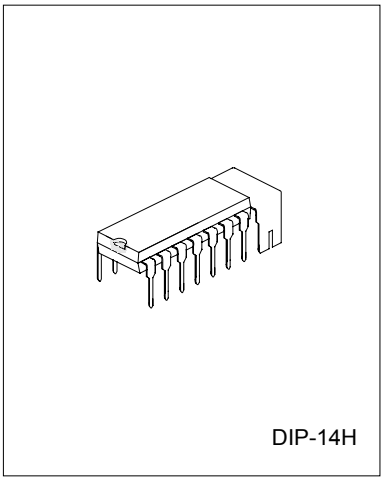
UTC PC1353 LINEAR INTEGRATED CIRCUIT

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 VCC=18V,RL=8Ω,Output is 2.4W(17"TV)
  When VCC=12V,RL=8Ω,Output is 1.2W(12"TV)
* Linear volume control
* Low harmonic distortion
* Differential peak detector
* Attenuation circuit for noise suppression(Typical80dB)

APPLICATION CIRCUIT

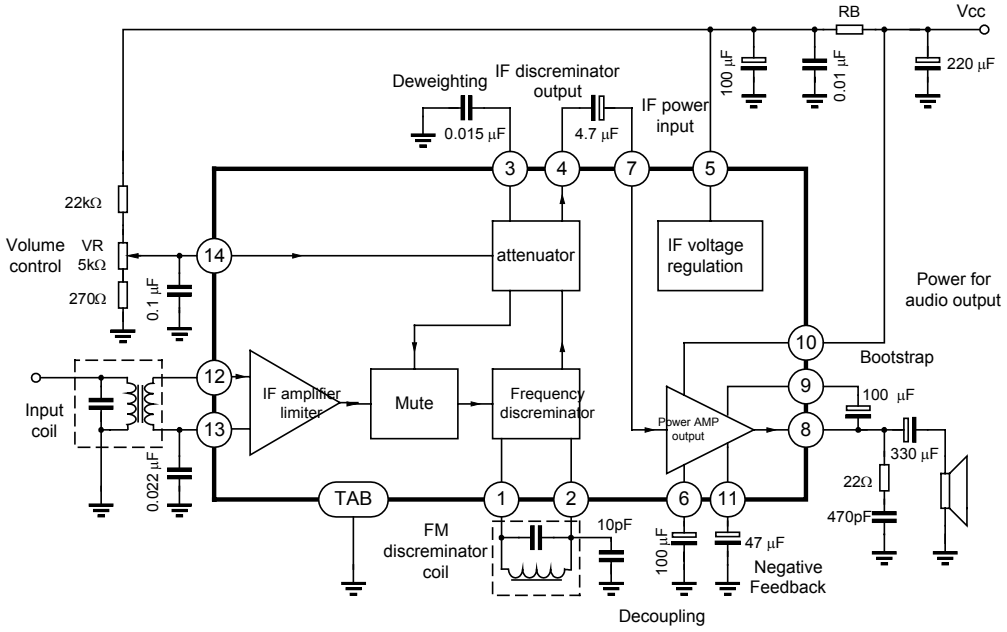


Fig 1

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)^2

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(V_{CC}=12V,R_B=100Ω,$V_{14>}$=1.3V,f_O=6.5MHZ,fm=400HZ,f=25KHZ,R_G=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 No input signal	16	28	35	mA
IF limiter Voltage	VLIM	VOAF(Vi=10mVrms)= -3dB		200	400	μVrms
Discriminator Output Voltage	VOAF	Vi=10mVrms	300	360		mVrms
Discriminator Distortion	THD1	Vi=10mVrms		0.7		%
AM rejection ratio	AMR	Modulation 30% fm=400HZ Vi=10mVrms	-40	-50		dB
Maximum attenuation	VATT	V14=0V	-60	-80		dB

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Voltage Gain	GVAF	Vi=30mVrms	33	37	41	dB
Output Power	POA	THD=10%	0.9	1.2		W
Output Power	POB	VCC=18V,RB=330Ω THD=10%	2.0	2.4		W
Distortion	THD2A	PO=0.5W		0.6	2.0	%
Distortion	THD2B	VCC=18V,RB=330Ω PO=0.5W		0.5	2.0	%
Total Distortion(IF+Audio)	THD3	PO=0.5W Vi=10mVrms	v	1.5	4.0	%

TEST CIRCUIT

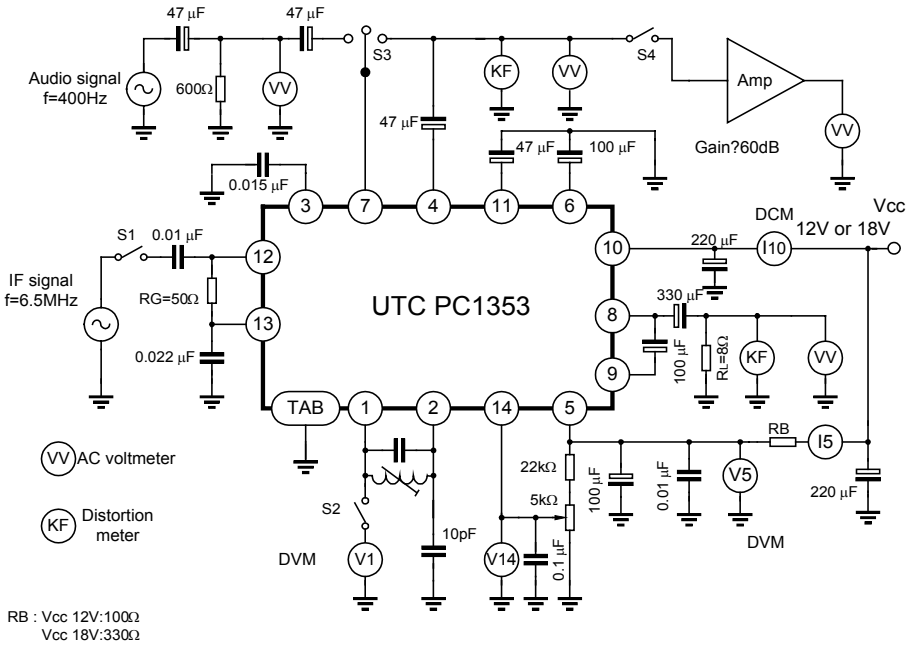
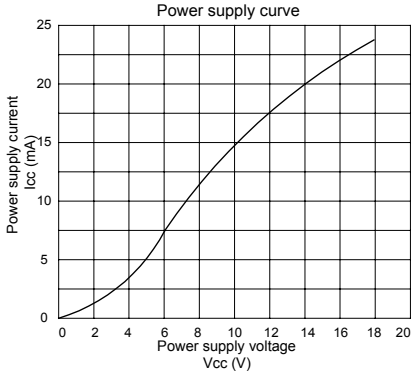


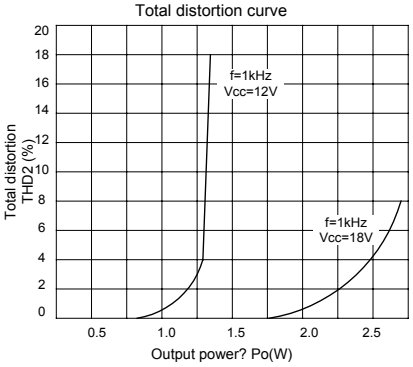
Fig 2

TYPICAL PERFORMANCE CHARACTERISTICS

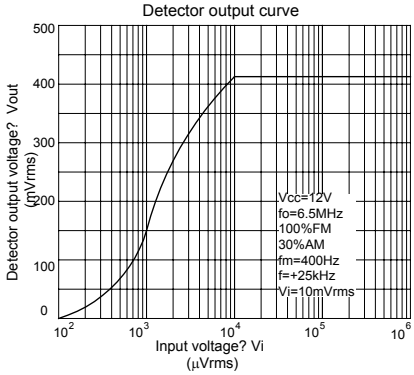
Power supply curve



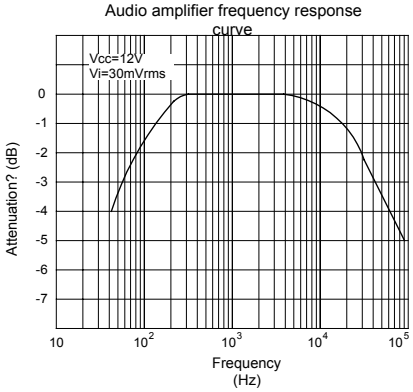
Total distortion curve



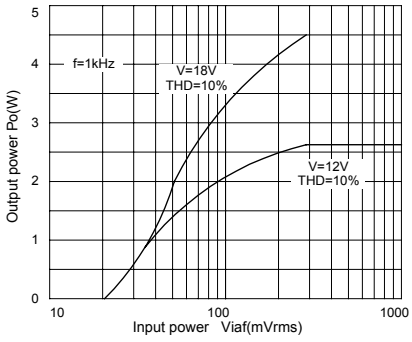
Detector output curve



Audio amplifier frequency response curve



Audio power output curve



Power dissipation curve