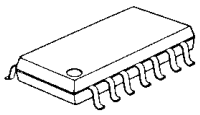
Sound Enhancement Audio Processor for Compression Audio

■GENERAL DESCRIPTION

The NJM2708 is a sound enhancement audio processor designed for compression audio. It includes mode control switch (sound enhancement mode / Bypass mode), standby function and realizes low consumption power design by standby function.

It is suitable for portable audio, car audio & home audio applications.

●PACKAGE OUTLINE

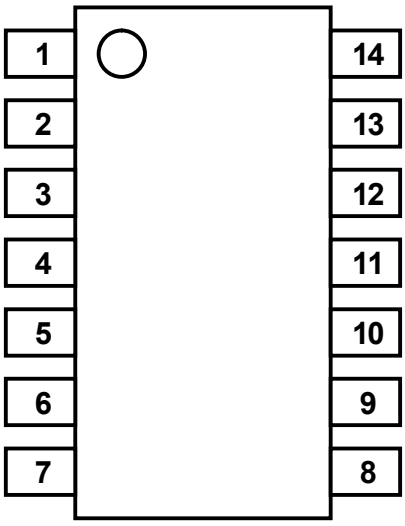


NJM2708V

■FEATURES

- Operating Voltage +1.8 to +13 V
- Low Operating Circuit 0.75 mA typ.(at Sound enhancement mode VR: Max.)
  0.1μA typ. (at Standby mode)
- Low output noise -100dBV typ.(at Sound enhancement mode VR: Max.)
- Low THD 0.005% typ.
- Variable Surround Effect by external resistor
- Standby function
- Internal Mode Control Switch
- Bipolar Technology
- Package Outline SSOP14

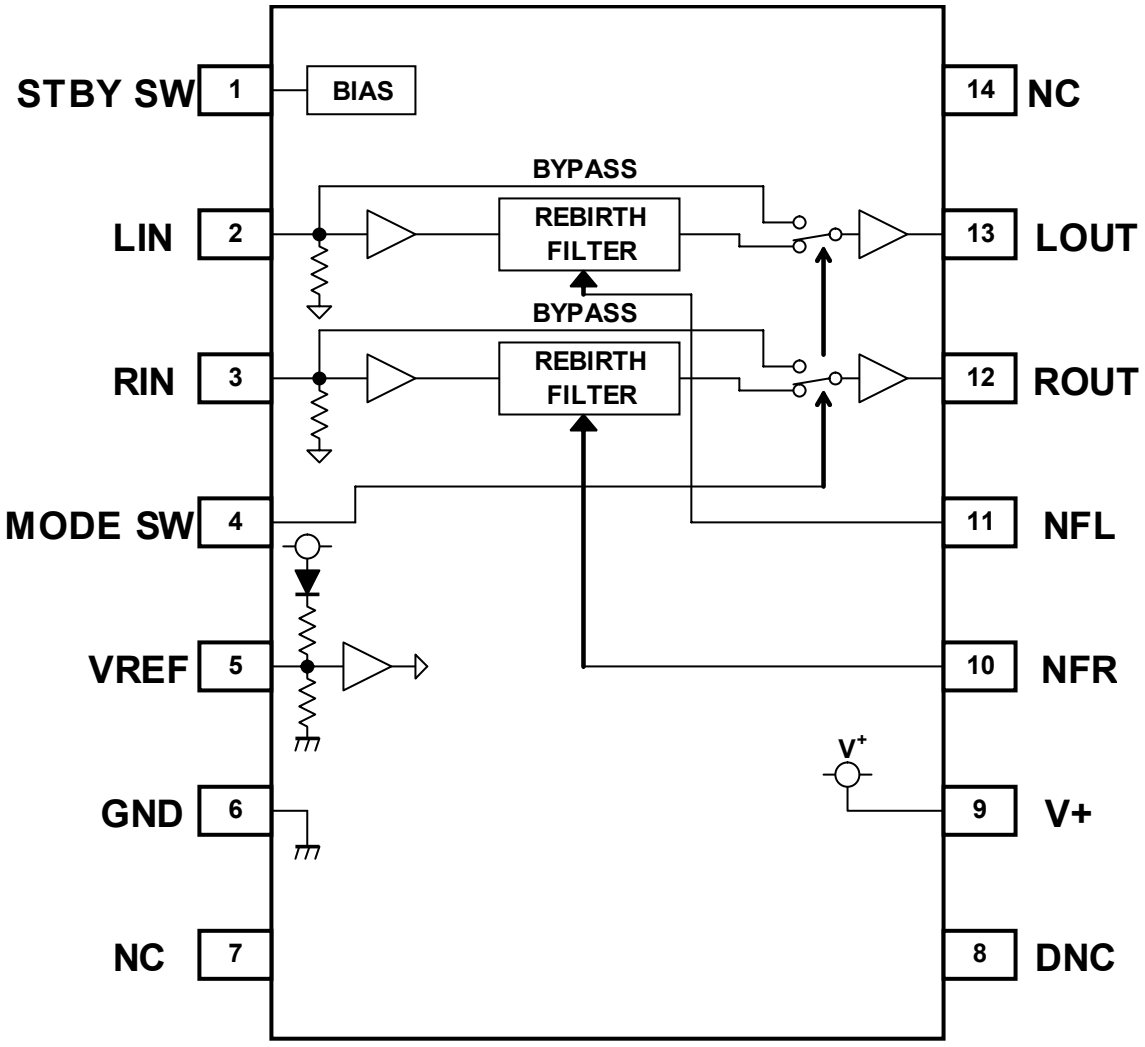
■PIN CONFIGURATION



(SSOP14)

1. S TANDBY SW
2. LIN
3. RIN
4. MO DE SW
5. VR EF
6. GND
7. NC
8. DNC
9. V+
10. NFR
11. NF L
12. ROUT
13. LO UT
14. NC

■BLOCK DIAGRAM (SSOP14)



■**ABSOLUTE MAXIMUM RATING** (Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Power Supply Voltage	V_+	14	V
Power Dissipation	P_D	400 NOTE: EIA/JEDEC STANDARD Test board (76.2x114.3x1.6mm, 2layer, FR-4) mounting	mW
Operating Temperature Range	Topr	-40 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +125	°C

■**OPERATING VOLTAGE**

PARAMETER S	YMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_+		1.8	9.0	13	V

■**ELECTRICAL CHARACTERISTICS** (Ta=25°C, V^+=9V, unless otherwise specified)

PARAMETER S	YMBOL	TEST CONDITION	INPUT		OUTPUT	Mode V	R	MIN T	YP	MAX	UNIT
			L	R							
Supply Current	I_{CC}	No Signal	0	0	-	Active	-	-	750	1300	μA
			0	0	-	Standby	-	-	0.1	1.0	
			0	0	-	eala Rebirth	Max	- 750		1300	
Reference Voltage	V_{REF}	No Signal	0	0	-	-	-	3.65	4.15	4.65	V

■**AC CHARACTERISTICS** (Ta=25°C, V^+=9V, Vin= 1.5Vrms,f=1kHz,R_L=10kΩ,unless otherwise specified)

PARAMETER S	YMBOL	TEST CONDITION	INPUT		OUTPUT	Mode V	R	MIN T	YP	MAX	UNIT
			L	R							
Maximum Input Voltage	V_{IM}	f=1kHz THD=1%	V_{IN}	-	L	Bypass	- 2.	2	3.0	-	Vrms
			-	V_{IN}	R						
		f=1kHz THD=1%	V_{IN}	-	L	eala Rebirth	MAX	1.5 2.	7	-	
			-	V_{IN}	R						
		f=10kHz THD=1%	V_{IN}	-	L	Bypass	- 2.	2	3.0	-	
			-	V_{IN}	R						
		f=10kHz THD=1%	V_{IN}	-	L	eala Rebirth	MAX	1.0 1.	6	-	
			-	V_{IN}	R						
Output Noise	V_{NO}	Rg=0Ω A-Weighted	0	0	L	Bypass	- -		-112 (2.5)	-106 (5.0)	dBV (μVrms)
					R						
		Rg=0Ω A-Weighted	0	0	L	eala Rebirth	MAX	-	-100 (10)	-94 (20)	
					R						
Total Harmonic Distortion	THD+N	V_{IN}=1.5Vrms f=1kHz	V_{IN}	-	L	Bypass	- -		0.002	0.01	%
			-	V_{IN}	R						
		V_{IN}=0.75Vrms f=10kHz	V_{IN}	-	L	eala Rebirth	MAX	- 0.	1	-	
			-	V_{IN}	R						

PARAMETER S	YMBOL	TEST CONDITION						MIN T	YP	MAX	UNIT
			INPUT		OUTPUT	Mode V	R				
			L R								
Bypass Gain	G_{VBYP}	V_{IN}=1.5Vrms f=1kHz	V_{IN}	-	L	Bypass	- -1.	0	0.0 1.	0	dB
			-	V_{IN}	R						
eala Rebirth Gain	G_{eala}	V_{IN}=0.75Vrms f=10kHz	V_{IN}	-	L	eala Rebirth	MAX	3.0 5.	0	7.0	dB
			-	V_{IN}	R						

■CONTROL CHARACTERISTICS (Ta=25°C, V^+=9V, unless otherwise specified)

PARAMETER S	YMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Mode Select Control Voltage	V_{MODE}	V_{IN}=High Level	1.2	-	V^+	V
		V_{IN}=Low Level	0.0 -		0.3	V

■SWITCH FUNCTION

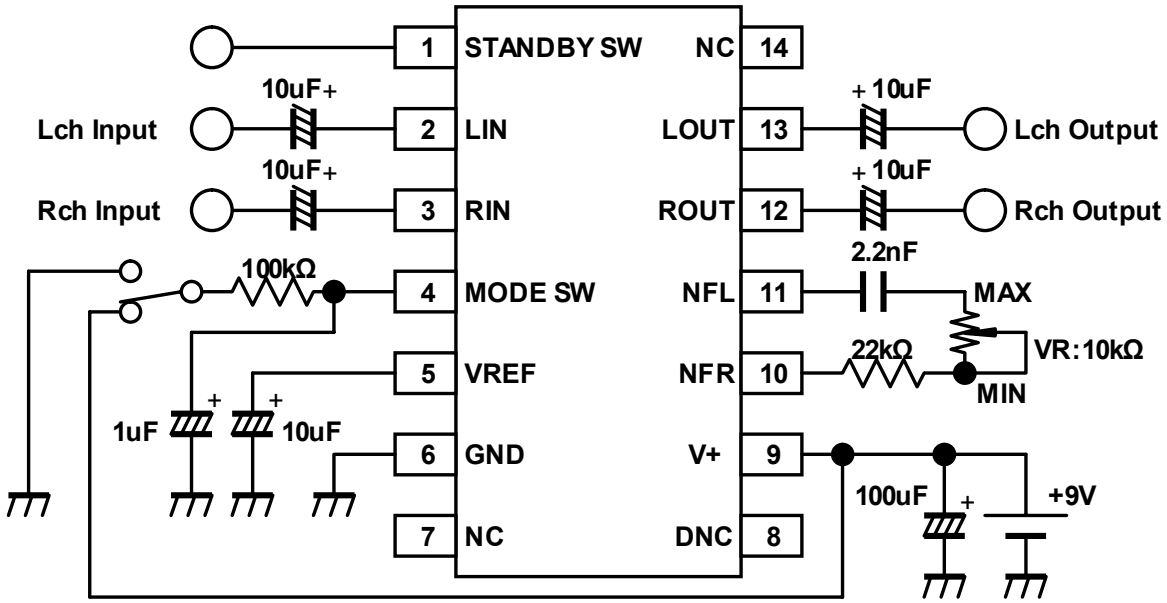
MODE SW

MODE S	W	NOTES
Bypass	L, open	Input Through
eala Rebirth	H	eala Rebirth(Stereo Input)

STANDBY SW

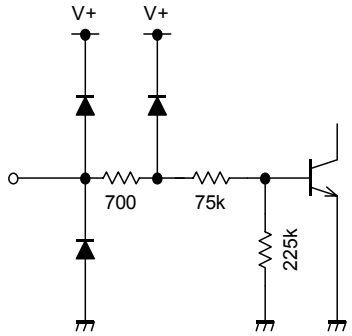
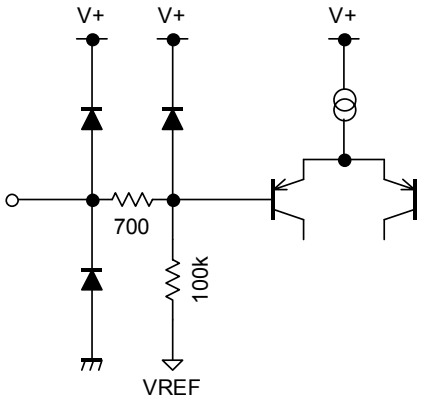
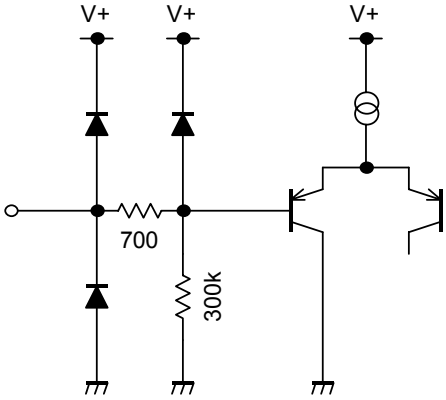
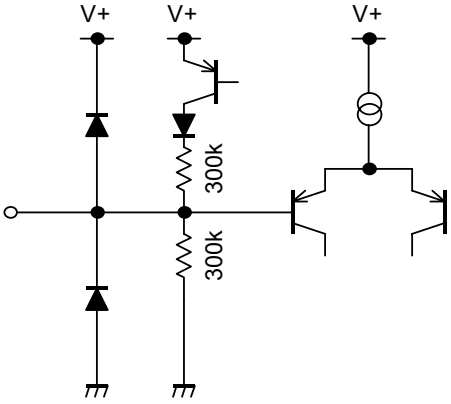
MODE S	W	NOTES
Standby	L, open	IC is non-active
Active	H	IC is active

■ APPLICATION CIRCUIT



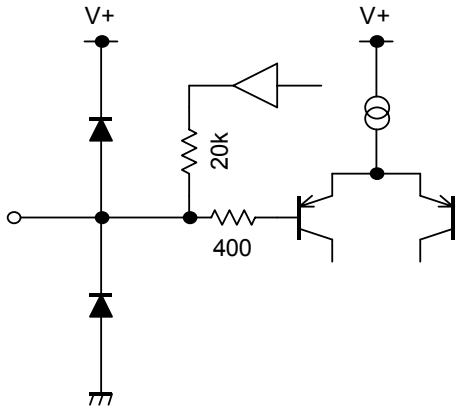
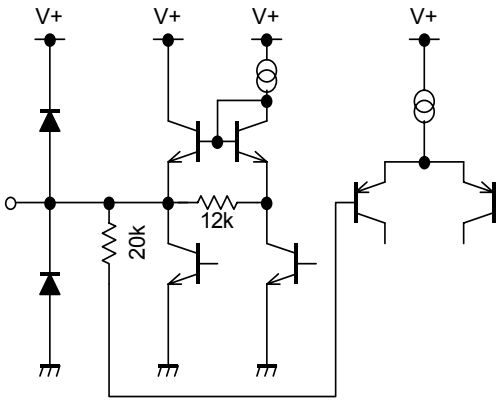
■ **TERMINAL DESCRIPTION**

(Ta=25°C, V^+=9V)

PIN No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	Voltage
1	STANDBY SW	Standby Switch		0V
2 3	LIN RIN	Lch Input Rch Input		4.15V
4	MODE SW	Mode Control Switch		0V
5	VREF	Reference Voltage		4.15V

■ **TERMINAL DESCRIPTION**

(Ta=25°C, V^+=9V)

PIN No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	Voltage
7 14	NC	No Connect	———	-
8 DNC		Do Not Connect	———	-
9 V+		Power Supply	———	V+
10 11	NFR NFL	Rch Filter Terminal Lch Filter Terminal		4.15V
12 13	ROUT LOUT	Rch Output Lch Output		4.15V

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