

3V AM/FM ONE CHIP TUNER IC—YD2111

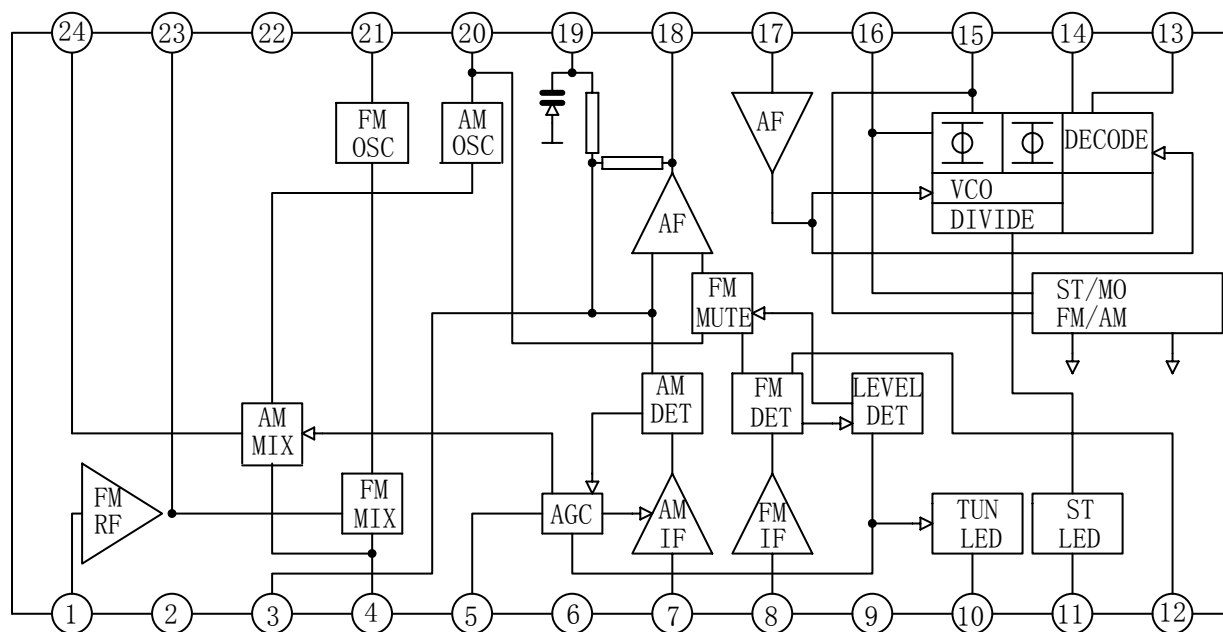
DESCRIPTION

The YD2111 are AM/FM 1 chip tuner ICs, which are designed for portable radios and 3V headphone radios.

FEATURES

- *For NEW FCC.
- *AM Detector coil, FM IFT, IF coupling condenser are not needed.
- *For adopting ceramic discriminator, it is not necessary to adjust the FM quad detector circuit.
- *Built-in FM MPX VCO circuit.
- *Built-in varactor diode for AFC.
- *Built-in AM low cut circuit.
- *Low supply current. ($V_{cc}=3V$, $T_{amb}=25^{\circ}C$)
 - I_{ccq} (FM)=9.0mA (typ.)
 - I_{ccq} (AM)=5.0mA (typ.)
- *Operating Supply Voltage Range: $V_{cc}=1.8\sim 7V$ ($T_{amb}=25^{\circ}C$)

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER		SYMBOL	VALUE	UNIT
Supply Voltage		V _{CC}	8	V
LED Current		I _{LED}	10	mA
LED Voltage		V _{LED}	8	V
Power Dissipation	YD2111N	P _D (Note)	1200	mW
	YD2111F		400	
Operating Temperature		T _{opr}	-25~+75	℃
Storage Temperature		T _{stg}	-55~+150	℃

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Tamb=25℃, V_{CC}=3V, F/E : f=98MHz, fm=1kHz

FM IF : f=10.7MHz, $\Delta f = \pm 22.5\text{kHz}$, fm=1kHz

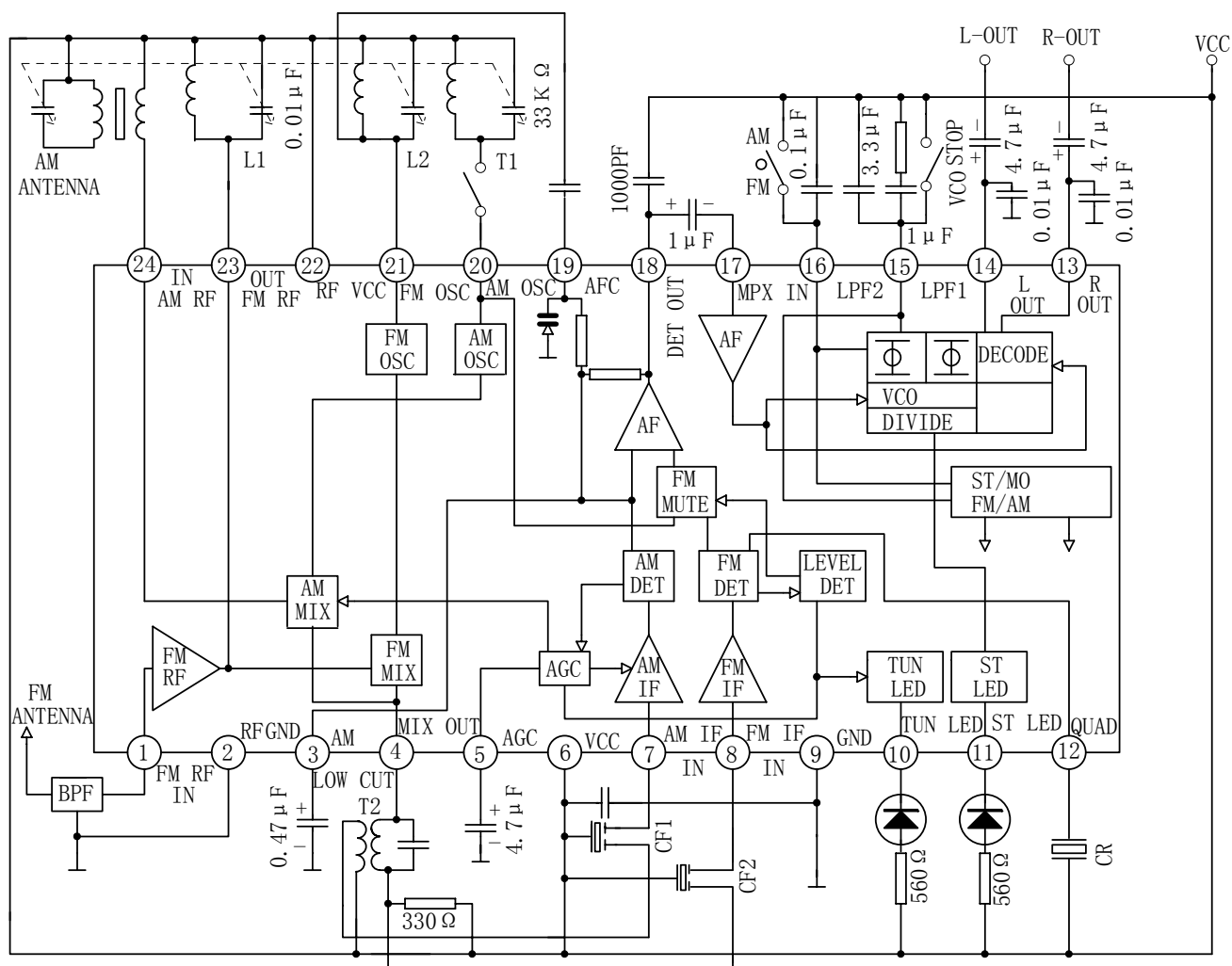
AM : f=1MHz, MOD=30%, fm=1kHz

MPX : fm=1kHz)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Circuit Current		I _{cc} (FM)	V _{in} =0, FM mode		9	12.5	mA
		I _{cc} (AM)	V _{in} =0, AM mode		5	7.5	
F/E	Input Limiting Voltage	V _{in} (lim)	-3dB limiting		7		dB μ V
	Local OSC Voltage	V _{OSC}	f _{osc} =108.7 MHz		105		mV
FM IF	Input Limiting Voltage	V _{in} (lim) IF	-3 dB limiting	35	40	45	dB μ V
	Recovered Output Voltage	V _{OD}	V _{in} =80dB μ V	60	75	90	mV
	Signal to Noise Ratio	S/N	V _{in} =80dB μ VF		65		dB
	Total Harmonic Distortion	THD	V _{in} =80dB μ V		0.2		%
	AM Rejection Ration	AMR	V _{in} =80dB μ V		50		dB
	LED on Sensitivity	V _L	I _L =1mA	40	45	50	dB μ V
	Soft Mute Attenuation	MUTE	V _{in} =0		20		dB

AM	Gain		G _V	Vin=25dB μ V	18	35	70	mV	
	Recovered Output Voltage		VOD	Vin=60dB μ V	50	70	90	mV	
	Signal to Noise Ratio		S/N	Vin=60dB μ V		41		dB	
	Total Harmonic Distortion		THD	Vin=60dB μ V		0.7		%	
	LED on Sensitivity		V _L	I _L =1mA	23	28	33	dB μ V	
Pin 18 Output Resistance			R18	FM mode		0.75		k Ω	
				AM mode		15.5			
MPX	Input Resistance		R _{IN}			55		k Ω	
	Output Resistance		R _{OUT}			5		k Ω	
	Max Composite Signal Input Voltage		Vin MAX (Stereo)	L+R=90%, P=10%, fm=1kHz, THD=3%		700		mV	
	Separation		Sep	L+R=180mV P=20mV	fm=100HZ		45		dB
					fm=1kHz	35	45		
					fm=10kHz		45		
	Total Harmonic Distortion	Monaural	THD	Vin=200mV		0.3		%	
		Stereo	THD	L+R=180mV P=20mV		0.3			
	Voltage Gain		GV	Vin=200mV	-2.5	-1	0.5	dB	
	Channel Balance		C.B.	Vin=200mV	-1.5	0	1.5	dB	
	Stereo LED Sensitivity	OFF	V _L (ON)	Pilot Input		8	12	mV	
		ON	V _L (OFF)		3	6		mV	
	Stereo LED Hysteresis		V _H	LED ON →OFF		2			
	Capture Range		C.R.	P=20mV		± 8		%	
	Signal to noise range		S/N			80		dB	

APPLICATION CIRCUIT



OUTLINE DRAWING

SDIP24-P-300-1.78

Unit : mm

