



## TA7613AP

### LINEAR INTEGRATED CIRCUIT

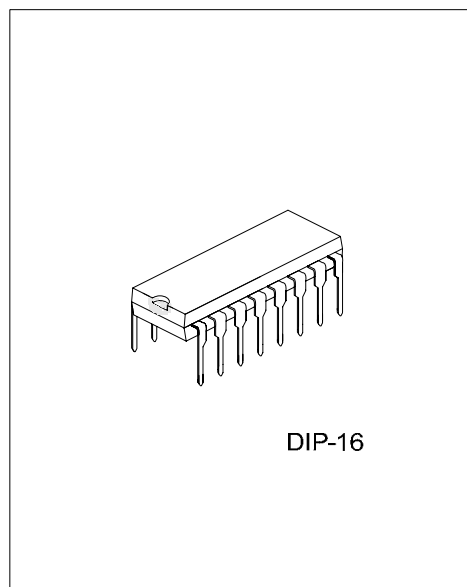
### I-CHIP AM/FM RADIO IC

#### DESCRIPTION

UTC **TA7613AP** is a one-chip AM/FM radio integrated circuit that is suitable for portable radio applications. It includes an AM amplifier, local OSC, AM mixer, AM/FM amplifier, AM detector, FM detector and also Class B audio power amplifier.

#### FEATURES

- \*Low external components count.
- \*Wide operating voltage: 3 - 13 V.
- \*Internal regulated supply for constant current operation.
- \*DC selection of AM/FM mode.



DIP-16

\*Pb-free plating product number: TA7613APL

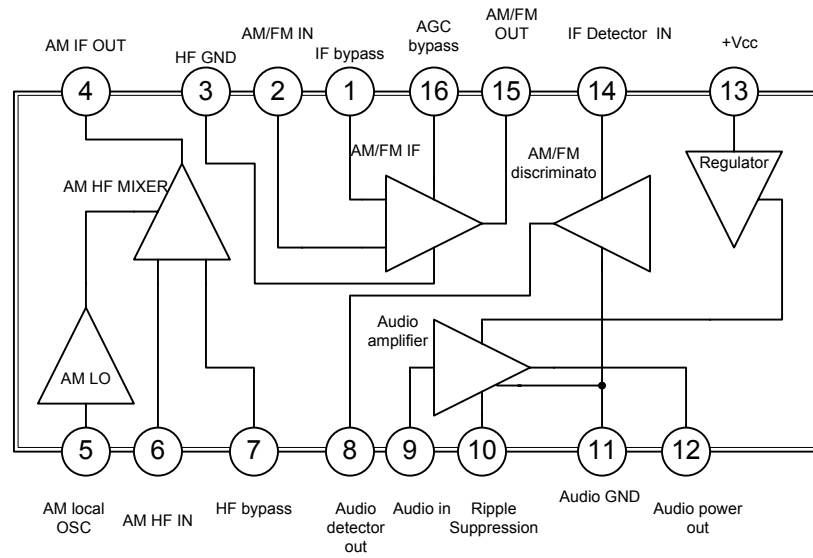
#### ORDERING INFORMATION

Ordering Number		Package	Packing
Normal	Lead Free Plating		
TA7613AP-D16-T	TA7613APL-D16-T	DIP-16	Tube

<p>TA7613APL-D16-T</p>	<p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) T: Tube (2) D16: DIP-16 (3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ BLOCK DIAGRAM



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■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>CC</sub>	11	V
Supply Current	I <sub>CC</sub>	44	mA
Power Dissipation	P <sub>D</sub>	600	mW
Operating Temperature	T <sub>OPR</sub>	-18 ~ +65	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +125	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ <sub>JA</sub>			100	°C/W

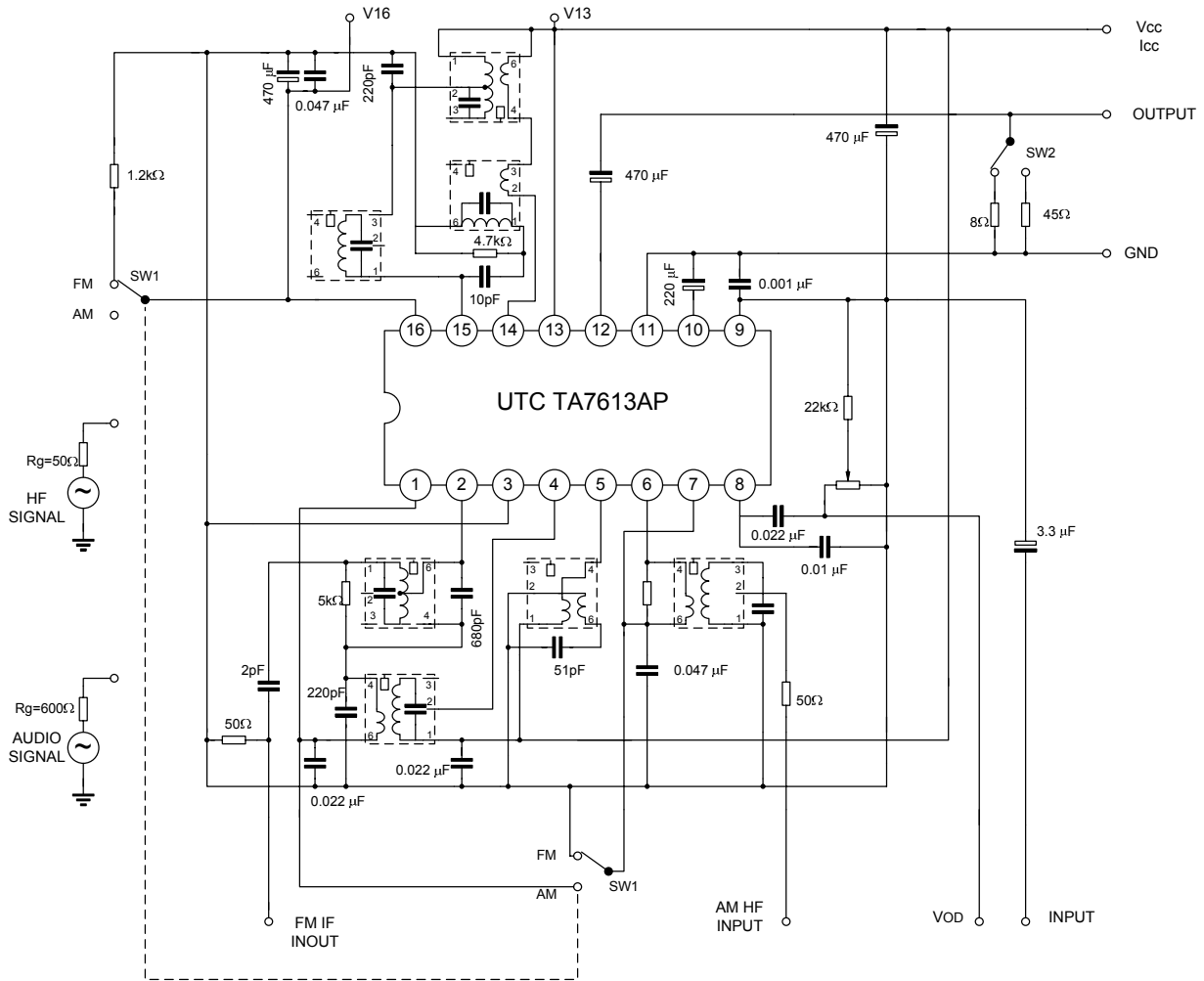
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V Pin 16 ( FM )	V <sub>16</sub> (FM)	SW1→FM, I <sub>CC</sub> =42mA	2.0	2.4	3.1	V
Limiting Voltage	V <sub>IN(LIMIT)</sub>	SW1→FM, V <sub>CC</sub> =5.5V, -3db V <sub>16</sub> =2.4V, V <sub>R</sub> =Min.		57		dBμV
Internal Regulated Voltage	V <sub>CC</sub>	SW1→AM, I <sub>CC</sub> =42mA	12.5	13.2	14.0	V
V Pin 16 ( AM )	V <sub>16</sub> (AM)	SW1→AM, V <sub>CC</sub> =9V	1.4		1.9	V
Signal to Noise Ratio	V <sub>O</sub>	SW1→AM, V <sub>CC</sub> =12V, V <sub>IN</sub> =37dB SW2→45Ω, V <sub>16</sub> =1.4V	1.5	3.0		V
Quiescent Circuit Current	I <sub>CCQ</sub>	SW1→FM, V <sub>CC</sub> =3V SW1→FM, V <sub>CC</sub> =9V	7 10	12 17	17 23	mA
Maximum Sensitivity	S/N	SW1→AM, V <sub>CC</sub> =5.5V, SW2→8Ω, V <sub>IN</sub> =37.5dB	15	20		dB
Power Output	P <sub>OUT</sub>	SW2→8Ω, V <sub>CC</sub> =5.5V, F=1KHZ V <sub>R</sub> =Min. THD=10%	0.28			W
Total Harmonic Distortion	THD	SW2→45Ω, I <sub>CC</sub> =42mA, F=1KHZ V <sub>R</sub> =Min. V <sub>OUT</sub> =2V		0.5	4.0	%
Voltage Gain	G <sub>V</sub>	SW2→8Ω, V <sub>CC</sub> =5.5V, f=1KHZ V <sub>R</sub> =Min.		40		dB

■ INPUT - OUTPUT IMPEDANCE (Ta=25°C, V<sub>CC</sub>=6V)

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Pin 2 Input	Rip2(AM)	f=465KHZ	200	kΩ
Impedance ( AM )	Cip2(AM)	f=465KHZ	3	pF
Pin 2 Input	Rip2(FM)	f=10.7MHZ	30	kΩ
Impedanc(FM)	Cip2(FM)	f=10.7MHZ	3.5	pF
Pin 4 Output	Rop4	f=465KHZ	300	kΩ
Impedance	Cop4	f=465KHZ	6	pF
Pin 6 Input	Rip6	f=1MHZ	50	kΩ
Impedance	Cip6	f=1MHZ	5	pF
Pin 14 Input	Rip14(AM)	f=465KHZ	300	kΩ
Impedance(AM)	Cip14(AM)	f=465KHZ	3.5	pF
Pin 14 Input	Rip14(FM)	f=10.7MHZ	300	kΩ
Impedance(FM)	Cip14(FM)	f=10.7MHZ	4	pF
Pin 15 Output	Rop15(AM)	f=465KHZ	300	kΩ
Impedance(AM)	Cop15(AM)	f=465KHZ	5.5	pF
Pin 15 Output	Rop15(FM)	f=10.7MHZ	300	kΩ
Impedanc(FM)	Cop15(FM)	f=10.7MHZ	6	pF

### ■ TEST CIRCUIT



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