

# UTC TA7613AP LINEAR INTEGRATED CIRCUIT

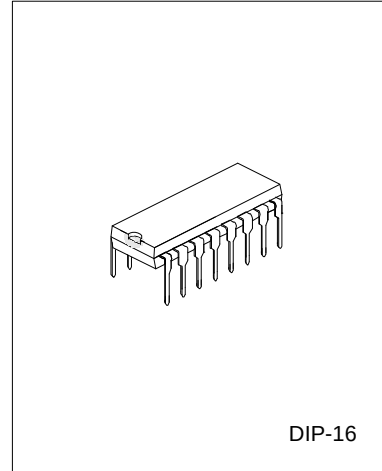
## I-CHIP AM/FM RADIO IC

### DESCRIPTION

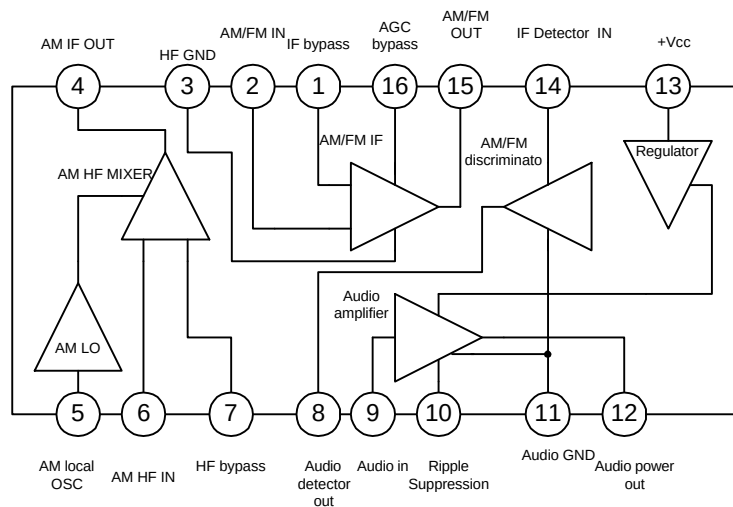
UTC TA7613AP Is A One-Chip AM/FM Radio Integrated Circuit That Is Suitable For Portable Radio Applications. It Includes AM Amplifier, Local OSC, AM Mixer, AM/FM Amplifier, AM AGE, FM AGE Circuit And Also Class B Audio Power Amplifier.

### FEATURES

- \*Low External Components Count.
- \*Wide Operating Voltage : 3 - 13 V.
- \*Internal Regulated Supply For Constant Current Operation.
- \*DC Selection Of AM/FM Mode.



### BLOCK DIAGRAM



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## ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

| PARAMETER             | SYMBOL | VALUE      | UNIT  |
|-----------------------|--------|------------|-------|
| Supply Voltage        | VCC    | 11         | V     |
| Supply Current        | ICC    | 44         | mA    |
| Power Dissipation     | PD     | 600        | mW    |
| Thermal Resistance    | RJ-A   | 100        | °C /W |
| Operating Temperature | TOPX   | -18 ~ +65  | °C    |
| Storage Temperature   | TSTG   | -40 ~ +125 | °C    |

NOTE:Ta>25°C, DERATE WITH 10mW/°C UNLESS SPECIFIED.

## ELECTRICAL CHARACTERISTICS

| PARAMETER                  | SYMBOL   | TEST CONDITIONS                             | MIN  | TYP  | MAX  | UNIT |
|----------------------------|----------|---------------------------------------------|------|------|------|------|
| Quiescent Circuit Current  | ICCQ     | SW1→FM,VCC=3V                               | 7    | 12   | 17   | mA   |
|                            |          | SW1→FM,VCC=9V                               | 10   | 17   | 23   |      |
| V Pin 16 ( FM )            | V16(FM)  | SW1→FM,ICC=42mA                             | 2.0  | 2.4  | 3.1  | V    |
| Limiting Voltage           | VIN(Lim) | SW1→FM,VCC=5.5V,-3db<br>V16=2.4V,VR=Min.    |      | 57   |      | dBμV |
| Internal Regulated Voltage | VCC      | SW1→AM,ICC=42mA                             | 12.5 | 13.2 | 14.0 | V    |
| V Pin 16 ( AM)             | V16(AM)  | SW1→AM,VCC=9V                               | 1.4  |      | 1.9  | V    |
| Signal to Noise Ratio      | VO       | SW1→AM,VCC=12V,VIN=37dB<br>SW2→45Ω,V16=1.4V | 1.5  | 3.0  |      | V    |
| Maximum Sensitivity        | S/N      | SW1→AM,VCC=5.5V,<br>SW2→8Ω,VIN=37.5dB       | 15   | 20   |      | dB   |
| Power Output               | POUT     | SW2→8Ω,VCC=5.5V,F=1KHZ<br>VR=Min. THD=10%   | 0.28 |      |      | W    |
| Total Harmonic Distortion  | THD      | SW2→45Ω,ICC=42mA,F=1KHZ<br>VR=Min. VOUT=2V  |      | 0.5  | 4.0  | %    |
| Voltage Gain               | GV       | SW2→8Ω,VCC=5.5V,f=1KHZ<br>VR=Min.           |      | 40   |      | dB   |

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INPUT - OUTPUT IMPEDANCE(Ta=25°C,VCC=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   |

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## TEST CIRCUIT

