4 Channels Electronic Volume

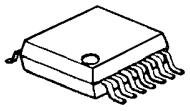
■GENERAL DESCRIPTION

The NJU72342 is a 4 channels I^2C electronic volume IC with external mute controls.

The NJU72342 has many characteristics that are useful in audio application, such as low noise, low distortion, and wide operating voltage range.

All functions are controlled by I^2C BUS interface.

■PACKAGE OUTLINE

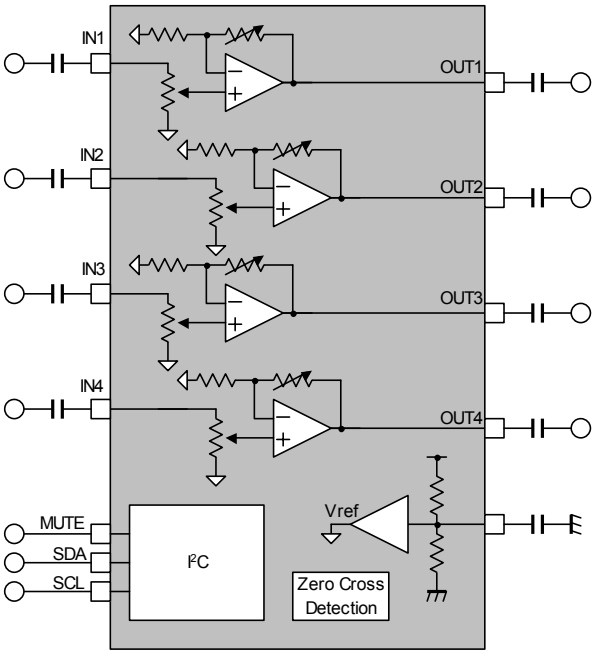


SSOP14

■FEATURES

- Operating Voltage V_+=4.5V ~ 14.5V
- Input Gain 0dB/+3dB/+6dB/+9dB
- Volume 0~-95dB/Mute ,1dBstep
- Low Distortion 0.002% typ.
- Low Noise 2.0μVrms typ.
- External Mute
- Zero Cross Detection
- I^2C BUS Control
- CMOS Technology
- Small Package SSOP14

■BLOCK DIAGRAM



■PIN CONFIGURATION

No.	Symbol	Function
1	IN1	Input Terminal 1
2	IN2	Input Terminal 2
3	IN3	Input Terminal 3
4	IN4	Input Terminal 4
5	MUTE	Mute Terminal
6	SDA	I^2C Data Input Terminal /Acknowledge Output
7	SCL	I^2C Clock Terminal
8	V+	Power Supply Terminal
9	VREF	Reference Voltage Terminal
10	GND	Ground Terminal
11	OUT4	Output Terminal 4
12	OUT3	Output Terminal 3
13	OUT2	Output Terminal 2
14	OUT1	Output Terminal 1

■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V_+	+15	V
Power Dissipation	P_D	560 (Note1)	mW
Maximum Input Voltage	V_{IMAX}	0 ~ V_+ (Note2)	V
Operating Temperature Range	Topr	-40 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +150	°C

(Note1) EIA/JEDEC STANDARD Test board (76.2x114.3x1.6mm, 2layer, FR-4) mounting
(Note2) Don't put Input Voltage more than Power Supply Voltage.

■ELECTRICAL CHARACTERISTICS

(Ta=25°C, V^+=9V, R_L=47kΩ, V_{IN}=1.5Vrms, f=1kHz, all controls flat unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_+		4.5	9	14.5	V
Supply Current	I_{DD}	No signal	-	10	16	mA
Reference Voltage	V_{REF}	No signal	4.0	4.5	5.0	V
Maximum Input Voltage	V_{INS}	Main Volume=-6dB,THD=1%	-	3.6	-	Vrms
Maximum Output Voltage	V_{OM}	THD=1%	2.2	2.6	-	Vrms
Voltage Gain 1	G_{V1}	Input Gain=+6dB, V_{IN}=100mVrms	4	6	8	dB
Voltage Gain 2	G_{V2}		-1.5	0	1.5	dB
Voltage Gain 3	G_{V3}	Main Volume=Mute, BW=400Hz-30kHz	-	-100	-95	dB
Channel Balance	G_{CB}	Main Volume=0dB	-1	0	1	dB
Total Harmonic Distortion	THD	Vo=1.5Vrms,BW=400Hz~30kHz	-	0.002	0.01	%
Output Noise Voltage	V_{NO}	Main Volume=0dB	-	2.0	7.0	μVrms
Channel Separation	CS	R_g=0	-	-110	-90	dB

MUTE TERMINAL CONTROL CHARACTERISTICS(Ta=25°C, all controls flat unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Low Level Input Voltage	V_{IL}		0	-	0.6	V
High Level Input Voltage	V_{IH}		2.0	-	V^+	V

■CONTROL TERMINAL EXPLANATION –Mute Terminal-

(Ta=25°C, V^+=9V, R_L=47kΩ, V_{IN}=1.5Vrms, f=1kHz, all controls flat unless otherwise specified)

MODE	STATUS	TEST CONDITION
Mute ON	H	Mute is Active
Mute OFF	L	Mute is NOT Active