PRELIMINARY

SRS 3D SURROUND AUDIO PROCESSOR

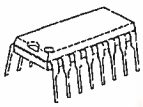
■GENERAL DESCRIPTION

The NJM2179 is a SRS 3D surround audio processor regenerating the 3D surround sound by two speakers.

It regenerates 3D surround sound from only stereo input.

The features of wide operating voltage range, wide dynamic range, low output noise are suitable for any audio applications.

■PACKGE OUTLINE



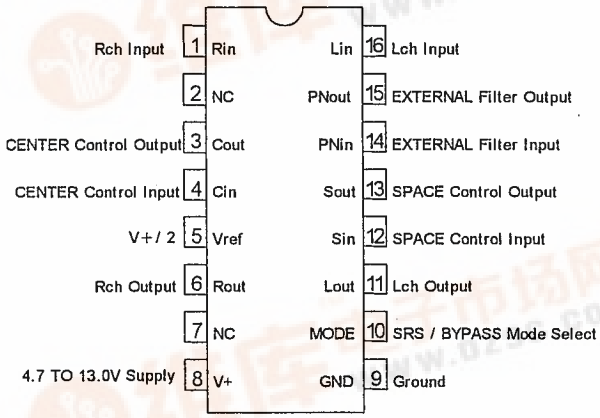
NJM2179D

NJM2179M

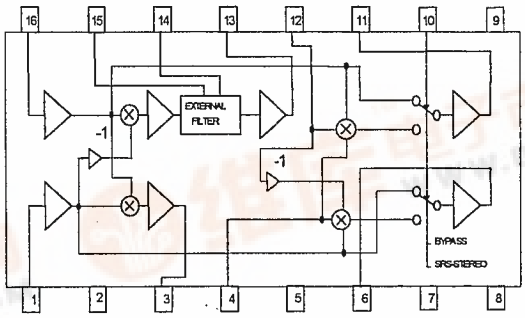
■FEATURES

- Operating Voltage (4.7 to 13V)
- Low Supply Current (7mA typ. at 3D-STEREO mode)
- Wide Dynamic Range (>110dB)
- Low Output Noise (22μVrms typ. at 3D-STEREO mode)
- BYPASS Gain (-3dB typ.)
- BYPASS FUNCTION(Through)
- SPACE and CENTER control
- Internal Mode Control Switch
- Bipolar Technology
- Package Outline DIP16, DMP16

■PIN CONFIGURATION



■BLOCK DIAGRAM



■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7	V
Power Dissipation	P_D	(DIP16) 350 (DMP16) 700	mW
Operating Temperature Range	T_{opr}	-20 to +75	°C
Storage Temperature Range	T_{stg}	-40 to +125	°C

■ELECTRICAL CHARACTERISTICS (V^+=12V, Ta=25°C, Vin=0dBu(775mVrms), unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION		MIN	TYP	MAX	UNIT
Operating Voltage	V^+			4.7	12.0	13.0	V
Operating Current	I_{CC}	No Signal	BYPASS	-	5.5	8.8	mA
			3D-STEREO	-	7.0	10.0	
Reference Voltage	V_{REF}	$V^+/2$	-	5.5	$V^+/2$	6.5	V
Maximum Input Voltage	V_{INMAX}	Vin=Lch f=1kHz Vout=Lch at THD=3%	BYPASS	8.0 (1.95)	10.0 (2.45)	-	dBu (Vrms)
		Vin=Lch f=125Hz Vout=Rch at THD=3% SPACE VR Max CENTER VR Min	3D-STEREO	2.8 (1.07)	4.8 (1.35)	-	
Channel Balance	CH_{BAL}	f=1kHz SPACE VR Min CENTER VR Min Lch→Rch Rch→Lch	3D-STEREO	-1.0	0.0	1.0	dB
Output Noise	V_{NOISE}	Vin=GND DIN-AUDIO	3D-STEREO	-	22.0	60.0	μVrms
Total Harmonic Distortion	THD	Vin=-10dBu Lch f=1kHz SPACE VR Max CENTER VR Min	3D-STEREO	-	0.10	-	%
Bypass Gain	G_{Bypass}	f=1kHz	BYPASS	-5.0	-3.0	-1.0	dB
Feed Through Gain	$G_{THROUGH}$	f=1kHz SPACE VR Min CENTER VR Min L,Rch→L or Rch	3D-STEREO	-15.3	-13.3	-11.3	dB
L+R Gain	G_{L+R}	f=1kHz SPACE VR Min CENTER VR Max Lch→Rch	3D-STEREO	-10.5	-8.5	-6.5	dB
L-R Gain	G_{L-R}	f=125Hz SPACE VR Max CENTER VR Min Lch→Rch	3D-STEREO	7.0	9.0	11.0	dB

■ELECTRICAL CHARACTERISTICS (V^+=12V, Ta=25°C, Vin=0dBu(775mVrms), unless otherwise specified)

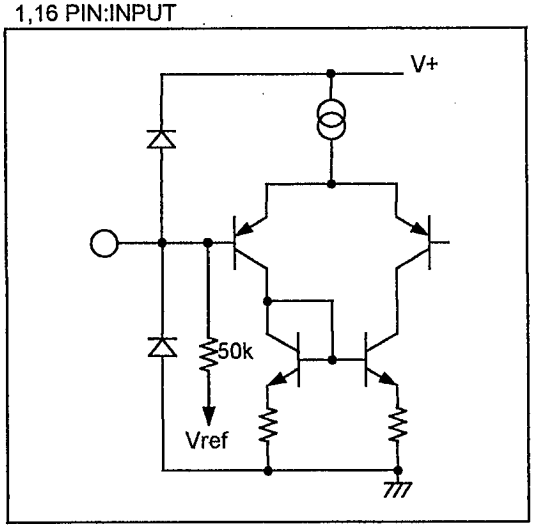
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
MODE Select Control Voltage	V_{MODE}	Vin=HIGH LEVEL	2.0	-	V^+	V
		Vin=LOW LEVEL	0.0	-	0.7	

■MODE Switch

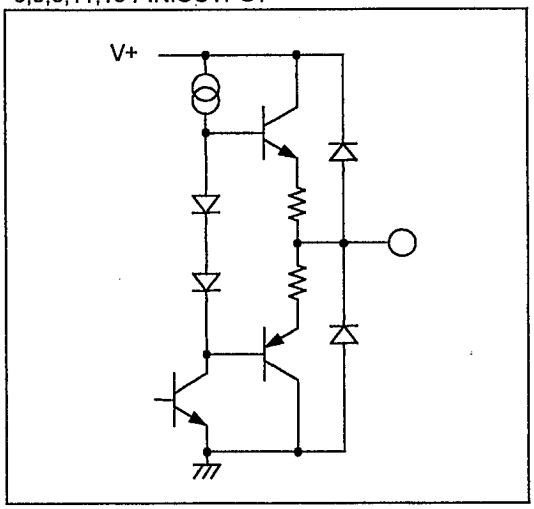
	MODE
BYPASS MODE	L
3D-STEREO	H

■PIN FUNCTION

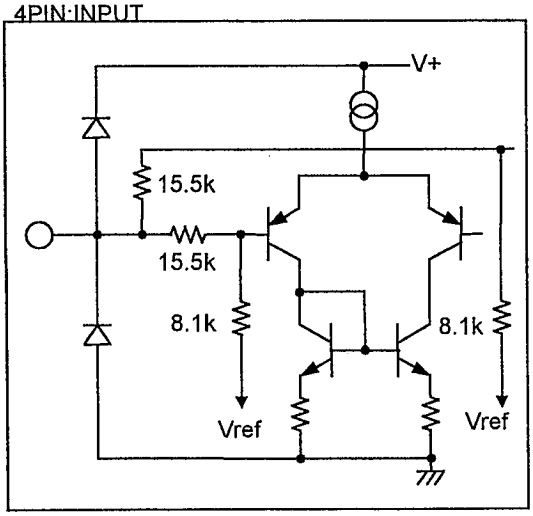
1,16 PIN:INPUT



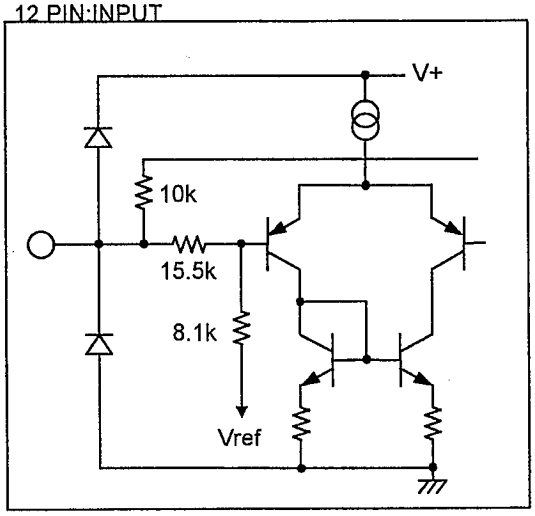
3,5,6,11,13 PIN:OUTPUT



4PIN:INPUT



12 PIN:INPUT



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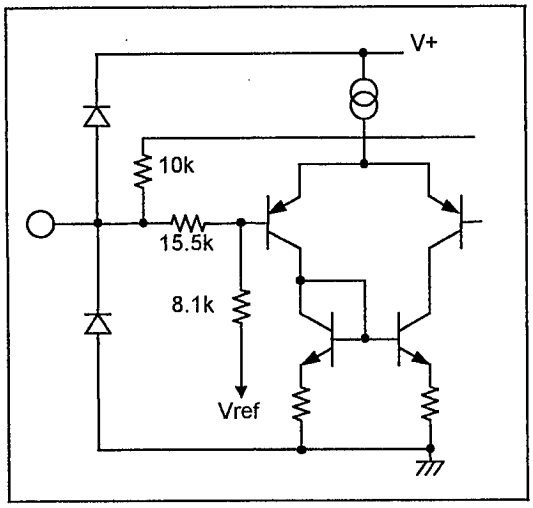
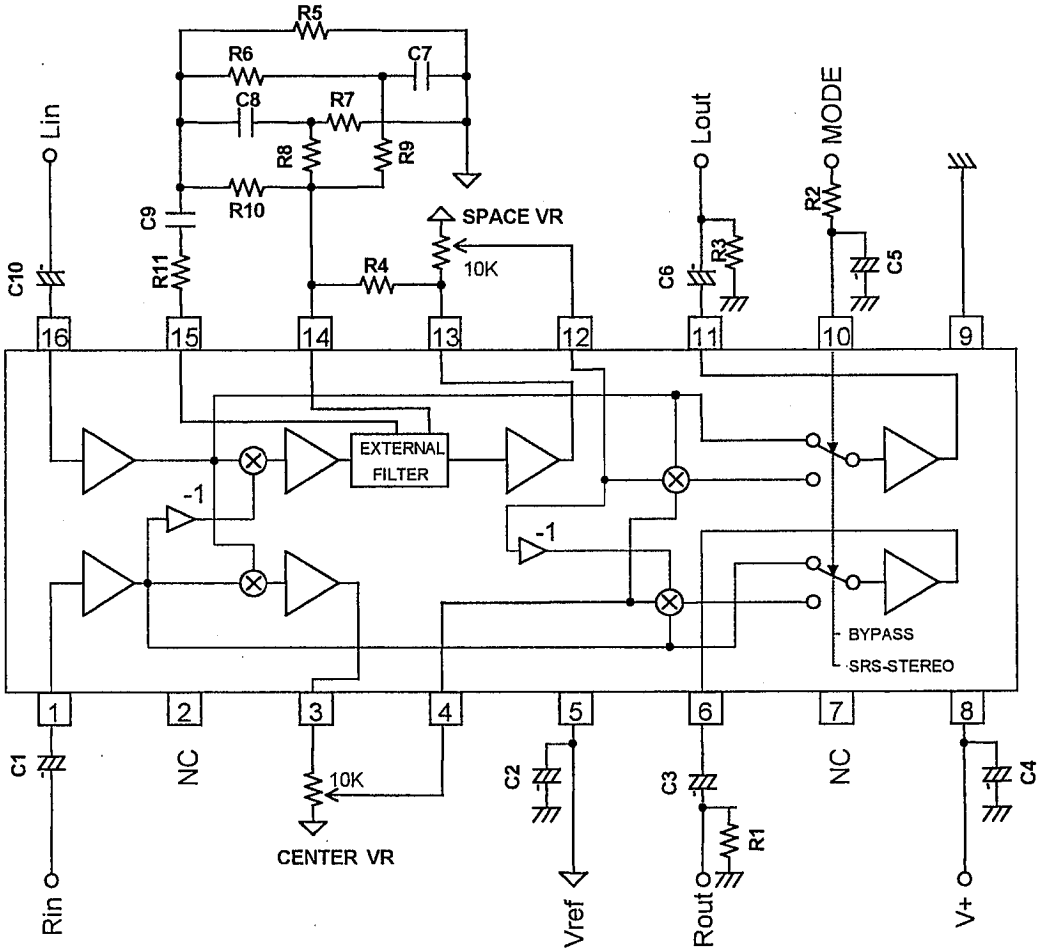
■PIN FUNCTION

12 PIN:INPUT

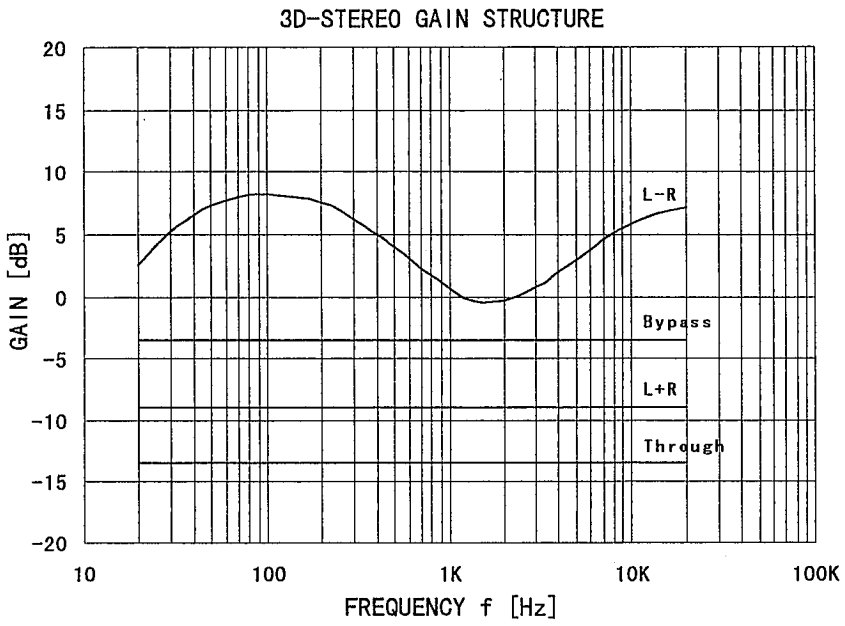


■APPLICATION CIRCUIT



Parts No.	Value	Tolerance	Parts No.	Value	Tolerance
C1, C2, C3, C5	10μF		R1, R2, R3	10kΩ	±5%
C6, C10	10μF		R4	62kΩ	±5%
C4	100μF		R5	4.3kΩ	±5%
C7, C9	0.47μF	±5%	R6	1.5kΩ	±5%
C8	4700pF	±5%	R7	3.9kΩ	±5%
			R8	47kΩ	±5%
			R9	33kΩ	±5%
			R10	110kΩ	±5%
			R11	1kΩ	±5%

■TYPICAL CHARACTERISTICS



■NOTE

The Sound Retrieval System (SRS) technology incorporated in the NJM2179 is owned by SRS Labs, a US Corporation. The SRS technology is protected under U.S. Patent No.4,866,774; 4,748,669; and 4,841,572 with numerous additional issued and pending foreign patents. The trademarks "SRS", "the SRS symbol" and "Sound Retrieval System" are registered in the U.S. and selected foreign countries.

In order to purchase and implement the NJM2179, all customers must enter into a license agreement directly with SRS Labs for the payment of royalties and to ensure proper trademark usage. Neither the purchase of the NJM2179, nor the corresponding sale of audio enhancement equipment conveys the right to commercialized recordings made with the Sound Retrieval System.

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