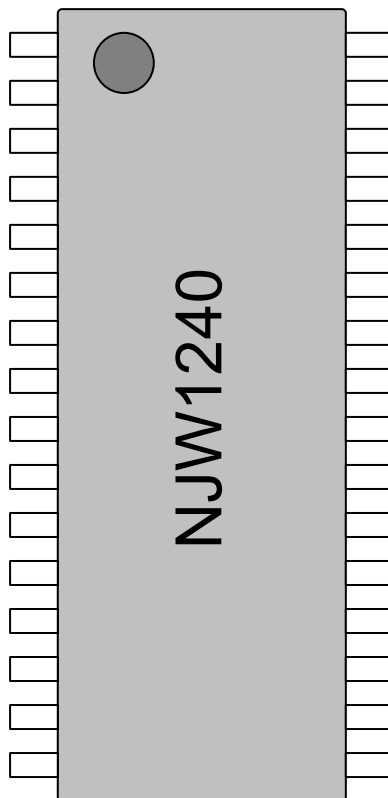




# NJW1240

## ■ PIN CONFIGURATION



No.	Symbol	Function	No.	Symbol	Function
1	IN1	Input 1	17	NC	No Connect
2	IN2	Input 2	18	FB	V- Power Supply External Setting
3	IN3	Input 3	19	CP	Flying Capacitor Positive Terminal
4	IN4	Input 4	20	NC	No Connect
5	IN5	Input 5	21	NC	No Connect
6	IN6	Input 6	22	GND	Ground
7	MUTE	MUTE / Pop Noise Suppression	23	CN	Flying Capacitor Negative Terminal
8	GAIN	Gain Select	24	MUTE_TC	Pop Noise Suppression Capacitor
9	V <sup>-</sup> IN	V- Power Input	25	V <sup>+</sup> A	V+ Power Supply for Analog
10	V <sup>-</sup> OUT	V- Power Output	26	GND	Ground
11	RegCNT	V- Power Control	27	OUT6	Output 6
12	NC	No Connect	28	OUT5	Output 5
13	NC	No Connect	29	OUT4	Output 4
14	CLK	External Clock Input	30	OUT3	Output 3
15	V <sup>+</sup> Reg	V+ Power Supply for Regulator	31	OUT2	Output 2
16	NC	No Connect	32	OUT1	Output 1

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

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V <sup>+</sup>	10.5	V
CLK Terminal Voltage	V <sub>CLK</sub>	-0.3~+6	V
V <sup>-</sup> Power Supply Control Voltage	V <sub>RegCNT</sub>	-0.3~+6	V
FB Terminal Voltage	V <sub>FB</sub>	(V <sub>OUT</sub> )+6	V
Maximum Input Voltage	V <sub>IN</sub>	V <sup>+</sup> +0.3	V
Power Dissipation	P <sub>D</sub>	905 <sup>(Note1)</sup>	mW
Operating Temperature Range	Topr	-40 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +125	°C

(Note1) EIA/JEDEC STANDARD Test board (76.2x114.3x1.6mm, 2layer, FR-4) mounting

## ■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V <sup>+</sup>		6	8	10	V
External Clock Input Range <sup>(Note2)</sup>	f <sub>CLK</sub>		150	-	1250	kHz
External Clock Duty Input Range	DUTY		45	-	80	%

(Note2) The regulator for V<sup>-</sup> power supply operates by the half of f<sub>CLK</sub>.

## ■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V<sup>+</sup>=8V, f=1kHz, Vin=0dBV, R<sub>L</sub>=47kΩ, GAIN=Low, MUTE=High, RegCNT=High unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>DD</sub>	No signal	-	12	20	mA
Voltage Gain1	G <sub>V1</sub>		5.5	6.0	6.5	dB
Voltage Gain2	G <sub>V2</sub>	GAIN=High	7.8	8.3	8.8	dB
Maximum Output Voltage	V <sub>OMAX</sub>	THD=1%	5	-	-	V <sub>rms</sub>
Mute Level	V <sub>MUTE</sub>	MUTE=Low	-	-100	-80	dB
Output Noise Voltage	V <sub>NO</sub>	Rg=0Ω, A=Weighted	-	-102 (7.94)	-	dBV (μV)
Total Harmonic Distortion	THD	BW:400Hz-22kHz	-	0.0008	-	%
Channel Separation	CS	Rg=600Ω	80	-	-	dB
Internal Oscillating Frequency	f <sub>OSC</sub>	f <sub>CLK</sub> =No signal	-	300	-	kHz
Output Offset Voltage	V <sub>OS</sub>	Rg=0Ω	-	-	8	mV

## ■ CONTROL CHARACTERISTICS

(Ta=25°C, V<sup>+</sup>=8V, f=1kHz, Vin=0dBV, R<sub>L</sub>=47kΩ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Mute Terminal High	Mute <sub>H</sub>	MUTE OFF	2.3	-	V <sup>+</sup>	V
Mute Terminal Low	Mute <sub>L</sub>	MUTE ON	0	-	0.7	V
Gain Terminal High	Gain <sub>H</sub>	Gv=8.3dB	2.3	-	V <sup>+</sup>	V
Gain Terminal Low	Gain <sub>L</sub>	Gv=6dB	0	-	0.7	V
CLK Terminal High	CLK <sub>H</sub>		2.3	-	5.5	V
CLK Terminal Low	CLK <sub>L</sub>		0	-	0.7	V

## ■ TERMINAL DESCRIPTION

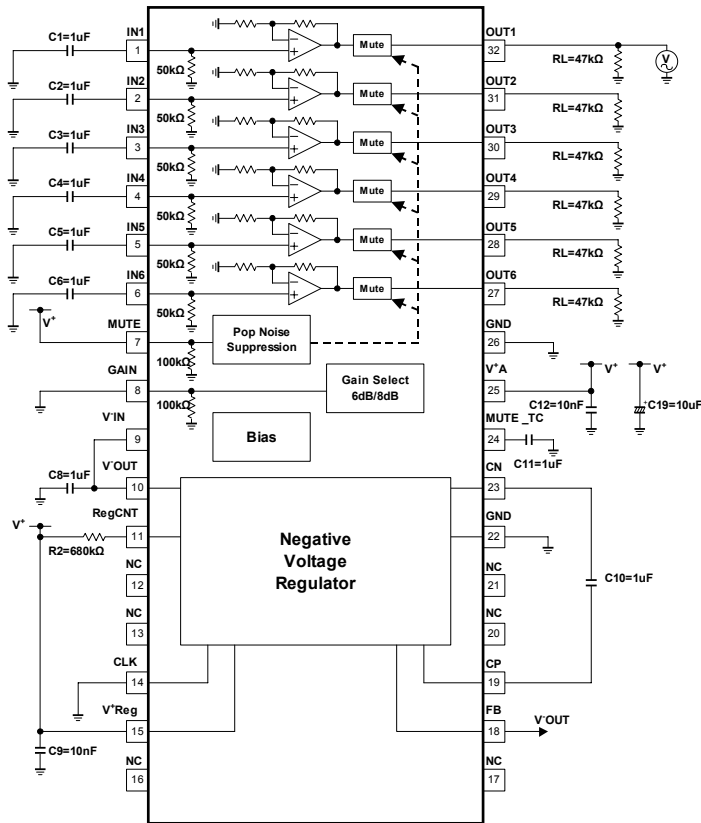
Terminal	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1 2 3 4 5 6	IN1 IN2 IN3 IN4 IN5 IN6	INPUT1 INPUT2 INPUT3 INPUT4 INPUT5 INPUT6		0V
7 8	MUTE GAIN	MUTE/Pop Noise Suppression Gain Select		0V
11	RegCNT	V- Power Control		0V
14	CLK	External Clock Input		0V
18	FB	V- Power Supply External Setting		-

## ■ TERMINAL DESCRIPTION

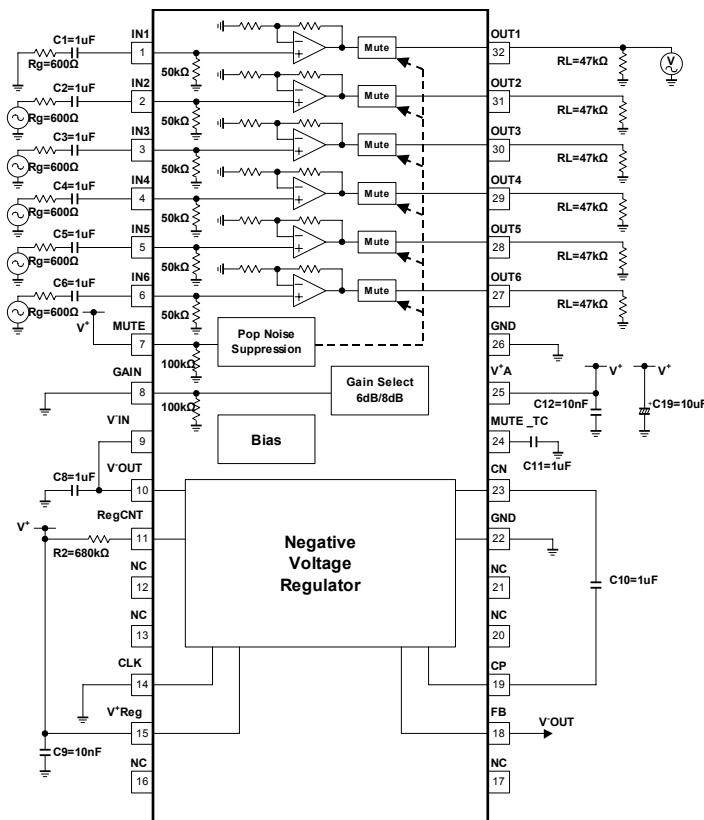
Terminal	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
19	CP	Flying Capacitor Positive Terminal		-
23	CN	Flying Capacitor Negative Terminal		-
24	MUTE_TC	Pop Noise Suppression Capacitor		0V
27 28 29 30 31 32	OUT6 OUT5 OUT4 OUT3 OUT2 OUT1	Output6 Output5 Output4 Output3 Output2 Output1		0V



## TEST CIRCUIT (V<sub>NO</sub>)

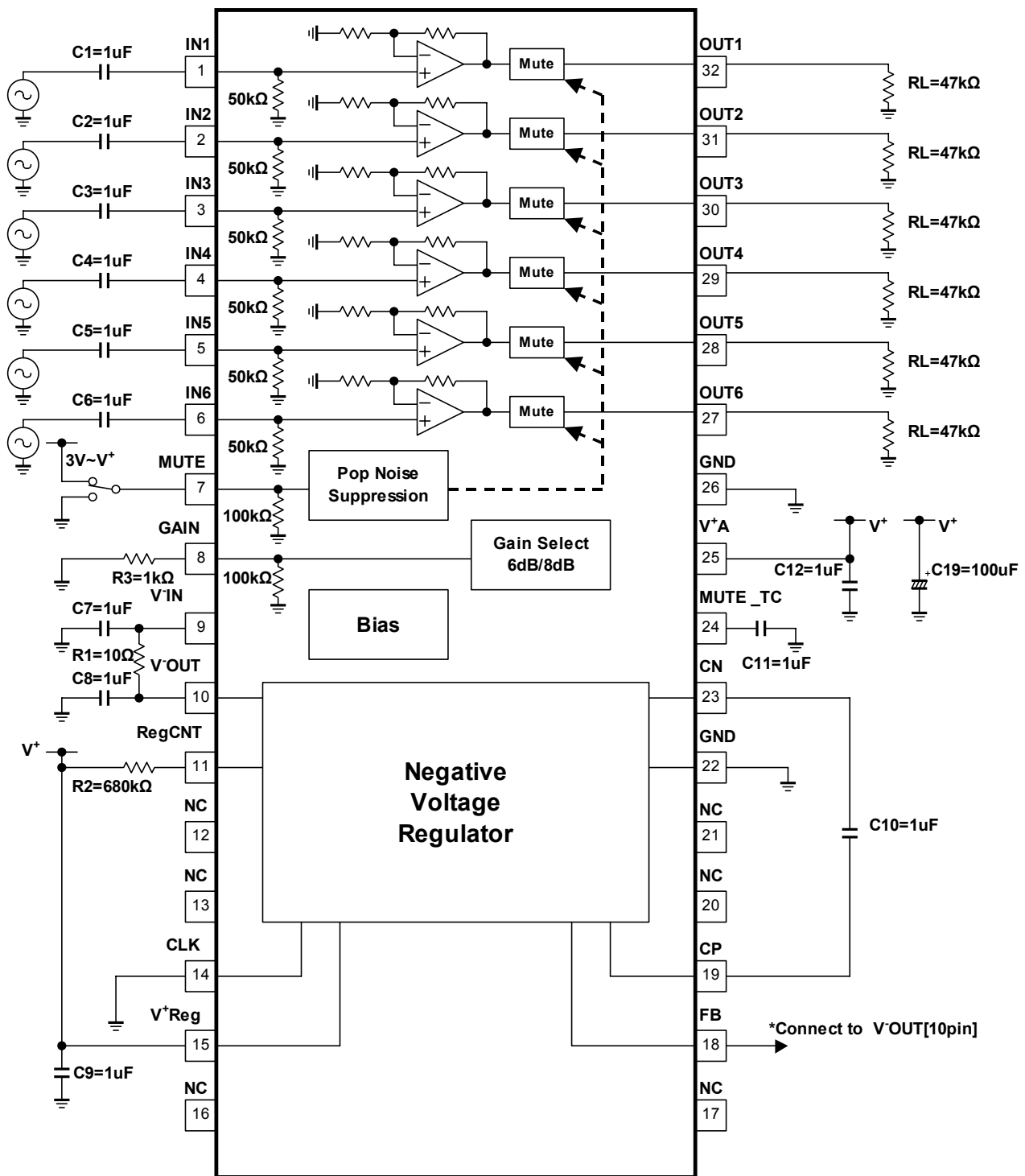


## TEST CIRCUIT (CS)



# NJW1240

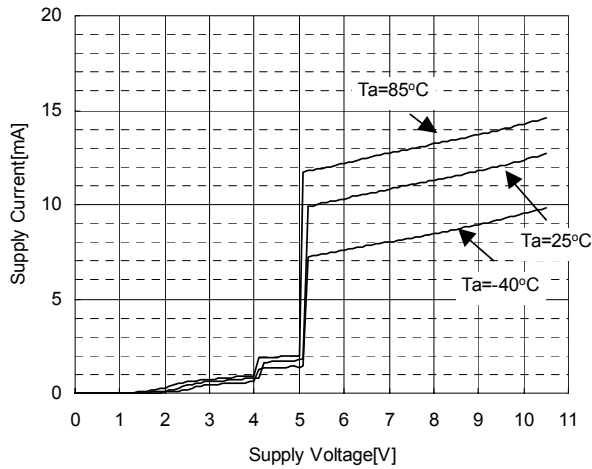
## APPLICATION CIRCUIT



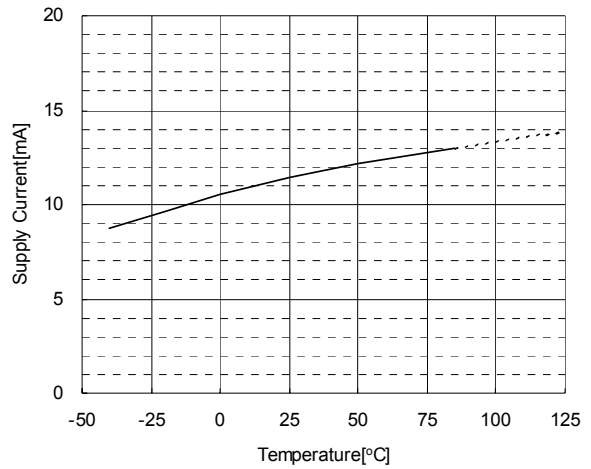


## TYPICAL CHARACTERISTICS

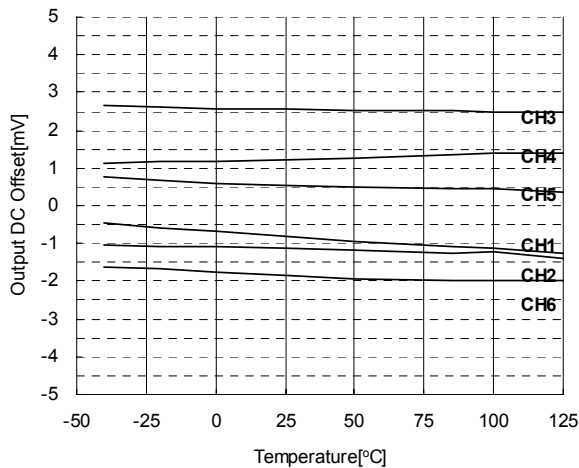
Supply Current vs Supply Voltage  
 RL=NoLoad, MUTE=H, GAIN=L



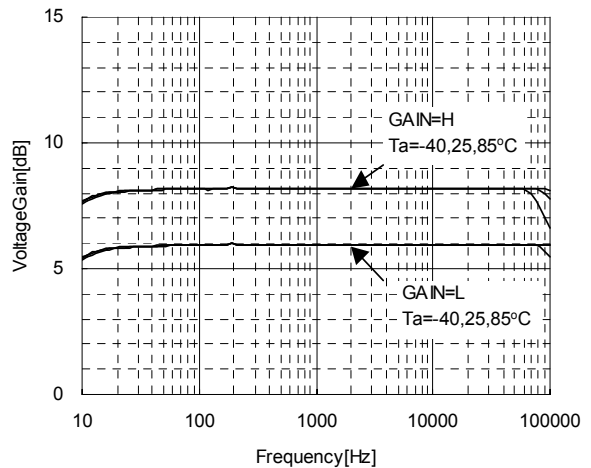
Supply Current vs Temperature  
 V+=8V, RL=NoLoad, MUTE=H, GAIN=L



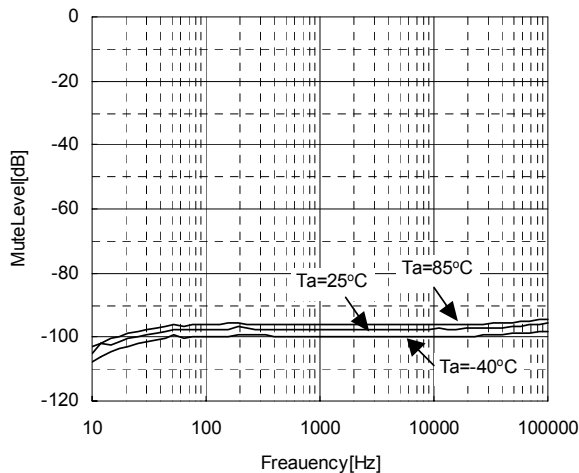
Output DC Offset vs Temperature  
 V+=8V, Vin=NoSignal, RL=47kΩ  
 MUTE=H, GAIN=L



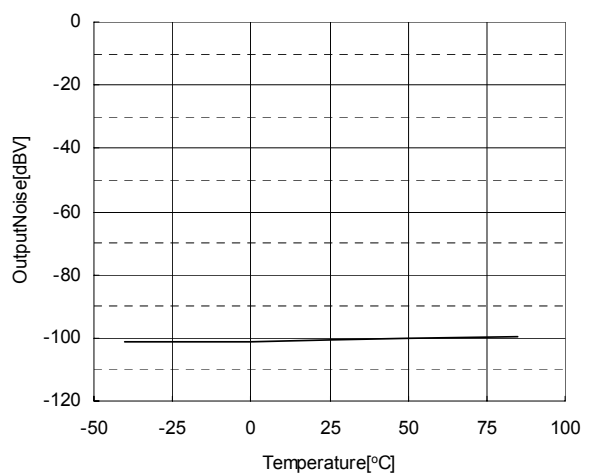
Voltage Gain vs Frequency  
 V+=8V, Vin=0dBV, RL=47kΩ, MUTE=H



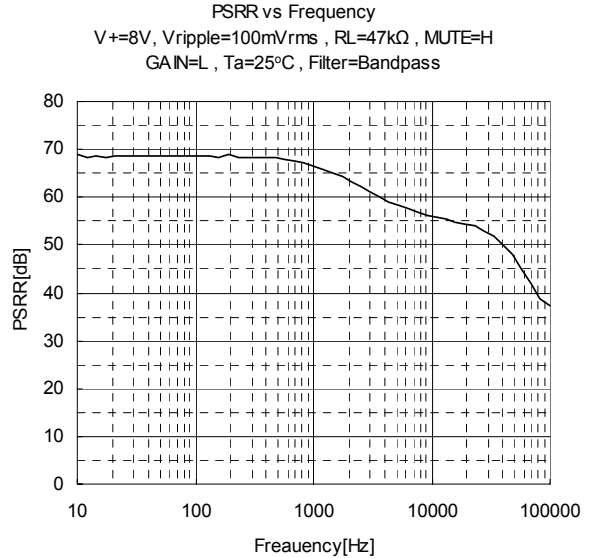
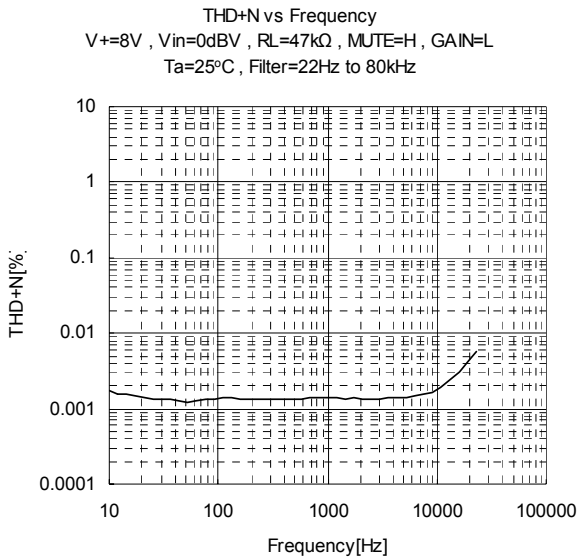
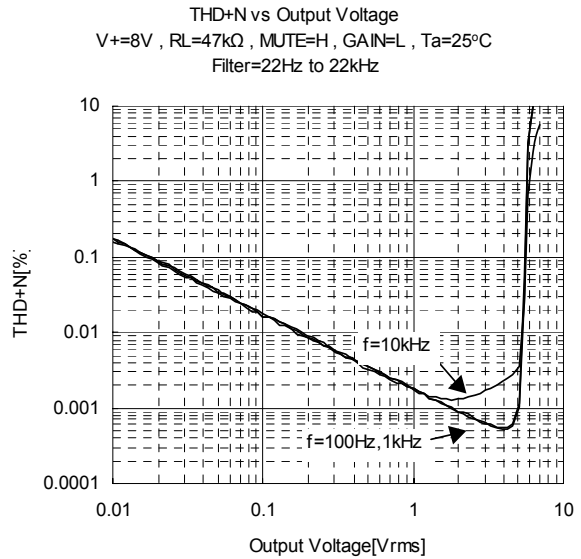
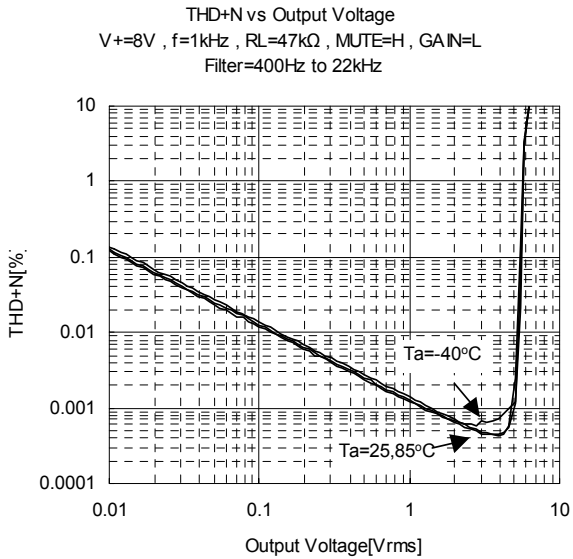
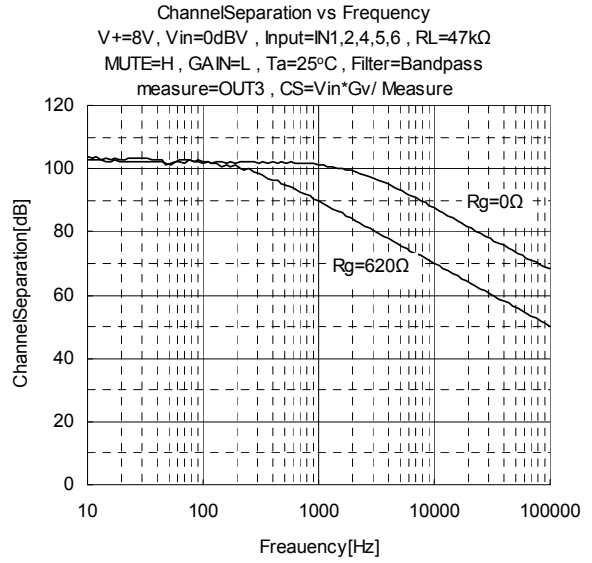
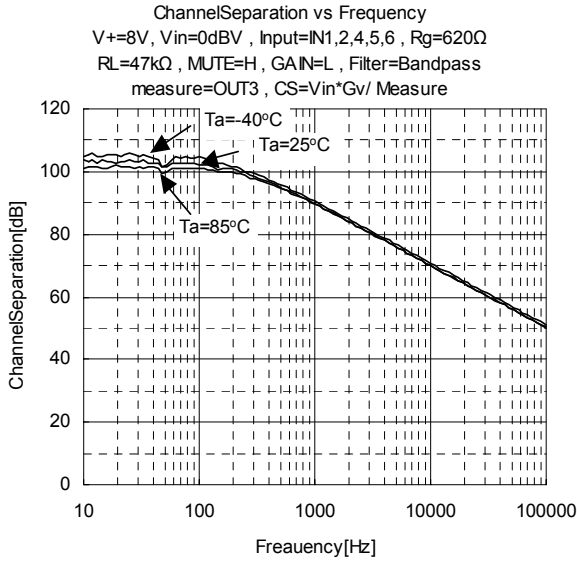
MuteLevel vs Frequency  
 V+=8V, RL=47kΩ, MUTE=L, GAIN=L  
 Filter=Bandpass



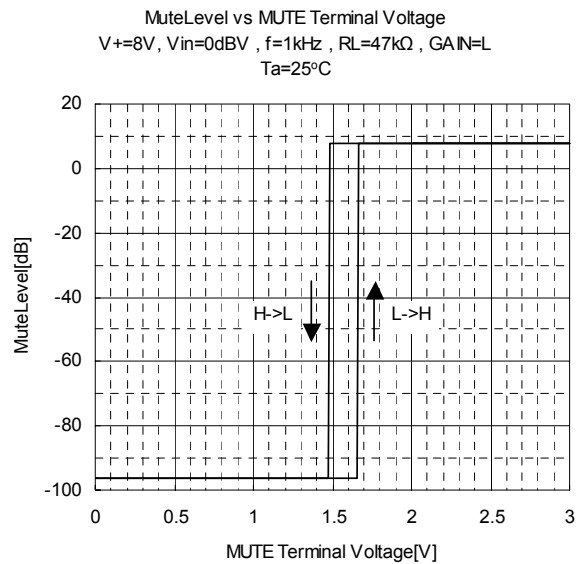
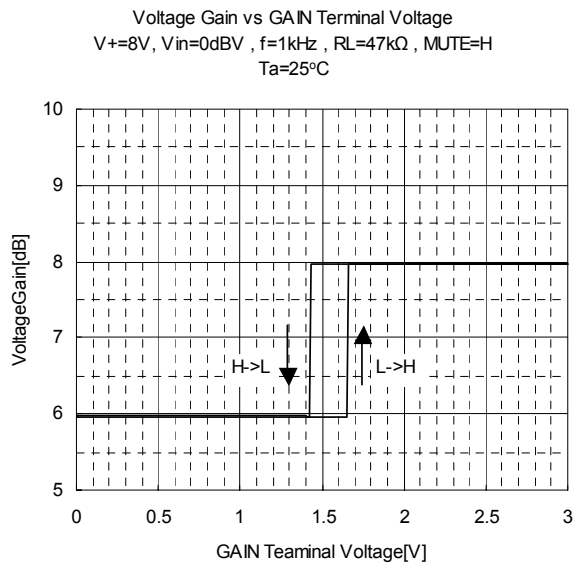
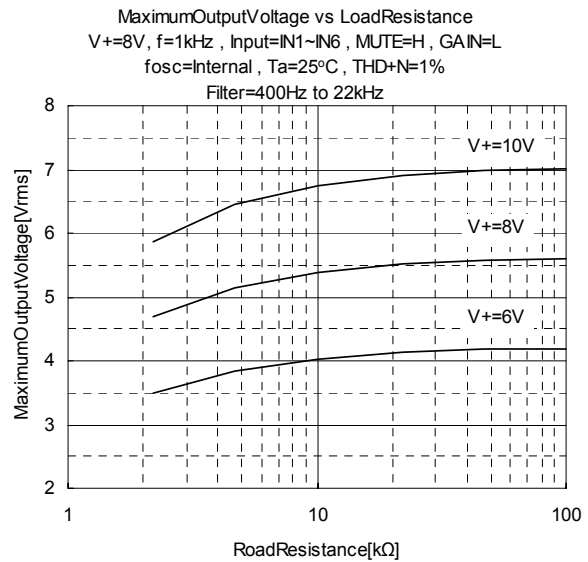
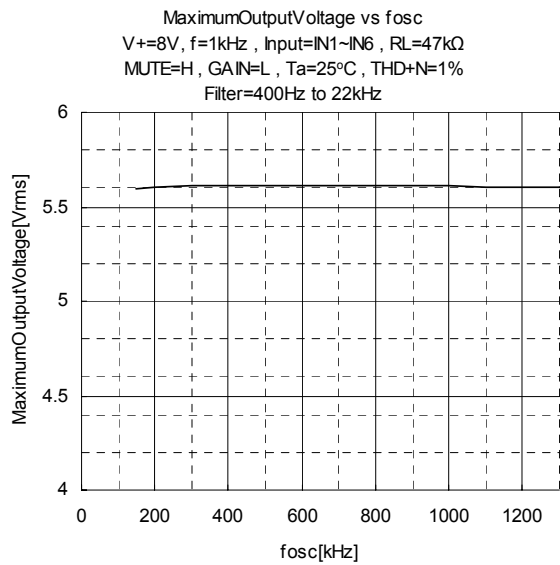
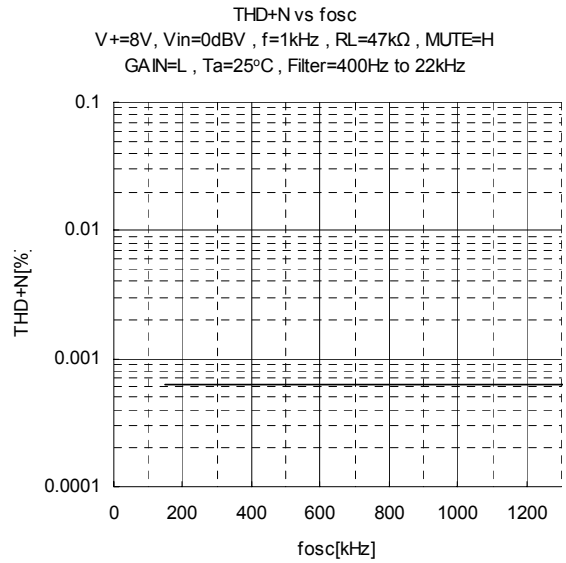
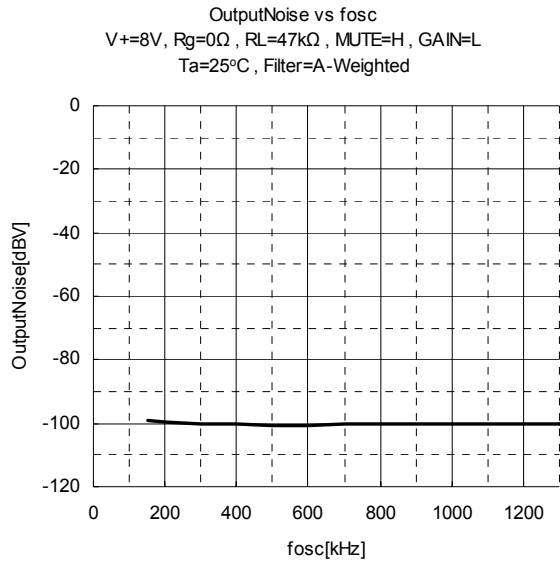
Output Noise vs Temperature  
 V+=8V, Rg=0Ω, RL=47kΩ, MUTE=H, GAIN=L  
 Filter=A-weighted



## TYPICAL CHARACTERISTICS



## TYPICAL CHARACTERISTICS



[CAUTION]

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