

UTC1353

LINEAR INTEGRATED CIRCUIT

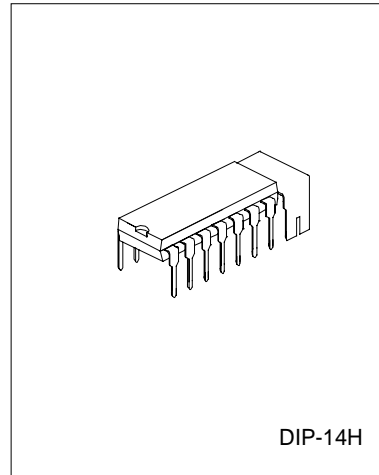
TV SOUND SYSTEM

DESCRIPTION

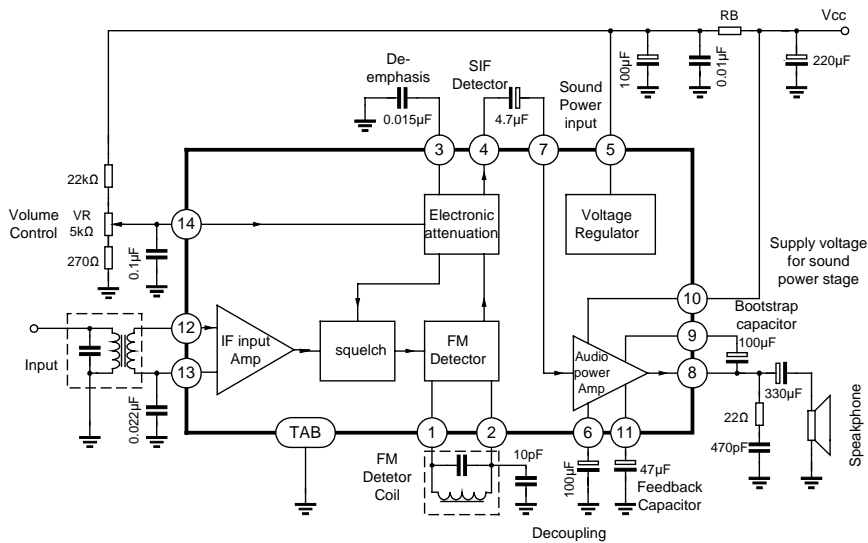
The UTC1353 is a monolithic integrated circuit designed for the SIF and audio section in television receivers. This IC has all functions including sound IF amplifier, FM detector, DC volume control circuit, audio output amplifier with 2.4Watts output power and voltage regulator.

FEATURES

- *Wide operating voltage (9V to 18V)
 - 2.4W, at $V_{cc}=18V$, $R_L=8\Omega$ (For 17" TV)
 - 1.2W, at $V_{cc}=12V$, $R_L=8\Omega$ (For 12" TV)
- *linear volume control
- *Low Harmonic distortion
- *Differential peak detector
- *Enough attenuation (typical, 80dB) by squelch circuit



TYPICAL APPLICATION CIRCUIT



ABSOLUTE MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$)

Characteristic	Symbol	Value	Unit
Supply Voltage(pin10)	V ₁₀	20	V
Supply Current(pin10)	I ₁₀	1	A
Supply Current(pin5)	I ₅	100	mA
Input Signal voltage	V _i	3	V
Operating Temperature	T _{opr}	-20 to +75	$^{\circ}\text{C}$
Storage Temperature	T _{stg}	-40 to 150	$^{\circ}\text{C}$
Power dissipation	P _{D1}	0.8 free air, $T_a=75^{\circ}\text{C}$	W
Power dissipation	P _{D2}	1.4	W

ELECTRICAL CHARACTERISTICS

1. IF STAGE ($T_a=25^{\circ}\text{C}$, $V_{cc}=12\text{V}$, $V_{14}>1.3\text{V}$, $R_B=100\Omega$, $f_m=4.5\text{MHz}$, $f_o=400\text{Hz}$, $f=\pm 25\text{kHz}$, $R_g=50\mu\Omega$, unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Pin 5 Voltage	V _{5A}		7.5	8.0	8.5	V
Pin 5 Voltage	V _{5B}	$V_{cc}=18\text{V}$, $R_b=330\Omega$	7.5	8.0	8.5	V
Pin 10 Current	I _{10A}	$V_i=0$	14	19	24	mA
Pin10 Current	I _{10B}	$V_{cc}=18\text{V}$, $R_b=330\Omega$, $V_i=0$	16	28	35	mA
IF limiting voltage	V _{LIM}	$V_{OAF}(V_i=10\text{mVrms})$, -3dB		200	400	μVrms
Detector Output Voltage	V _{OAF}	$V_i=10\text{mVrms}$	300	360		mVrms
Detector Distortion	THD ₁	$V_i=10\text{mVrms}$		0.7		%
Deviation of Pull-in Range vs AM Rejection	AMR	AM mod=30%, $f_m=400\text{Hz}$, $V_i=10\text{mVrms}$	-40	-50		dB
Maximum Attenuation	V _{ATT}	$V_{14}=0$	-60	-80		dB

2. SOUND POWER STAGE ($T_a=25^{\circ}\text{C}$, $V_{cc}=12\text{V}$, $R_L=8\Omega$, $f=400\text{Hz}$, $R_g=600\Omega$, unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Sound stage voltage gain	G _{VAF}	$V_i=20\text{mVrms}$	33	37	41	dB
Sound Output Power	P _{OA}	THD=10%	0.9	1.2		W
Sound Output Power	P _{OB}	$V_{cc}=18\%$, $R_B=330\Omega$, THD=10%	2.0	2.4		W
Sound output distortion	THD _{2A}	$P_o=0.5\text{W}$		0.6	2.0	%
Sound output distortion	THD _{2B}	$V_{cc}=18\%$, $R_B=330\Omega$, $P_o=0.5\text{W}$	16	0.5	2.0	%
Overall Sound Output distortion (IF + Sound Power Stage)	THD ₃	$P_o=0.5\text{W}$, $V_i=10\text{mVrms}$		1.5	4.0	%

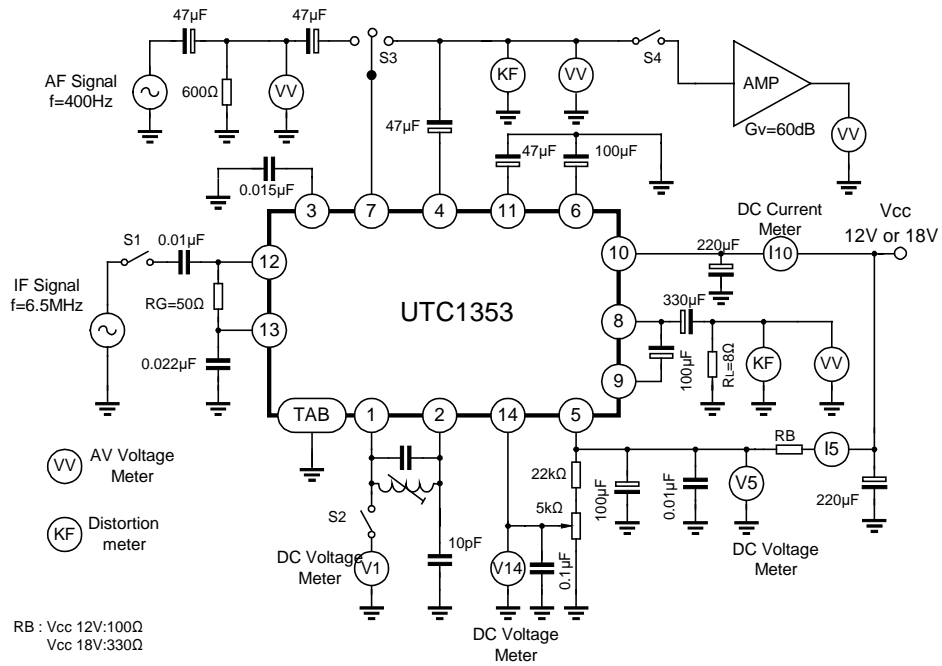
3. TYPICAL DATA

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Pin 10 Current	I _{10A}	THD _{2A} =10%		205		mA
Pin10 Current	I _{10B}	THD _{2B} =10%		275		mA
Sound Output Power	P _{OA}	THD=3%		1.1		W
Sound Output Power	P _{OB}	$V_{cc}=18\%$, $R_B=330\Omega$, THD=3%		2.0		W
Sound Stage Band width	F _s	-3dB	50		50k	Hz

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TEST CIRCUIT



TYPICAL PERFORMANCE CHARACTERISTICS

