

# UTC PC1353 LINEAR INTEGRATED CIRCUIT

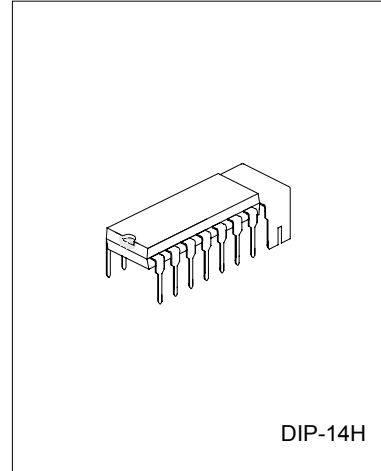
## TV AUDIO PROCESSING CIRCUIT

### DESCRIPTION

UTC PC1353 is designed for TV SIF signal amplification and audio power amplification purpose. It includes SIF amplifier, FM, frequency discriminator, DC volume control, 2.4W power amplifier and voltage regulator.

### FEATURES

- \* Wide operating supply voltage, 9V ~ 18V  
When  $V_{CC}=18V, R_L=8\Omega$ , Output is 2.4W(17"TV)  
When  $V_{CC}=12V, R_L=8\Omega$ , Output is 1.2W(12"TV)
- \* Linear volume control
- \* Low harmonic distortion
- \* Differential peak detector
- \* Attenuation circuit for noise suppression(Typical 80dB)



### APPLICATION CIRCUIT

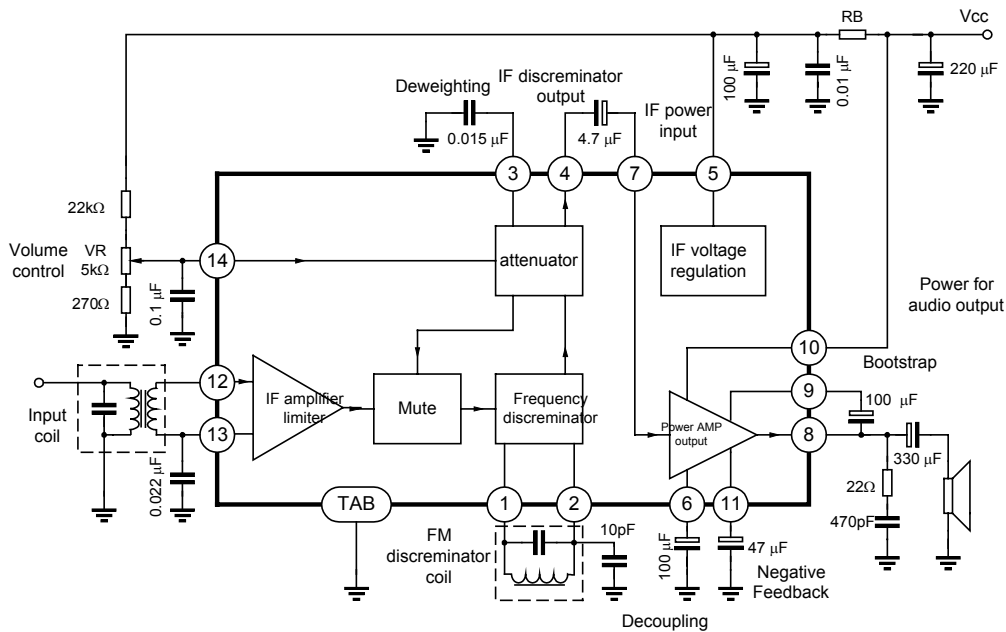


Fig 1

# UTC PC1353 LINEAR INTEGRATED CIRCUIT

## ABSOLUTE MAXIMUM RATING(Ta=25°C)

| PARAMETER             | SYMBOL | VALUE                | UNIT |
|-----------------------|--------|----------------------|------|
| Input Voltage(pin 10) | V10    | 20                   | V    |
| Input Current(pin10)  | I10    | 1                    | A    |
| Input Current(pin5)   | I5     | 100                  | mA   |
| Signal Voltage Input  | VI     | 3                    | VP-P |
| Power Dissipation     | PD1    | 0.8(Ta=75°C)Free air | W    |
| Power Dissipation     | PD2    | 1.4*                 | W    |
| Operating Temperature | TOPR   | -20 ~ +75            | °C   |
| Storage Temperature   | TSTG   | -40 ~ +150           | °C   |

\*Area of copper pattern on PCB 50 x 50(mm)<sup>2</sup>

## ELECTRICAL CHARACTERISTICS(Ta=25°C)

### 1.TYPICAL CHARACTERISTICS

| PARAMETER                 | SYMBOL | TEST CONDITIONS        | VALUE     | UNIT |
|---------------------------|--------|------------------------|-----------|------|
| Current for Pin 10        | I10    | THD2A=10%              | 200 ~ 210 | mA   |
| Current for Pin 10        | I10    | THD2B=10%              | 270 ~ 280 | mA   |
| Audio Output Power        | POA    | THD=3%                 | 1.1       | W    |
| Audio Output Power        | POB    | VCC=18V,RB=330Ω,THD=3% | 2.0       | W    |
| Bandwidth for Audio Stage | fS     | -3dB                   | 50 ~ 50K  | HZ   |

### 2. IF AMPLIFIER(VCC=12V,RB=100Ω,V14>=1.3V,fo=6.5MHZ,fm=400HZ,f=25KHZ,RG=50Ω)

| PARAMETER                    | SYMBOL | TEST CONDITIONS                       | MIN | TYP | MAX | UNIT   |
|------------------------------|--------|---------------------------------------|-----|-----|-----|--------|
| Pin 5 Voltage                | V5A    |                                       | 7.5 | 8.0 | 8.5 | V      |
| Pin5 Voltage                 | V5B    | VCC=18V,RB=330Ω                       | 7.5 | 8.0 | 8.5 | V      |
| Pin10 Current                | I10A   | No input signal                       | 14  | 19  | 24  | mA     |
| Pin10 Current                | I10B   | VCC=18V,RB=330Ω<br>No input signal    | 16  | 28  | 35  | mA     |
| IF limiter Voltage           | VLIM   | VOAF(Vi=10mVrms)= -3dB                |     | 200 | 400 | μ Vrms |
| Discriminator Output Voltage | VOAF   | Vi=10mVrms                            | 300 | 360 |     | mVrms  |
| Discriminator Distortion     | THD1   | Vi=10mVrms                            |     | 0.7 |     | %      |
| AM rejection ratio           | AMR    | Modulation 30% fm=400HZ<br>Vi=10mVrms | -40 | -50 |     | dB     |
| Maximum attenuation          | VATT   | V14=0V                                | -60 | -80 |     | dB     |

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## 3.AUDIO POWER AMPLIFIER( $V_{CC}=12V, R_B=100\Omega, R_L=8\Omega, f=400HZ, R_G=600\Omega$ )

| PARAMETER                  | SYMBOL | TEST CONDITIONS                        | MIN | TYP | MAX | UNIT |
|----------------------------|--------|----------------------------------------|-----|-----|-----|------|
| Voltage Gain               | GVAF   | $V_i=30mV_{rms}$                       | 33  | 37  | 41  | dB   |
| Output Power               | POA    | THD=10%                                | 0.9 | 1.2 |     | W    |
| Output Power               | POB    | $V_{CC}=18V, R_B=330\Omega$<br>THD=10% | 2.0 | 2.4 |     | W    |
| Distortion                 | THD2A  | PO=0.5W                                |     | 0.6 | 2.0 | %    |
| Distortion                 | THD2B  | $V_{CC}=18V, R_B=330\Omega$<br>PO=0.5W |     | 0.5 | 2.0 | %    |
| Total Distortion(IF+Audio) | THD3   | PO=0.5W<br>$V_i=10mV_{rms}$            | v   | 1.5 | 4.0 | %    |

## TEST CIRCUIT

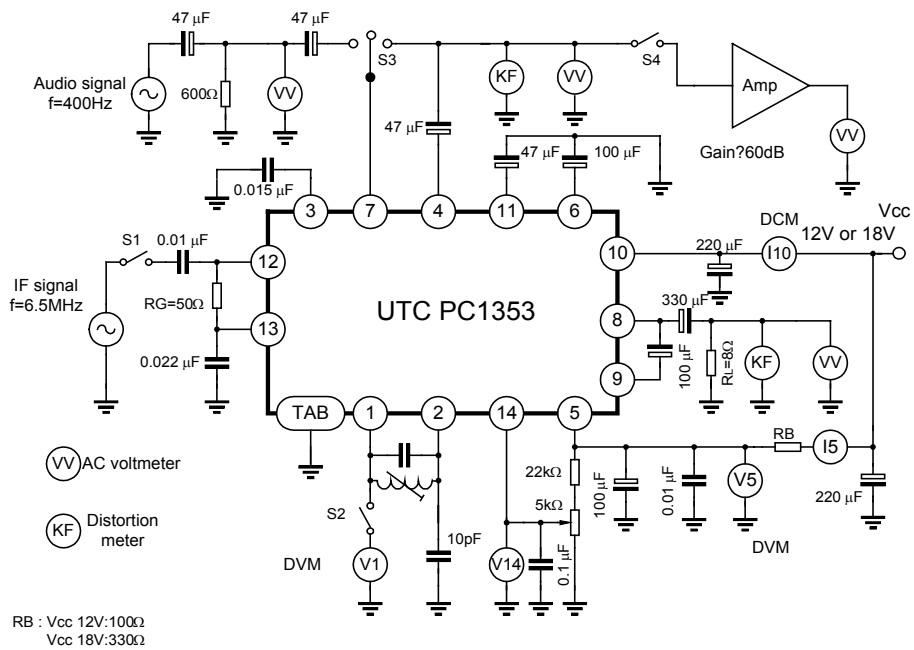
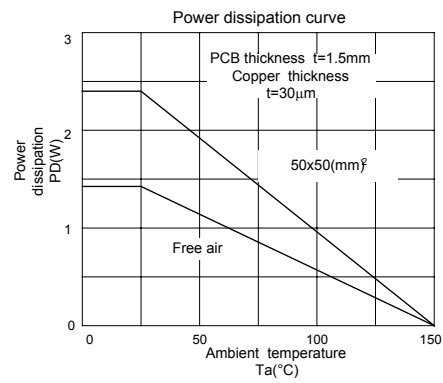
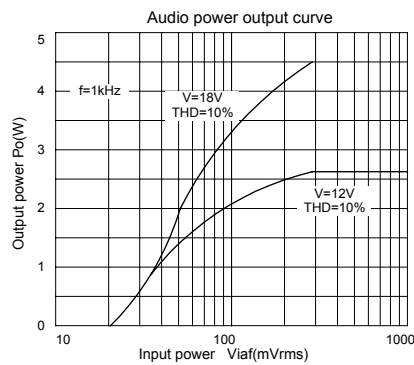
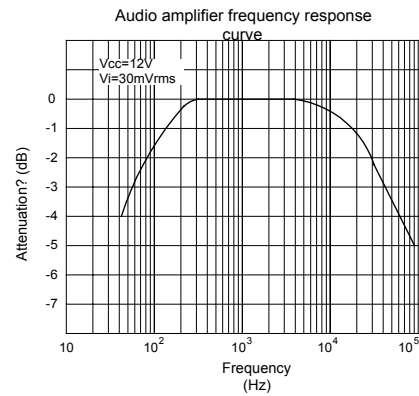
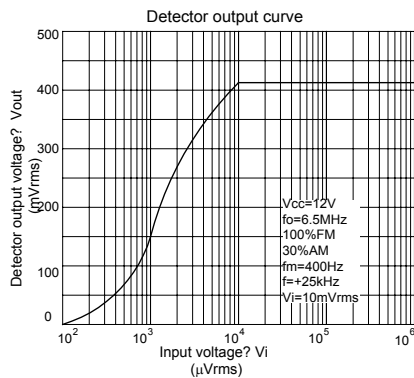
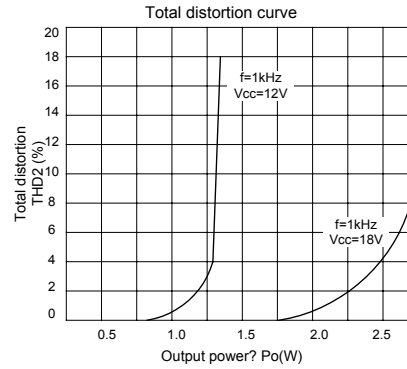
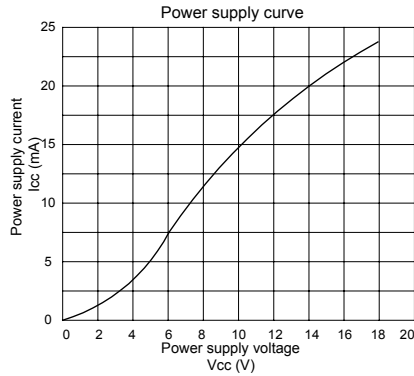


Fig 2

# UTC PC1353 LINEAR INTEGRATED CIRCUIT

## TYPICAL PERFORMANCE CHARACTERISTICS



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