



TDA7088

LINEAR INTEGRATED CIRCUIT

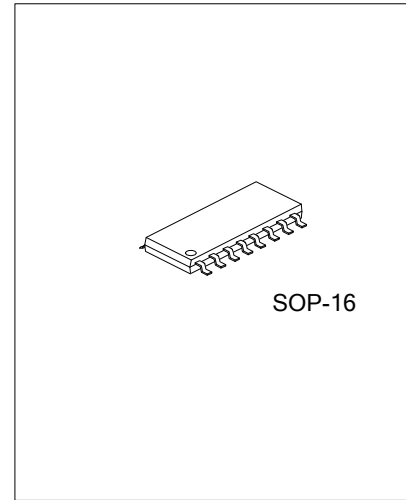
FM RECEIVER CIRCUIT FOR BATTERY SUPPLY

DESCRIPTION

The UTC **TDA7088** is a FM receiver circuit for battery supply, it is generally used in, Mechanical tuning, Search tuning and AM application, etc.

FEATURES

- * Low Power supply voltage
- * Protection for Power supply polarity
- * Halogen Free

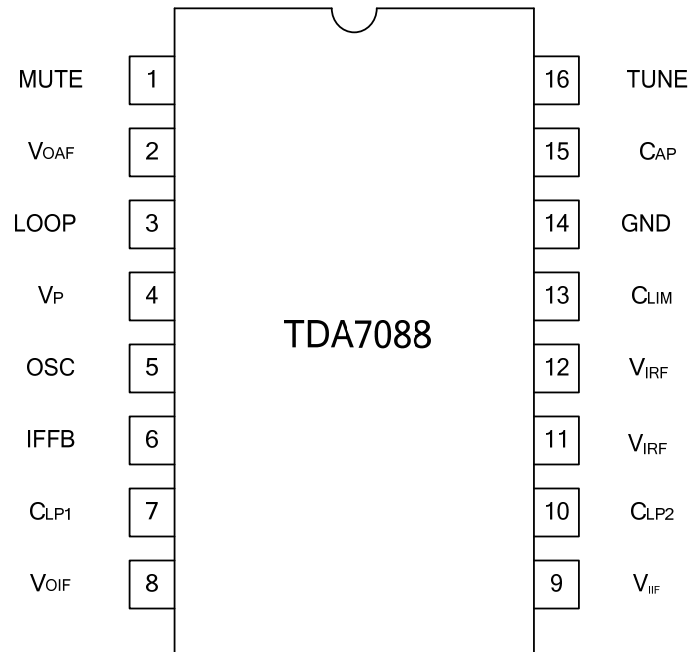


ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
TDA7088L-S16-R	TDA7088G-S16-R	SOP-16	Tape Reel
TDA7088L-S16-T	TDA7088G-S16-T	SOP-16	Tube

<p>TDA7088L-S16-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Halogen Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) S16: SOP-16</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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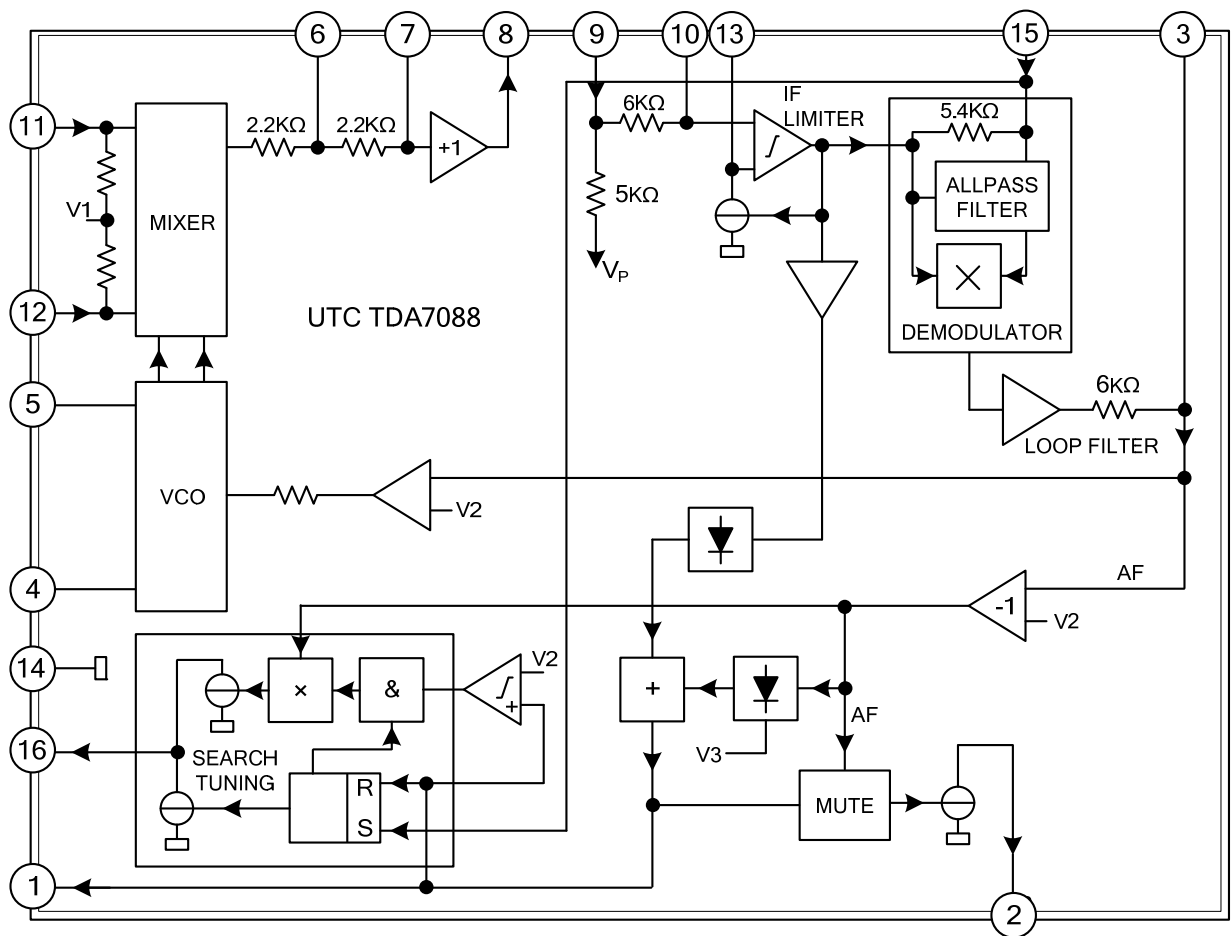
■ PIN CONFIGURATIONS



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	MUTE	Mute output
2	VOAF	Audio frequency output signal
3	LOOP	AF loop filter
4	VP	+3V supply voltage
5	OSC	Oscillator resonant circuit
6	IFFB	IF feedback
7	CLP1	Low-pass capacitor of 1 dB amplifier
8	VOIF	IF output to external coupling capacitor (high-pass)
9	VIIF	IF input to limiter amplifier
10	CLP2	Low-pass capacitor of IF limiter amplifier
11	VIRF	Radio frequency input
12	VIRF	Radio frequency input
13	CLIM	Limiter offset voltage capacitor
14	GND	Ground(0V)
15	CAP	All-pass filter capacitor/input for search tuning
16	TUNE	Electrical tuning/AFC output

■ BLOCK DIAGRAM



V1, V2 and V3 are internal voltage

Block Diagram and Application Circuit for Search Tuning

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_P	0~5	V
Storage Temperature	T_{STG}	-55~+150	°C
Operating ambient temperature	T_{OPR}	-10~70	°C

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_P		1.8	3	5	V
Supply Current	I_P		4.2	5.2	6.6	mA
Radio Input Frequency	F_{IRF}		0.5		110	MHz
RF sensitivity input voltage (RMS value)	$V_{I(RMS)}$	$V_{OAF}=-3dB, V_{OAF}=0dB$ at $V_I=1mV$, mute off		3	6	μV
Signal handling		$\Delta f=\pm 75kHz, THD<10\%$	100	200		mV
Audio Output Signal (RMS value)	$V_{O(RMS)}$	$R_L=22k\Omega$	60	85	120	mV
Operating Ambient Temperature	T_{OPR}		-10		70	°C

Note: Over recommended operating free-air temperature range, $V_{CC}=15V$, $f=1kHz$, Unless otherwise specified

■ DC CHARACTERISTICS ($V_P=3V$, $T_A=25^\circ C$, unless otherwise specified)

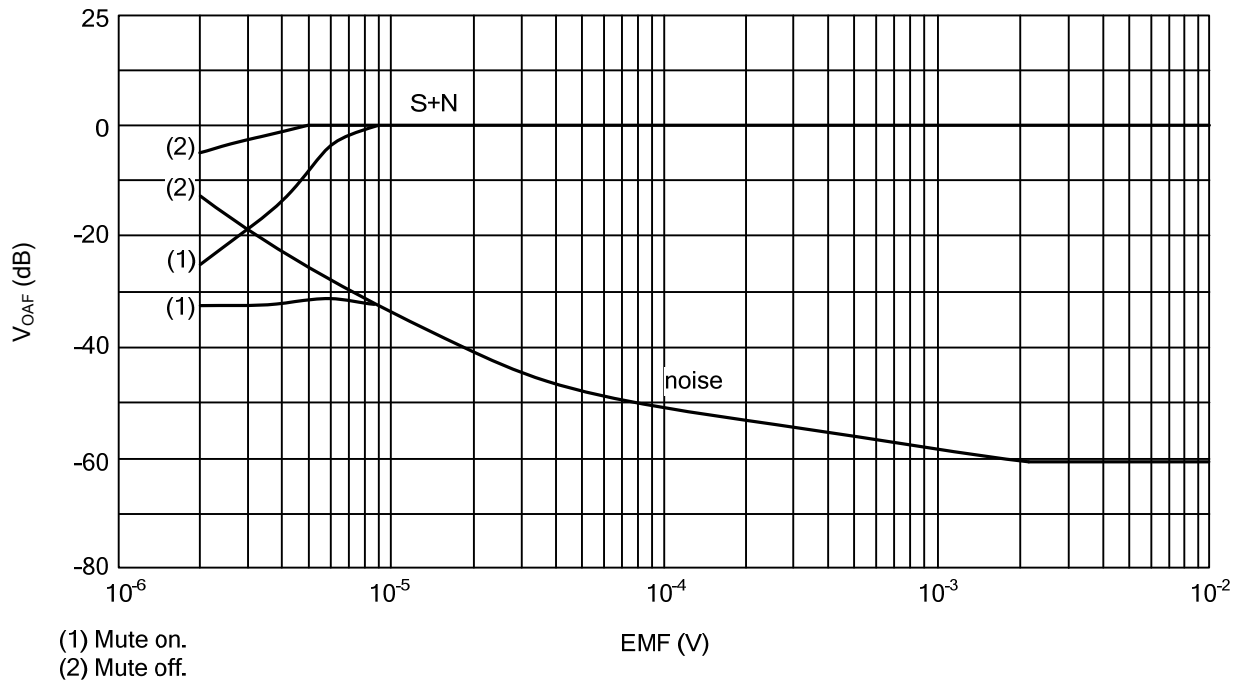
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage (pin4)	V_P	1.8	3	5	V
Supply Current (pin4)	I_{VP}	4.2	5.2	6.6	mA
DC voltage on pin1	V_{MUTE}	2.5	2.55	2.6	V
DC voltage on pin3	V_{LOOP}	2.64	2.69	2.74	V
DC voltage on pins 6 and 7	V_{IFFB}, V_{CLP1}	2.38	2.44	2.5	V
DC voltage on pin 8	V_{OIF}	1.6	1.67	1.74	V
DC voltage on pin 9,10 and 13	$V_{IIF}, V_{CLP2}, V_{CLIM}$	2.42	2.47	2.52	V
DC voltage on pins 11 and 12	V_{IRF}	0.91	0.94	0.98	V
DC voltage on pin 15	V_{CAP}	2.06	2.12	2.18	V
AF output current on pin2	I_{VOAF}	45	60	80	μA
Oscillator current on pin5	I_{OSC}	275	375	500	μA

■ AC CHARACTERISTICS

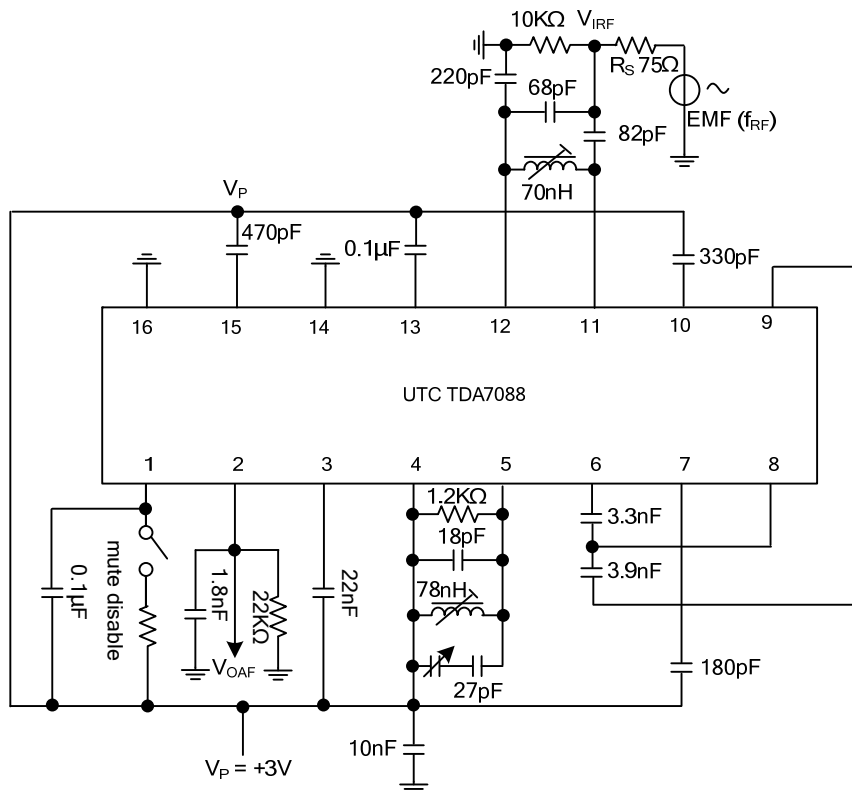
$V_P=3V$, $T_A=25^\circ C$, $F_{IRF}=96MHz$ modulated with $F_{MOD}=1KHz$ and $\pm 22.5KHz$ deviation.
 $V_I=400\mu V$ (measured as EMF, $R_s=75\Omega$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
RF sensitivity input voltage (RMS value)	$V_I (RMS)$	VOAF=-3dB				
		VOAF=0dB at $V_I=1mV$				
		Mute off		3	6	μV
		Mute on	3	6	12	μV
		(S+N)/N =26dB		5	10	μV
Signal handling	$V_I (RMS)$	$\Delta f=\pm 75KHz, THD<10\%$	100	200		mV
Signal plus noise-to-noise ratio	(S+N)/N		52	56		dB
Total harmonic distortion	THD	$\Delta f=\pm 22.5KHz$		1	1.4	%
		$\Delta f=\pm 75KHz$		2.4	3.3	%
AM suppression	α_{AM}	FM:1KHz, $\pm 75kHz$ AM:1KHz, m=0.8	47	52		dB
Ripple rejection	RR	100mV RMS ripple on V_P f=1KHz	7	10		dB
Audio output signal (RMS value)	$V_{ON(RMS)}$	$R_L=22K\Omega$	60	85	120	mV
Search Tuning (with BB910 and C16=0.1 μF)						
Minimum output voltage on pin16	V_{TUNE}	Limiting point		$V_P - 1.85$		V
Tuning steepness	$\Delta V/\Delta t$	Voltage at pin16	95	210	420	mV/s
Oscillator steepness	$\Delta F_{OSC}/\Delta t$		1.25	2.83	5.6	MHz/s
AFC steepness	$\Delta I_{AFC}/\Delta V_3$	Voltage at pin3	4.75	9.5	19	μS

TEST CIRCUITS AND WAVEFORMS

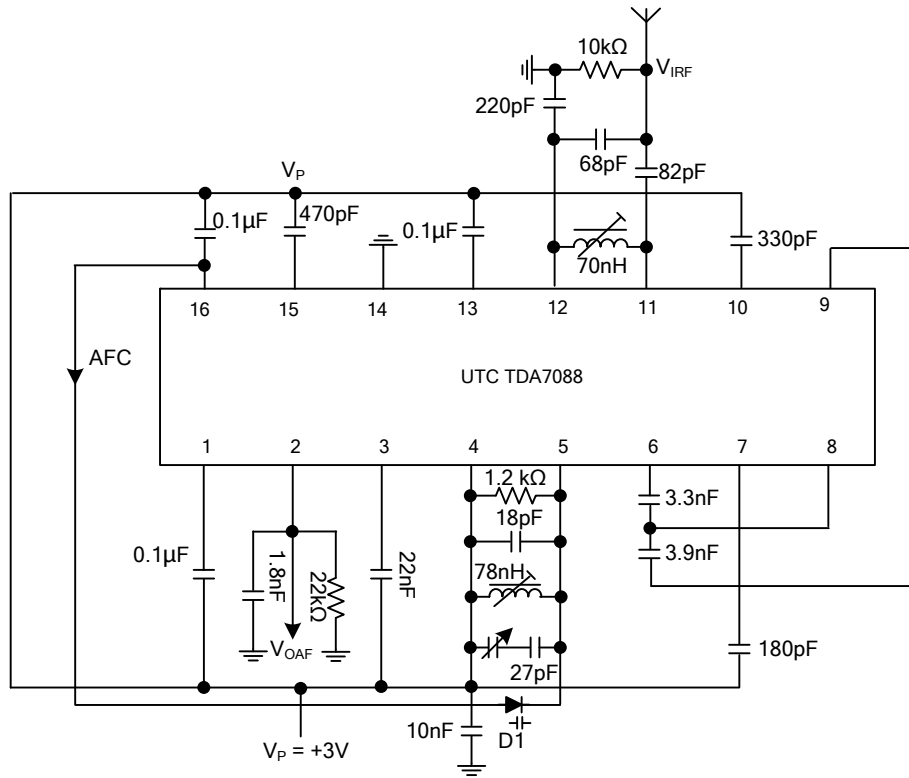


Input Sensitivity

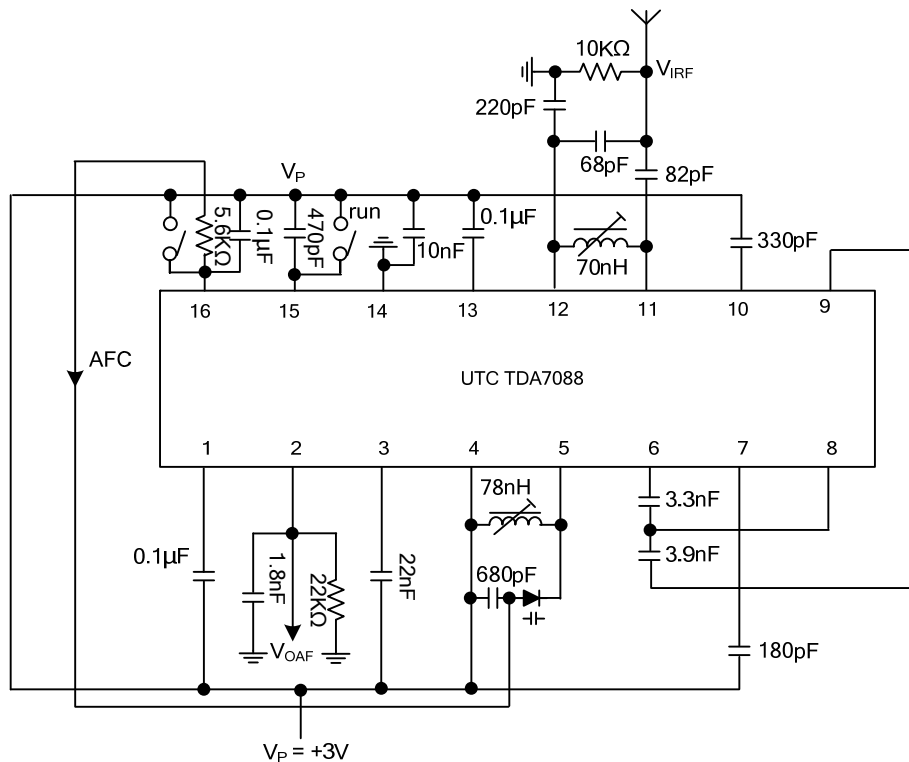


Test Circuit And Application For Mechanical Tuning

■ TEST CIRCUITS AND WAVEFORMS(Cont.)



Application Circuit With AFC For Mechanical Tuning



Application Circuit for Search Tuning

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