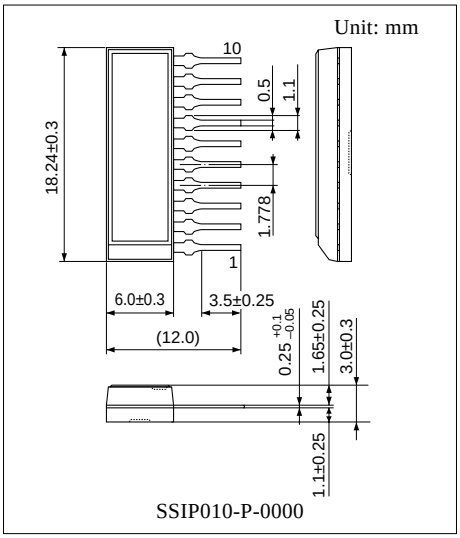
AN5285K

Sound level automatic gain control IC

■ Overview

The AN5285K is a stereo automatic volume control IC for reducing a difference in volume between broadcasting stations and between programs. It is a kind of AGC circuit and reduces a sudden change in sound signal amplitude by using a proper time constant.



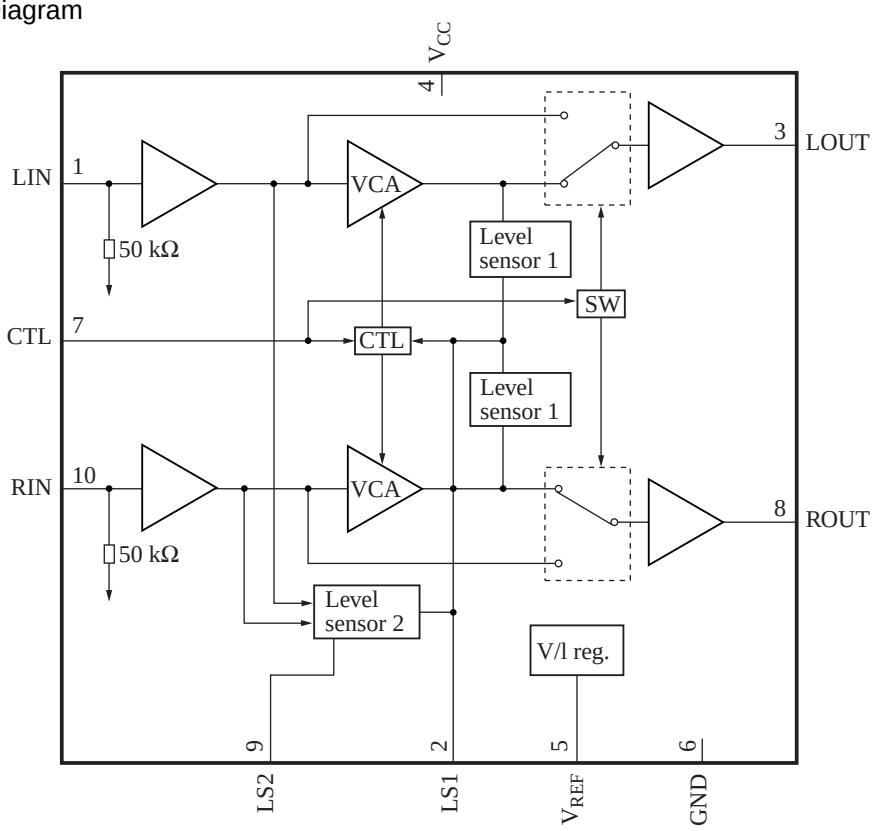
■ Features

- Sound level AGC function by VCA gain control
- Prevention of S/N ratio degradation by reducing VCA gain at no signal (typ. 20 mV[rms] or less)
- AGC function can be switched on and off externally.
- Operating point of VCA gain lowering is adjustable by means of external resistor.
- Usable for stereo sound system (also usable for monaural sound system) by two VCAs

■ Applications

- Televisions and video sets

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	13.0	V
Supply current	I_{CC}	30	mA
Power dissipation	P_D	390	mW
Operating ambient temperature *	T_{opr}	−20 to +75	°C
Storage temperature *	T_{stg}	−55 to +150	°C

Note) ∗ : Except for the operating ambient temperature, and storage temperature, all ratings are for T_a = 25°C.

■ Recommended Operating Range

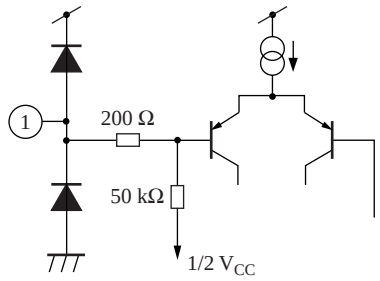
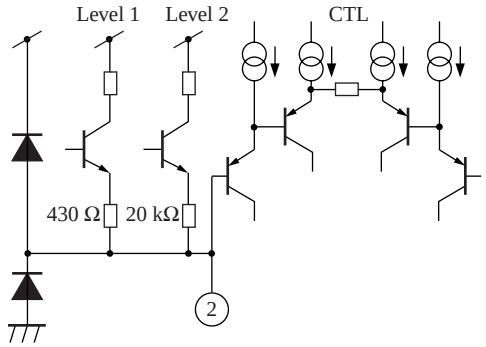
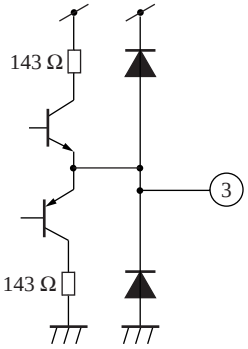
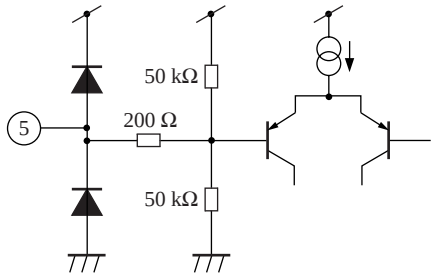
Parameter	Symbol	Range	Unit
Supply voltage	V_{CC}	8.5 to 12.5	V

■ Electrical Characteristics at V_{CC} = 12 V, f_{IN} = 1 kHz, T_a = 25°C

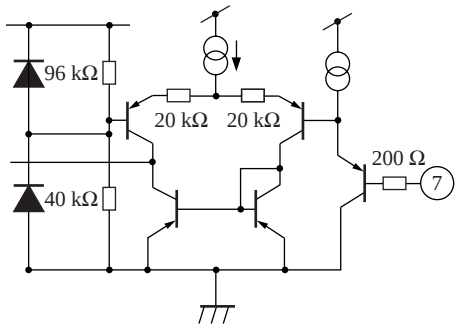
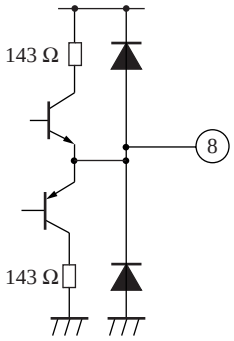
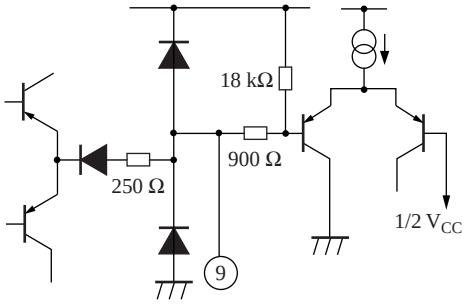
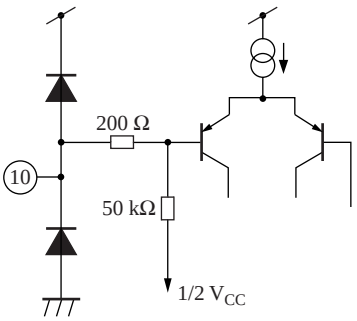
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply current *	I_{CC}	Without input signal	5	10	15	mA
Input and output level 1 *	V1	V_{IN} = 1 mV[rms]	0.7	1.0	1.4	mV[rms]
Input and output level 2 *	V2	V_{IN} = 50 mV[rms]	80	110	140	mV[rms]
Input and output level 3 *	V3	V_{IN} = 200 mV[rms]	150	200	250	mV[rms]
Input and output level 4 *	V4	V_{IN} = 1 V[rms]	200	280	360	mV[rms]
Input and output level 5	V5	V_{IN} = 100 mV[rms], V_{ctl} = 2.5 V	50	100	150	mV[rms]
Input and output level 6	V6	V_{IN} = 300 mV[rms], V_{ctl} = 4.5 V	230	300	370	mV[rms]
Total harmonic distortion *	THD	V_{IN} = 200 mV[rms]	—	0.1	0.5	%
Noise level *	V_n	No input signal (with IHF-A)	—	—	100	μV[rms]
Maximum input level *	V_{max}	Input level at THD = 1%	2.8	—	—	V[rms]
Crosstalk between channels	GT	V_{IN} = 2 V[rms], AGC off	60	—	—	dB
AGC OFF voltage	V_{SW}	V_{IN} = 1 V[rms], V_{ctl} = 1.2 V	890	1 000	1 130	mV[rms]
Channel balance *	CB	V_{IN} = 200 mV[rms]	−1.0	0	1.0	dB
Frequency characteristics *	FC	V_{IN} = 200 mV[rms] Level difference of f_{IN} = 1 kHz/20 kHz	−1.0	0	1.0	dB
Input and output level 7	V7	V_{IN} = 200 mV[rms], AGC off	175	200	225	mV[rms]

Note) ∗ : V_{ctl} = 3.5 V.

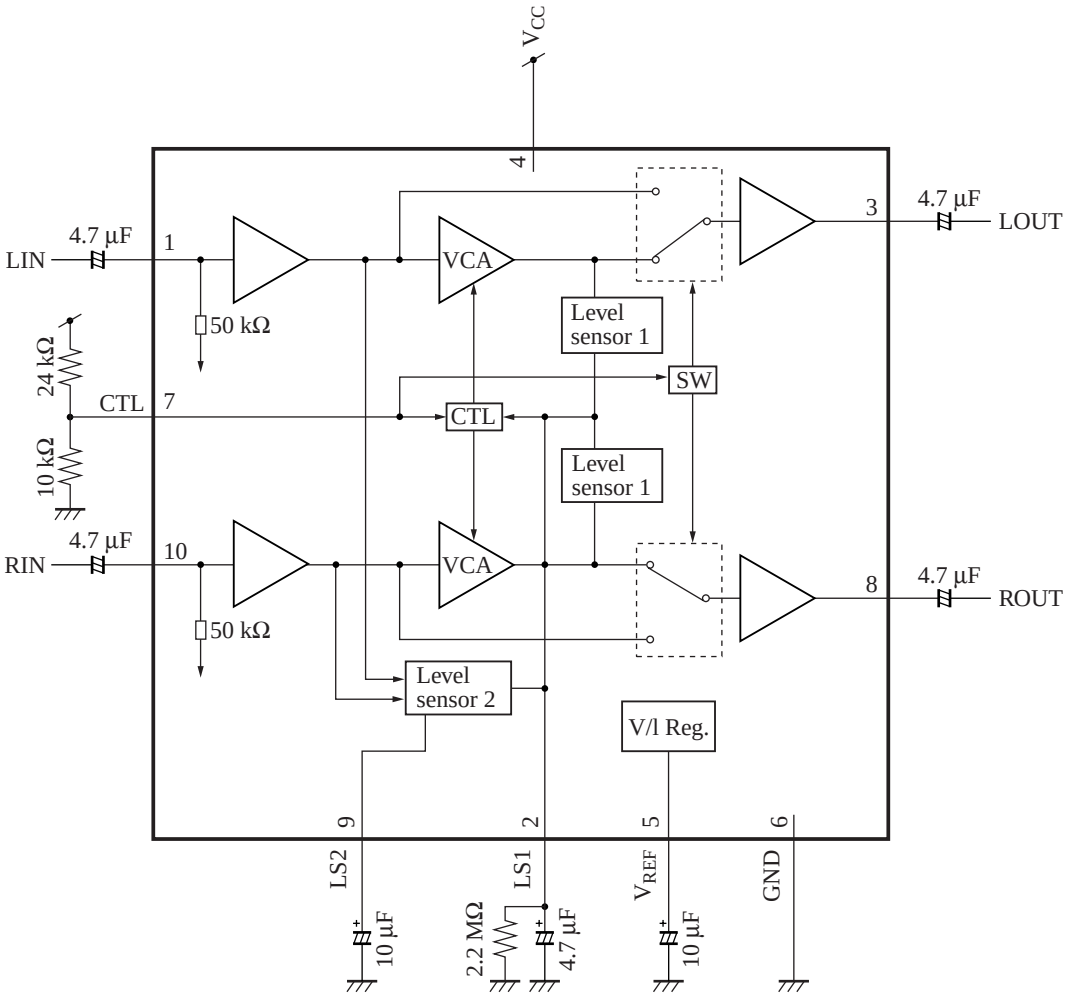
■ Terminal Equivalent Circuits

Pin No.	Equivalent circuit	Description	Voltage
1		LIN: Left side input pin	6 V
2		LSI: AGC level sensor 1 and 2	0.5 V to 1.5 V
3		LOUT: Left side output pin	6 V
4	—	V_{CC} : V_{CC} pin	—
5		V_{REF} : Reference voltage stability	6 V
6	—	GND: GND pin	—

■ Terminal Equivalent Circuits (continued)

Pin No.	Equivalent circuit	Description	Voltage
7		CTL: AGC on/off changeover AGC off at 1.2 V or lower	—
8		ROUT: Right side output pin	6 V
9		LS2: AGC level sensor 2	6 V
10		RIN: Right side input pin	6 V

■ Application Circuit Example



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