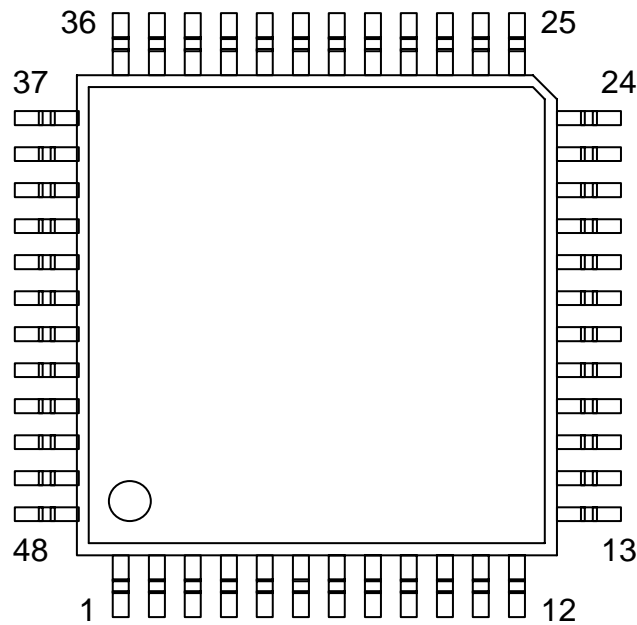




# NJM2195

## ■PIN FUNCTION



1. NC	17. SVOL1	33. FFR2
2. FIL3	18. GND	34. FFR1
3. FIL4	19. V+	35. TP3
4. FIL5	20. VREFIN	36. NC
5. FIL6	21. VREF	37. NC
6. FIL7	22. MODE3	38. FFL3
7. PCOUT	23. MODE2	39. FFL2
8. PCIN	24. NC	40. FFL1
9. C1	25. NC	41. INR
10. C2	26. MODE1	42. INL
11. SFIL1	27. TP1	43. C3
12. NC	28. BASSOUT	44. C4
13. NC	29. OUTR	45. FILOUT
14. SFIL2	30. OUTL	46. FIL1
15. SFIL3	31. TP2	47. FIL2
16. SVOL2	32. FFR3	48. NC

## ■BLOCK DIAGRAM



# NJM2195

## ■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V <sup>+</sup>	15	V
Power Dissipation	P <sub>D</sub>	450	mW
Operating Temperature Range	T <sub>opr</sub>	-40 to+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

## ■ELECTRICAL CHARACTERISTICS ( V<sup>+</sup>=12V, Ta=25°C, V<sub>IN</sub>=-20dBV (=0.1Vrms), Speaker Size :Medium)

PARAMETER	SYMBOL	TEST CONDITION								MIN	TYP	MAX	UNIT	
		INPUT		OUT PUT	MODE	PUNCH VR	WIDTH VR	LF VR						
		L	R											
Operating Voltage	V <sup>+</sup>	-	-	-	-	-	-	-	-	4.7	12.0	13.0	V	
Operating Current	I <sub>CC</sub>	No Signal	-	-	-	BYPASS	-	-	-	8.7	17.4	26.1	mA	
			-	-	-	WOW	-	-	-	8.7	17.4	26.1		
Reference Voltage	V <sub>REF</sub>	V <sup>+</sup> /2	-	-	-	-	-	-	-	5.8	6.0	6.2	V	
Maximum Input Voltage	V <sub>IM</sub>	f=1kHz THD=3%	V <sub>IN</sub> -	- V <sub>IN</sub>	L R	BYPASS	-	-	-	10.0 (32)	12.0 (40)	-	dBV (Vrms)	
		f=100Hz THD=3%	V <sub>IN</sub> V <sub>IN</sub>	V <sub>IN</sub> V <sub>IN</sub>	L R	TruBass	MAX	-	-	-	-2.7 (0.73)	-		
		f=125Hz THD=3%	V <sub>IN</sub> -	- V <sub>IN</sub>	L R	3D- STEREO	-	MAX	-	-	0.5 (1.1)	-		
		f=125Hz THD=3%	V <sub>IN</sub> V <sub>IN</sub>	-V <sub>IN</sub> -V <sub>IN</sub>	L R	3D- STEREO	-	MAX	-	-	-5.5 (0.53)	-		
		f=10kHz THD=3%	V <sub>IN</sub> -	- V <sub>IN</sub>	L R	FOCUS	-	-	MAX	-	-0.8 (0.91)	-		
		f=10kHz THD=3%	V <sub>IN</sub> -	- V <sub>IN</sub>	L R	WOW	MAX	MAX	MAX	-12.0 (0.14)	-10.0 (0.32)	-		
		f=100Hz THD=3%	V <sub>IN</sub> V <sub>IN</sub>	V <sub>IN</sub> V <sub>IN</sub>	L R	WOW	MAX	MAX	MAX	-5.0 (0.56)	-3.0 (0.71)	-		
		f=10kHz THD=3%	V <sub>IN</sub> V <sub>IN</sub>	-V <sub>IN</sub> -V <sub>IN</sub>	L R	WOW	MAX	MAX	MAX	-17.0 (0.14)	-15.0 (0.18)	-		
Output Noise	V <sub>NO</sub>	Rg=0Ω A-Weighted	0	0	L R	BYPASS	-	-	-	-	-110 (3)	-100 (10)	dBV (μVrms)	
		Rg=0Ω A-Weighted	0	0	L R	TruBass	MAX	-	-	-	-80 (100)	-		
		Rg=0Ω A-Weighted	0	0	L R	3D- STEREO	-	MAX	-	-	-95 (18)	-		
		Rg=0Ω A-Weighted	0	0	L R	FOCUS	-	-	MAX	-	-92 (25)	-		
		Rg=0Ω A-Weighted	0	0	L R	WOW	MAX	MAX	MAX	-	-75 (180)	-69 (350)		

**ELECTRICAL CHARACTERISTICS** (  $V^+=12V$ ,  $T_a=25^\circ C$ ,  $V_{IN}=-20dBV$  ( $=0.1V_{rms}$ ), Speaker Size :Medium)

PARAMETER	SYMBOL	TEST CONDITION								MIN	TYP	MAX	UNIT
		INPUT		OUT PUT	MODE	PUNCH VR	WIDTH VR	LF VR					
		L	R										
Total Harmonic Distortion	THD	f=1kHz	$V_{IN}$ -	- $V_{IN}$	L R	BYPASS	-	-	-	-	0.005	0.01	%
		f=100Hz	$V_{IN}$ $V_{IN}$	$V_{IN}$ $V_{IN}$	L R	TruBass	MAX	-	-	-	0.1	-	
		f=1kHz	$V_{IN}$ -	- $V_{IN}$	L R	3D-STEREO	-	MAX	-	-	0.1	-	
		f=1kHz	$V_{IN}$ -	- $V_{IN}$	L R	FOCUS	-	-	MAX	-	0.1	-	
		f=1kHz	$V_{IN}$ -	- $V_{IN}$	L R	WOW	MAX	MAX	MAX	-	0.1	1.0	
BYPASS Gain	$G_{VBYP}$	f=1kHz	$V_{IN}$ -	- $V_{IN}$	L R	BYPASS	-	-	-	-1.0	0.0	1.0	dB
SRS Gain	$G_{SRS}$	f=100Hz	$V_{IN}$ $V_{IN}$	$V_{IN}$ $V_{IN}$	L R	TruBass	MAX	-	-	12.8	14.8	16.8	dB
		f=100Hz	$V_{IN}$ $V_{IN}$	$V_{IN}$ $V_{IN}$	L R	TruBass	MIN	-	-	-2.3	1.7	5.7	
		f=125Hz	$V_{IN}$ -	- $V_{IN}$	L R	3D-STEREO	-	MAX	-	9.4	11.4	13.4	
		f=125Hz	$V_{IN}$ -	- $V_{IN}$	L R	3D-STEREO	-	MIN	-	-1.5	0.5	2.5	
		f=10kHz	$V_{IN}$ -	- $V_{IN}$	L R	FOCUS	-	-	MAX	10.7	12.7	14.7	
		f=100Hz	$V_{IN}$ -	- $V_{IN}$	L R	WOW	MAX	MAX	MAX	13.8	15.8	17.8	
		f=10kHz $V_{IN}=-35dB$	$V_{IN}$ -	- $V_{IN}$	L R	WOW	MAX	MAX	MAX	19.7	21.7	23.7	
MODE Select Control Voltage	$V_{MODE}$	$V_{IN}$ =High Level								2.0	-	$V^+$	V
		$V_{IN}$ =Low Level								0.0	-	0.7	

**MODE SELECT FUNCTION**

MODE	MODE1	MODE2	MODE3
BYPASS	L	L	L
TruBass	L	H	L
3D-STEREO	L	L	H
FOCUS	H	L	L
WOW	H	H	H

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## PIN DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1 12 13 24 25 36 37 48	NC NC NC NC NC NC NC NC	Non Connect Non Connect Non Connect Non Connect Non Connect Non Connect Non Connect Non Connect	_____	-
2 3 5 7 17 32 38	FIL3 FIL4 FIL6 PCOUT SVOL1 FFR3 FFL3	Filter Filter Filter PUNCH Control VR WIDTH Control VR Filter Filter		V+/2
4 6	FIL5 FIL7	Filter Filter		V+/2
8 43	PCIN C3	PUNCH Control VR Filter		V+/2

## ■PIN DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
9	C1	Filter		0V
10	C2	Filter		0V
11 14 15	SFIL1 SFIL2 SFIL3	Filter Filter Filter		V+/2
16 44 47	SVOL2 C4 FIL2	WIDTH Control VR Filter Filter		V+/2

# NJM2195

## PIN DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
18	GND	GND		0V
19	V+	Power Supply		V+
20	VREFIN	Reference Voltage Input		V+/2
21 28 29 30 34 40 45	VREF BASSOUT OUTR OUTL FFR1 FFL1 FILOUT	Reference Voltage Output TruBass Output Rch Output Lch Output Filter Filter Filter		V+/2
22 23 26	MODE3 MODE2 MODE1	Mode3 SW Mode2 SW Mode1 SW		0V

## ■PIN DESCRIPTION

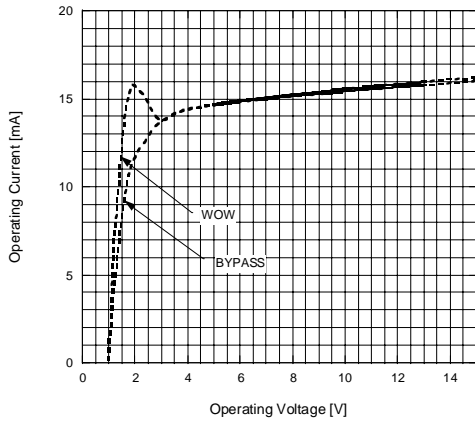
No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
27 33 39	TP1 FFR2 FFL2	Test Pin Filter Filter		V+/2
31 35	TP2 TP3	Test Pin Test Pin		-
41 42	INR INL	Rch Input Lch Input		V+/2
46	FIL1	Filter		V+/2



## TYPICAL CHARACTERISTICS

**Operating Current vs. Operating Voltage**

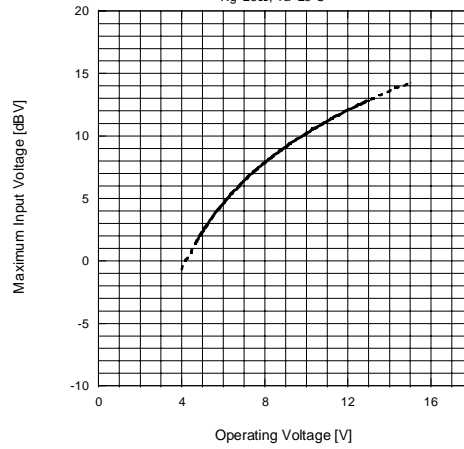
V+=1 to 15V, Ta=25°C



**Maximum Input Voltage vs. Operating Voltage (BYPASS)**

Vin=Lch, Vout=Lch, f=1kHz, RL=4.7kΩ

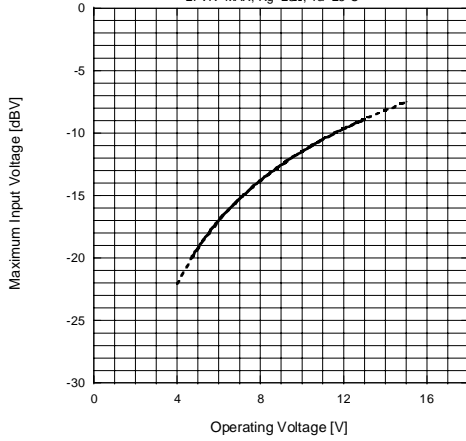
Rg=25Ω, Ta=25°C



**Maximum Input Voltage vs. Operating Voltage (WOW)**

Vin=Lch, Vout=Lch, f=10kHz, RL=4.7kΩ

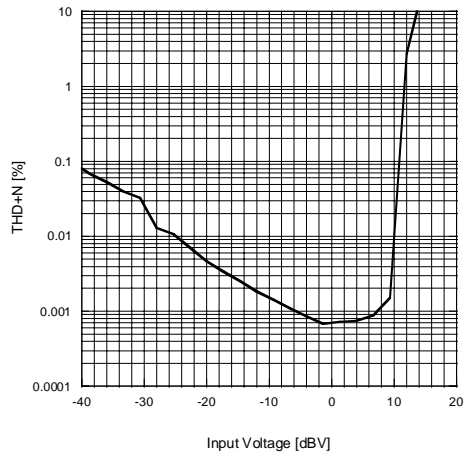
LFVR=MAX, Rg=25Ω, Ta=25°C



**Total Harmonic Distortion vs. Input Voltage (BYPASS)**

V+=12V, Vin=Lch, Vout=Lch, f=1kHz, RL=4.7kΩ

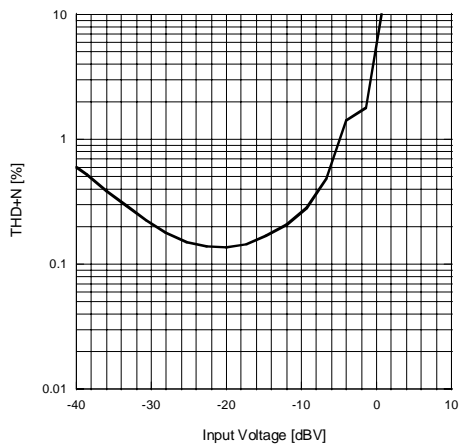
Rg=25Ω, BW=10-80kHz



**Total Harmonic Distortion (TruBass)**

V+=12V, Vin=L+Rch, Vout=Lch, f=100Hz, RL=4.7kΩ

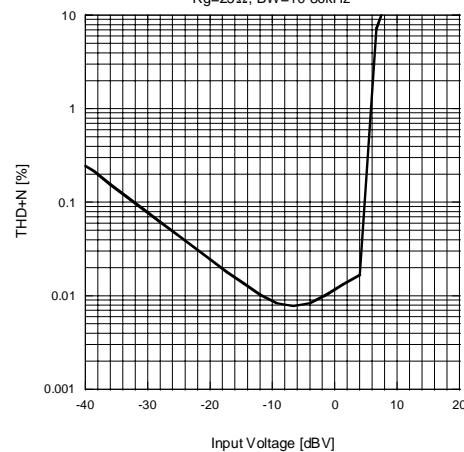
Rg=25Ω, BW=10-80kHz



**Total Harmonic Distortion vs. Input Voltage (3D Stereo)**

V+=12V, Vin=Lch, Vout=Lch, f=1kHz, RL=4.7kΩ

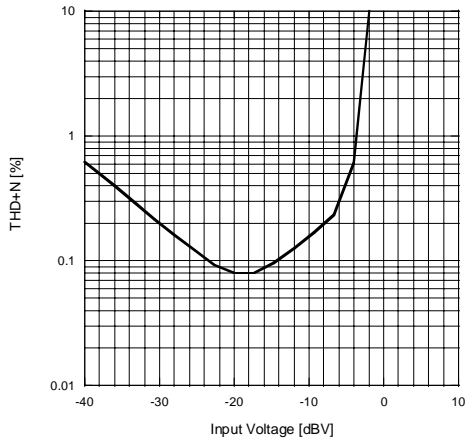
Rg=25Ω, BW=10-80kHz



## TYPICAL CHARACTERISTICS

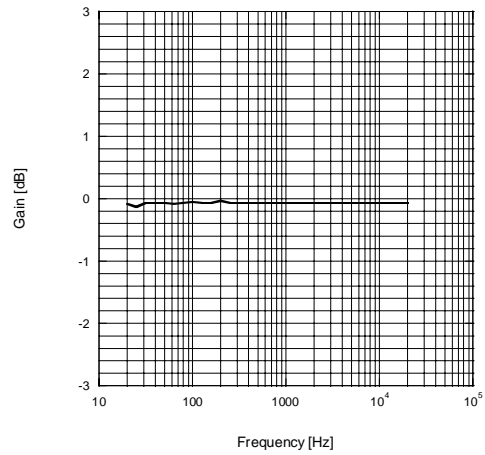
**Total Harmonic Distortion vs. Input Voltage (WOW)**

V+=12V, Vin=Lch, Vout=Lch, f=1kHz, RL=4.7kΩ  
Rg=25Ω, BW=10-80kHz



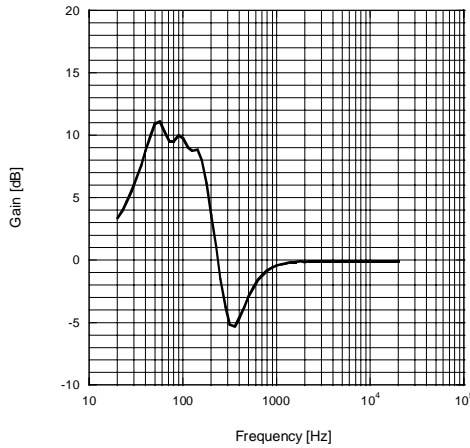
**Frequency Response (BYPASS)**

V+=12V, Vin=-10dBV Lch, Vout=Lch, RL=4.7kΩ  
Rg=25Ω



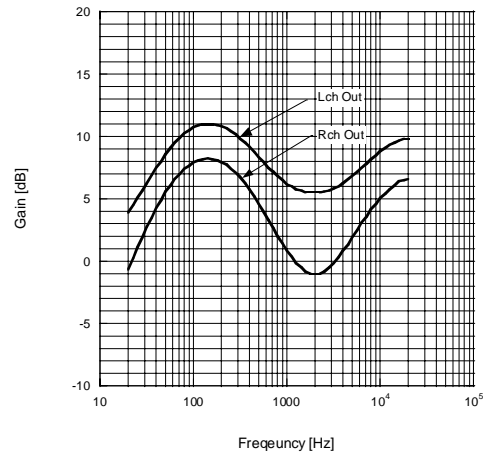
**Frequency Response (TruBass)**

V+=12V, Vin=-20dBV L+Rch, Vout=Lch, RL=4.7kΩ  
VR=ALLMAX, Medium Mode, Rg=25Ω



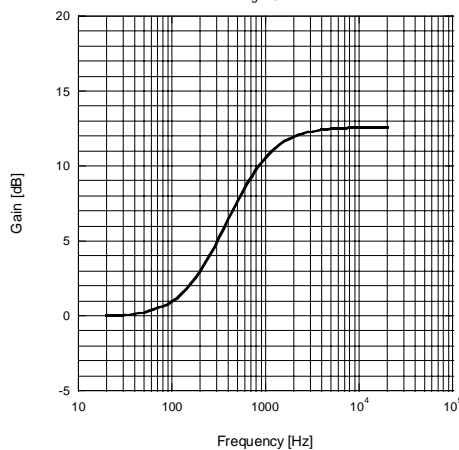
**Frequency Response (3D Stereo)**

V+=12V, Vin=-20dBV Lch, Vout=L/Rch, RL=4.7kΩ  
VR=ALLMAX, Rg=25Ω



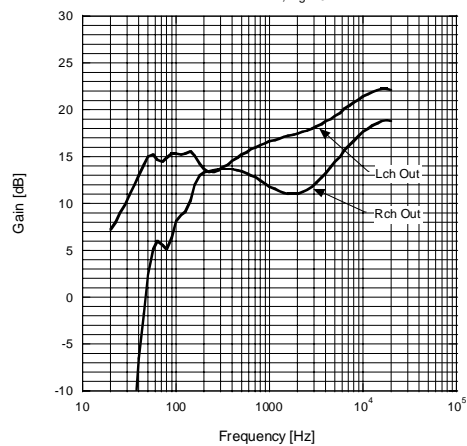
**Frequency Response (FOCUS)**

V+=12V, Vin=-20dBV Lch, Vout=Lch, RL=4.7kΩ  
Rg=25Ω



**Frequency Response (WOW)**

V+=12V, Vin=-20dBV Lch, Vout=L/Rch, RL=4.7kΩ  
VR=ALLMAX, Rg=25Ω



**[CAUTION]**  
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