dB
RippleRejection	RR ₁₀₀₀	100mV RMS ripple on Vp, f=1kHz		7	10		dB
Audio Output Signal	Vo	RL=22k Ω		60	85	120	mV
Search Tuning (with BB910 and C16=0.1 μ F)							
Minimum Output Voltage On Pin16	V16	Limiting point			Vp-1.85		V
Tuning Steepness	Δ V/ Δ t	Voltage at pin16		95	210	420	mV/s
Oscillator Steepness	Δ fosc/ Δ t			1.25	2.83	5.6	MHz/S
AFC Steepness	Δ I _{AFC} / Δ V3	Voltage at pin3		4.75	9.5	19	μ S

APPLICATION CIRCUIT



OUTLINE DRAWING

