AN7322S

Live Effect (Dummy Surround) IC for Headphone Stereo

■ Overview

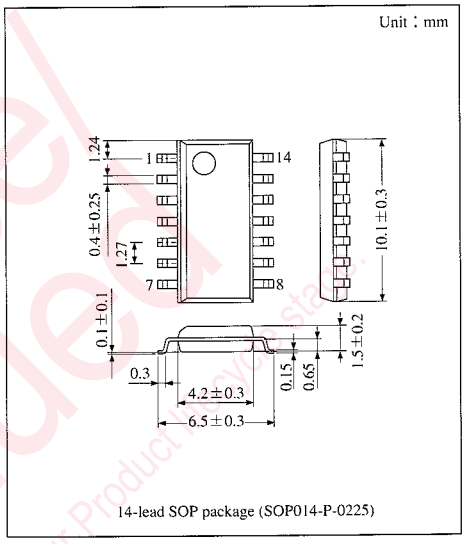
The AN7322S is an audio power IC developed for headphone stereo.

This IC mixes signals from Ch.1 and 2, between pre-amp. and power amp. to produce a live effect.

Three different patterns of effect can be obtained, focusing on 400Hz of frequency. The operating voltage is V=1.8V~6.9V.

■ Features

- Fewer external components required
- Three-step changeover possible (LIVE OFF/MID/HEAVY)
- Changeover controllable by microcomputer
- The reference voltage provided inside

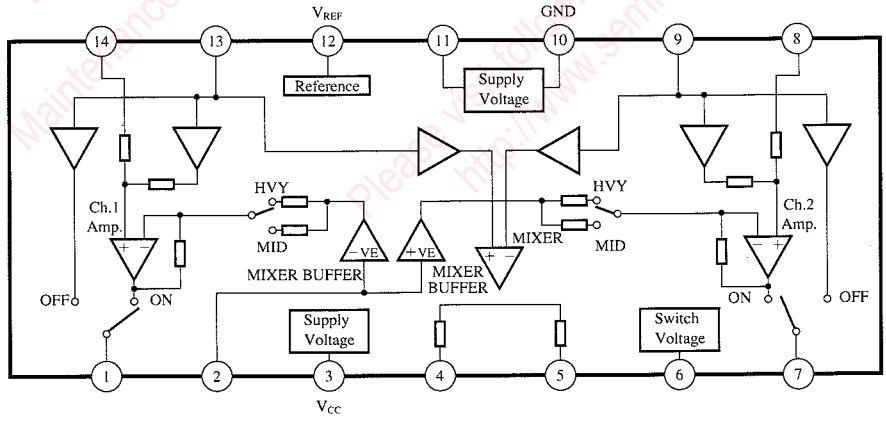


14-lead SOP package (SOP014-P-0225)

■ Pin Name

Pin No.	Pin Name	Pin No.	Pin Name
1	Ch.1 Output	8	Ch.2 Filter
2	Mixer Input	9	Ch.2 Input
3	V_{CC}	10	GND
4	Mixer Output 1	11	Ripple Filter
5	Mixer Output 2	12	Reference Voltage
6	Live Switch	13	Ch.1 Input
7	Ch.2 Output	14	Ch.1 Filter

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	14	V
Supply Current	I_{CC}	30	mA
Power Dissipation	P_D	380	mW
Operating Ambient Temperature	T_{opr}	−20 ~ +75	℃
Storage Temperature	T_{stg}	−55 ~ +125	℃

■ Recommended Operating Range

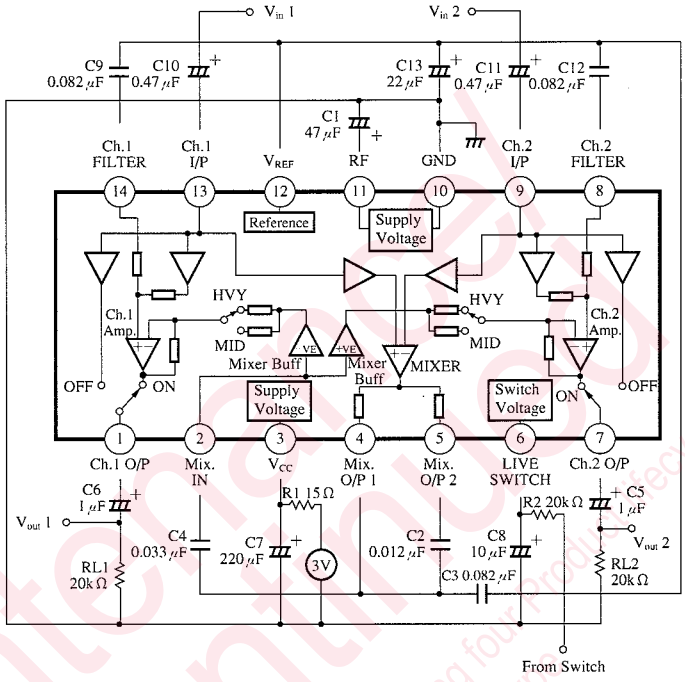
Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	1.8V ~ 6V

■ Electrical Characteristics (V_{CC}=3V, f=1kHz, Ta=25℃)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Consumption Current	I_{CQ}	V_{SW}=V_{in}=0V	—	4.3	—	mA
Reference Voltage	V_{ref}	V_{SW}=V_{in}=0V	—	1.65	—	V
Ripple Filter	V_{rf}	Vripple=−20dBv, f=100Hz	—	−45	—	dB
Channel 1 (Live Off)		V_{SW}=0V				
Gain at bass	$G_{VO}1$	$V_{in}1$=100mV	—	0	—	dB
Max. Output Voltage	Vom1	THD=1%	—	0.25	—	V
Total Harmonics Distortion Note 1)	THD1	Vo1=0.1Vrms	—	0.15	—	%
Output Noise Voltage Note 1)	$V_{no}1$	$V_{in}1$=0V	—	40	—	μV
Channel Separation	CS	$V_{in}1$=100mV	—	45	—	dB
Channel Balance	CB	$V_{in}1$=$V_{in}2$=100mV	—	0	—	dB
Channel 1 (Live Heavy)		V_{SW}=3V				
Total Harmonics Distortion Note 1)	THD2	Vo1=0.1Vrms	—	0.4	—	%
Output Noise Voltage Note 1)	$V_{no}2$	$V_{in}1$=0V	—	60	—	μV
Channel Gain 2	G_V2	$V_{in}1$=100mV, f=400Hz	—	5.8	—	dB
Channel Gain 3	G_V3	$V_{in}2$=100mV, f=400Hz	—	1.0	—	dB
Gain Difference 1 Note 2)	Gd1	$V_{in}1$=100mV, f=400Hz	—	4.8	—	dB
Channel 1 (Live Middle)		V_{SW}=1.5V				
Channel Gain 4	G_V4	$V_{in}1$=100mV, f=400Hz	—	2.5	—	dB
Channel Gain 5	G_V5	$V_{in}2$=100mV, f=400Hz	—	−6.0	—	dB
Gain Difference 2 Note 3)	Gd2	$V_{in}1$=100mV, f=400Hz	—	8.5	—	dB

Note 1) DIN audio filter used.
Note 2) Gd1=Gv2−Gv3
Note 3) Gd2=Gv4−Gv5

■ Application Circuits



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