



## SRS 3D SURROUND AUDIO PROCESSOR

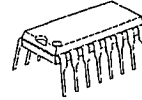
### GENERAL DESCRIPTION

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

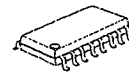
It regenerates 3D surround sound from only stereo input.

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

### PACKAGE OUTLINE



NJM2179D



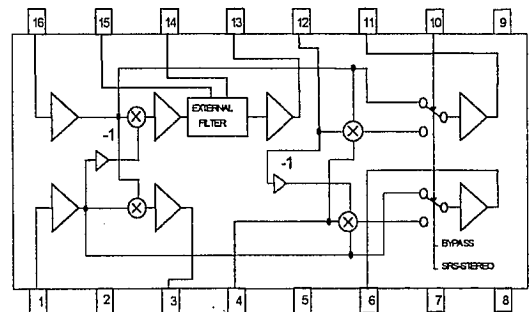
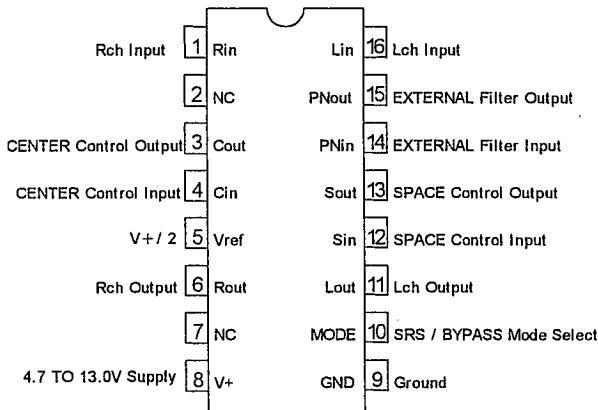
NJM2179M

### FEATURES

- Operating Voltage (4.7 to 13V)
- Low Supply Current (7mA typ. at 3D-STEREO mode)
- Wide Dynamic Range (>110dB)
- Low Output Noise (22  $\mu$ Vrms 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 <sup>+</sup>	7	V
Power Dissipation	P <sub>D</sub>	(DIP16) 350 (DMP16) 700	mW
Operating Temperature Range	T <sub>o p r</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>s t g</sub>	-40 to +125	°C

## ■ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=12V, Ta=25°C, Vin=0dBu (775mVrms), unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT	
Operating Voltage	V <sup>+</sup>		4.7	12.0	13.0	V	
Operating Current	I <sub>CC</sub>	No Signal	BYPASS	-	5.5	8.8	mA
			3D-STEREO	-	7.0	10.0	
Reference Voltage	V <sub>REF</sub>	V <sup>+</sup> /2	5.5	V <sup>+</sup> /2	6.5	V	
Maximum Input Voltage	V <sub>INMAX</sub>	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 <sub>BAL</sub>	f=1kHz SPACE VR Min CENTER VR Min Lch→Rch Rch→Lch	3D-STEREO	-1.0	0.0	1.0	dB
Output Noise	V <sub>NOISE</sub>	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 <sub>BYPASS</sub>	f=1kHz	BYPASS	-5.0	-3.0	-1.0	dB
Feed Through Gain	G <sub>THROUGH</sub>	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 <sub>L+R</sub>	f=1kHz SPACE VR Min CENTER VR Max Lch→Rch	3D-STEREO	-10.5	-8.5	-6.5	dB
L-R Gain	G <sub>L-R</sub>	f=125Hz SPACE VR Max CENTER VR Min Lch→Rch	3D-STEREO	7.0	9.0	11.0	dB

■ ELECTRICAL CHARACTERISTICS ( $V^+=12V$ ,  $T_a=25^\circ C$ ,  $V_{in}=0dBu(775mV_{rms})$ , unless otherwise specified)

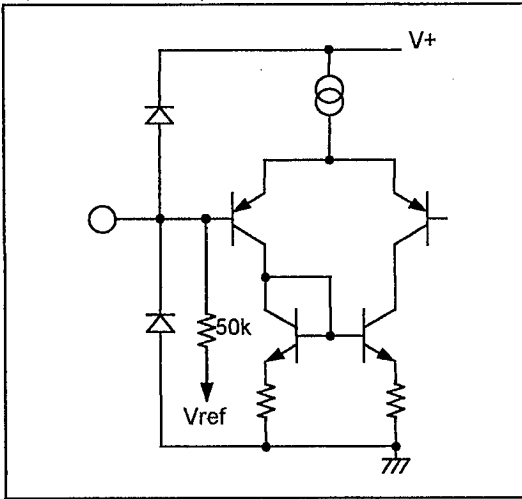
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
MODE Select Control Voltage	$V_{MODE}$	$V_{in}=HIGH LEVEL$	2.0	-	$V^+$	V
		$V_{in}=LOW LEVEL$	0.0	-	0.7	

■ MODE Switch

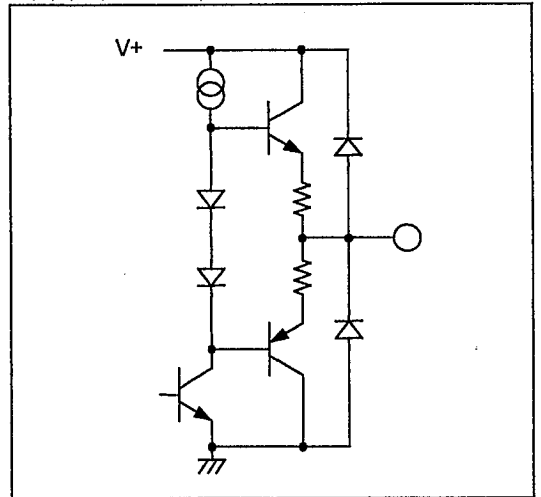
	MODE
BYPASS MODE	L
3D-STEREO	H

## ■ PIN FUNCTION

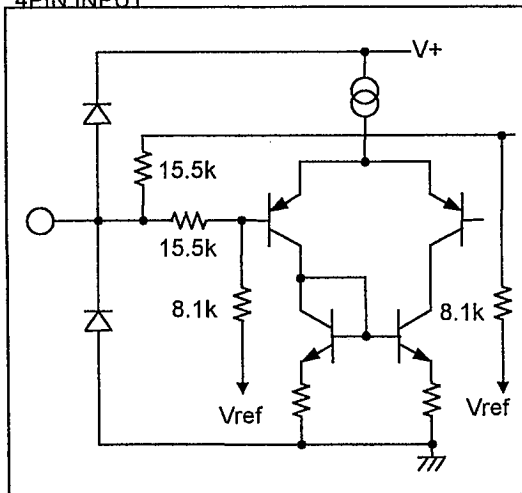
1,16 PIN:INPUT



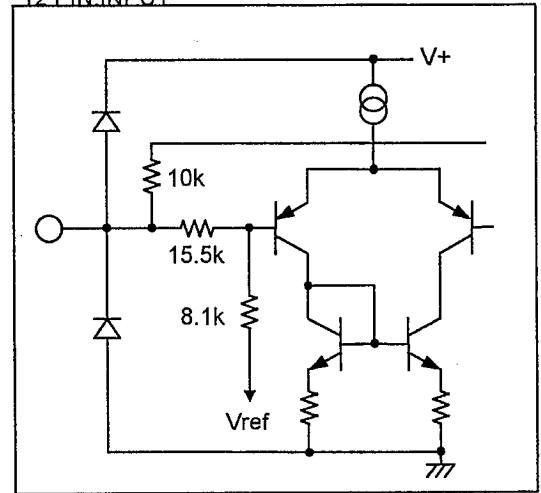
3,5,6,11,13 PIN:OUTPUT



4PIN:INPUT

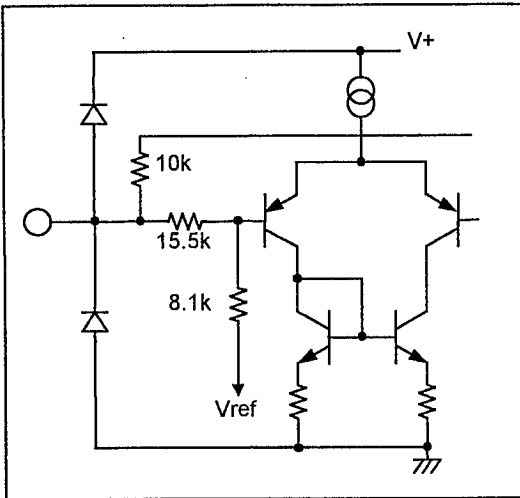


12 PIN:INPUT

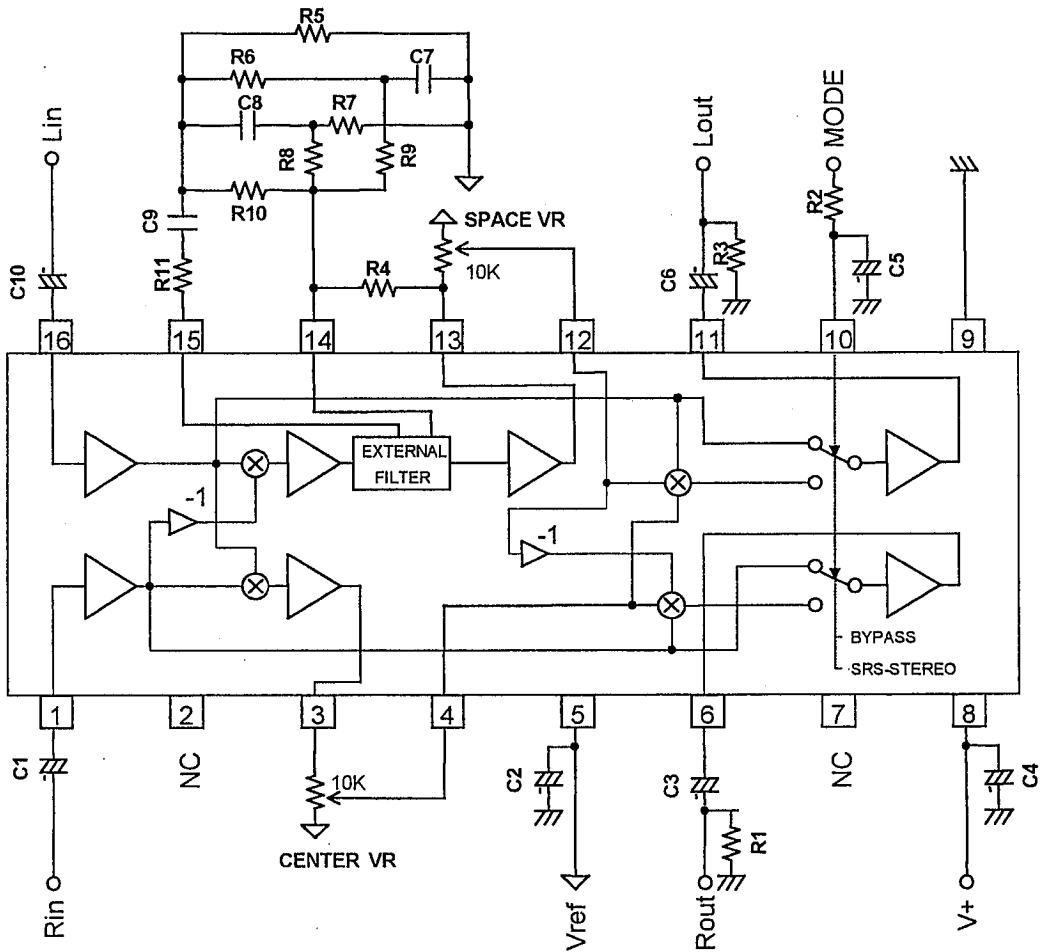


■ PIN FUNCTION

12 PIN: INPUT

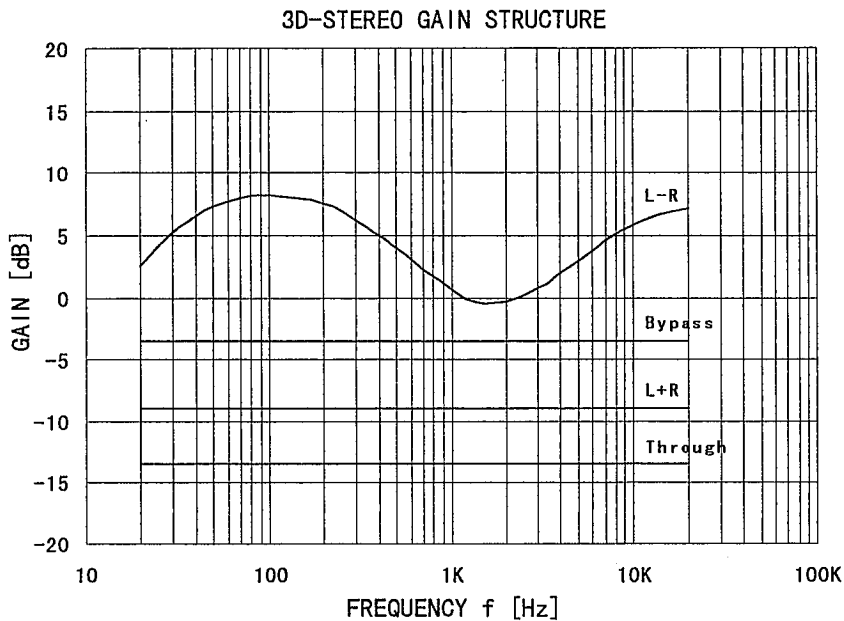


## APPLICATION CIRCUIT



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

■ TYPICAL CHARACTERISTICS



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■ 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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## MEMO

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