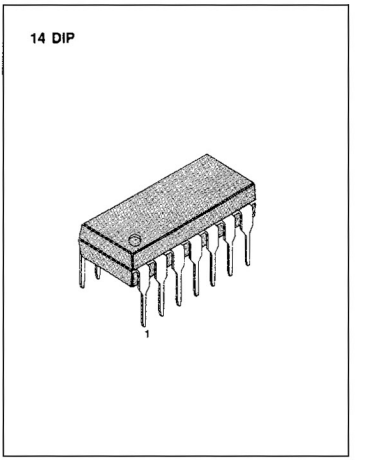
TV SOUND IF AMPLIFIER

The KA2101 is a monolithic integrated circuit for TV sound IF amplifiers. It contains an IF amplifier, IF limiting, detection, electronic attenuation, audio amplifier and audio driver capabilities.



FEATURES

- **Electronic attenuator replaces conventional DC volume.**
- **Differential peak detector requires one single tuned coil.**
- **Internal zener diode regulated supply.**
- **High stability.**
- **Excellent AM rejection at 4.5 MHz, 5.5 MHz, 6.0 MHz, 6.5 MHz.**
- **Low harmonic distortion.**
- **High sensitivity 200μV limiting at 4.5 MHz.**
- **Audio driver capability 6.0 mA_{P-P}.**
- **Undistorted audio output voltage 7 V_{P-P}.**
- **Minimum undesirable output signal at maximum attenuation.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2101	14 DIP	−20 ~ +75°C

SCHEMATIC DIAGRAM

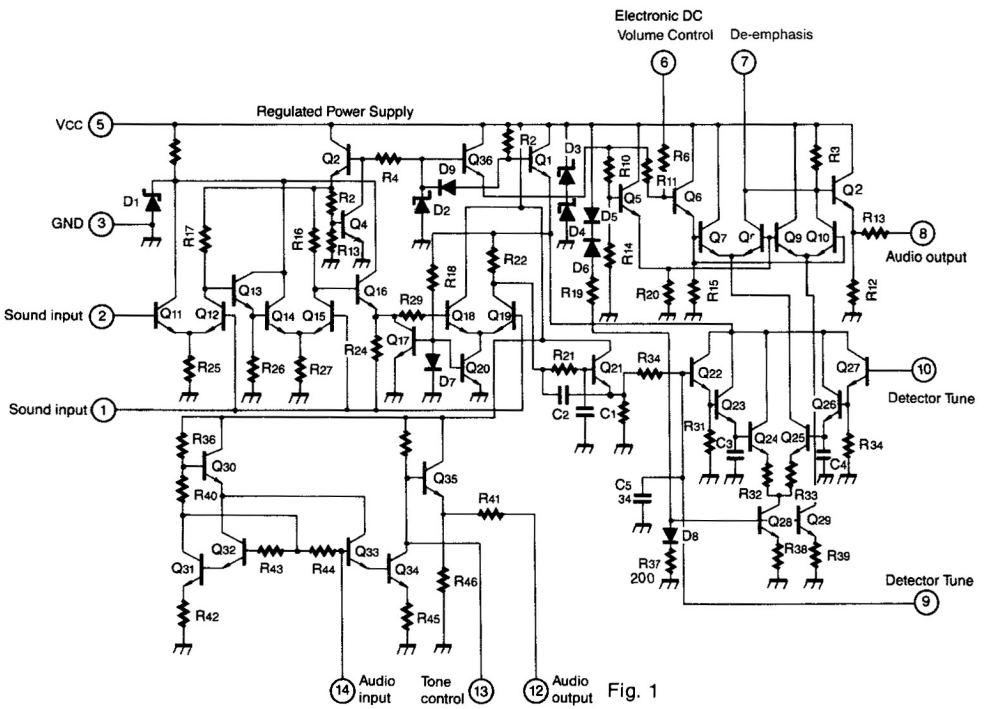


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Input Signal Voltage (Pin 1, Pin 2)	V_{IN}	±3	V
Power Supply Current (Pin 5)	I_5 (MAX)	50	mA
Total Power Dissipation	P_D	625	mW
Derate Above $T_A = 25°C$		5.0	mW/°C
Operating Temperature	T_{OPR}	−20 ~ +75	°C
Storage Temperature	T_{STG}	−65 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C, Vcc = 24V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	Test Fig
Regulated Voltage (Pin 5)	V_5		10.3	11.5	12.2	V	
DC Supply Current (Pin 5)	I_5	$V_{CC} = 9V$ $R_S = 0$	10	13	24	mA	
Quiescent Output Vtg (Pin 12)	V_{12}		4.5	5.1	5.8	V	—
AM Rejection*	AMR	$V_{IN} = 2, 10, 100mV$ $f_O = 4.5MHz$, $\Delta f = \pm 25KHz$	40	55	—	dB	4
Input Limiting Threshold Voltage	$V_{I(LIM)}$	$f_O = 4.5MHz$, $\Delta f = \pm 25KHz$	—	200	400	μVrms	4
Recovered Audio Output Voltage	V_O (AF)	$V_{IN} = 10mV$ $f_O = 4.5MHz$, $\Delta f = \pm 25KHz$	0.5	0.90	—	Vrms	4
Output Distortion	THD	$V_{IN} = 10mVrms$	—	0.9	2	%	4
Input Resistance (Pins 1 & 2)	R_i (IF)	f = 4.5MHz	—	17	—	KΩ	
Input Capacitance (Pins 1 & 2)	C_i (IF)	f = 4.5MHz	—	4	—	pF	
Output Resistance (Pin 9 & GND)	R_O (IF)	f = 4.5MHz	—	3.25	—	KΩ	
Output Capacitatance (Pin 9 & GND)	C_O (IF)	f = 4.5MHz	—	7.5	—	pF	
Output Resistance, Pin 7 / Pin 8	R_O		—	7.5	—	KΩ	
Volume Reduction Range		DC Volume Control =	60	—	—	dB	4
Maximum Undesirable Signal (Note 1)			—	0.02	1	mVrms	4
Audio Amplifier Voltage Gain	G_V	$V_{IN} = 0.2Vrms$, f = 400Hz	17.5	20.5	—	dB	5
Total Harmonic Distortion (Pin 12)	THD	V_O2Vrms, f = 400Hz	—	1.5	—	%	5
Output Voltage (Pin 12)		THD = 5%, f = 400Hz	—	70	—	KΩ	
Input Resistance (Pin 14 & GND)	R_i (AF)	f = 400Hz	—	70	&	KΩ	
Output Resistance (Pin 12& GND)	R_O (AF)	f = 400Hz	—	270	—	Ω	

* 100% FM, 30% AM

Note 1. Undesirable signal is measured at Pin 8 when the volume control is set for minimum output.