

NJM2701

■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	14	V
Power Dissipation	P _D	(DIP14) 500 (DMP14) 350	mW
Operating Temperature Range	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{stg}	-40 to +125	°C

■ OPERATING VOLTAGE

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺	-	4.7	12.0	13.0	V

■ELECTRICAL CHARACTERISTICS (V+=12V, Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION					MIN.	TYP.	MAX.	UNIT	
		INPUT		OUTPUT	MODE	VR					
		L	R								
Operating Current	I _{cc}	No Signal	0	0	-	BYPASS	-	2.9	5.7	8.6	mA
			0	0	-	Stereo	MAX	2.9	5.8	8.7	
			0	0	-	Mono	-	3.0	5.9	8.9	

●AC CHARACTERISTICS

(V+=12V, Ta=25°C, V_{IN}=-10dBV(316mVrms), f=1kHz, RL=4.7kΩ, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Maximum Input Voltage	V _{IM}	f=1kHz T.H.D.=3%	V _{IN} 0	0 V _{IN}	L R	BYPASS	-	9.9 (3.1)	11.9 (3.9)	-	dBV (Vrms)
		f=100Hz T.H.D.=3%	V _{IN} 0	0 V _{IN}	L R	Stereo	MAX	-3.8 (0.6)	-1.8 (0.8)	-	
		f=1kHz T.H.D.=3%	V _{IN} V _{IN}	0 0	L R	Mono	-	6.9 (2.2)	8.9 (2.8)	-	
Output Noise	V _{NO}	R _g =0Ω A-Weighted	0	0	L R	BYPASS	-	-	-112 (2.5)	-106 (5.0)	dBV (μVrms)
		R _g =0Ω A-Weighted	0	0	L R	Stereo	MAX	-	-100 (10)	-94 (20)	
		R _g =0Ω A-Weighted	0	0	L R	Mono	-	-	-103 (7.1)	-97 (14.1)	

● AC CHARACTERISTICS

($V_+ = 12V, T_a = 25^\circ C, V_{IN} = -10dBV(316mV_{rms}), f = 1kHz, R_L = 4.7k\Omega$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
Total Harmonic Distortion	T.H.D	f=1kHz	V_{IN} 0	0 V_{IN}	L R	BYPASS	-	-	0.005	0.01	%
		f=1kHz $V_{in} = -20dBV$	V_{IN} 0	0 V_{IN}	L R	Stereo	MAX	-	0.1	0.5	
		f=1kHz	V_{IN} V_{IN}	0 0	L R	Mono	-	-	0.1	0.5	
Bypass Gain	G_{VBYP}	f=1kHz	V_{IN} 0	0 V_{IN}	L R	BYPASS	-	-1.0	0.0	1.0	dB
Surround Gain	G_{VSUR}	f=100Hz $V_{in} = -20dBV$	V_{IN} 0	0 V_{IN}	L R	Stereo	MAX	10.7	12.7	14.7	dB
		f=100Hz $V_{in} = -20dBV$	0 V_{IN}	V_{IN} 0	L R	Stereo	MAX	8.4	10.4	12.4	
		f=100Hz $V_{in} = -20dBV$	V_{IN} 0	0 V_{IN}	L R	Stereo	MIN	3.6	5.6	7.6	
		f=1kHz	V_{IN} V_{IN}	0 0	L R	Mono	-	1.0	3.0	5.0	

● CONTROL CHARACTERISTICS ($V_+ = 12V, T_a = 25^\circ C$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION						MIN.	TYP.	MAX.	UNIT
		INPUT		OUTPUT	MODE	VR					
		L	R								
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	SW1	SW2	NOTES
BYPASS	L	-	Input Through
Stereo	H	L	Surround Mode (Stereo Input)
Mono	H	H	Surround Mode (Mono Input)

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■ TERMINAL DESCRIPTION

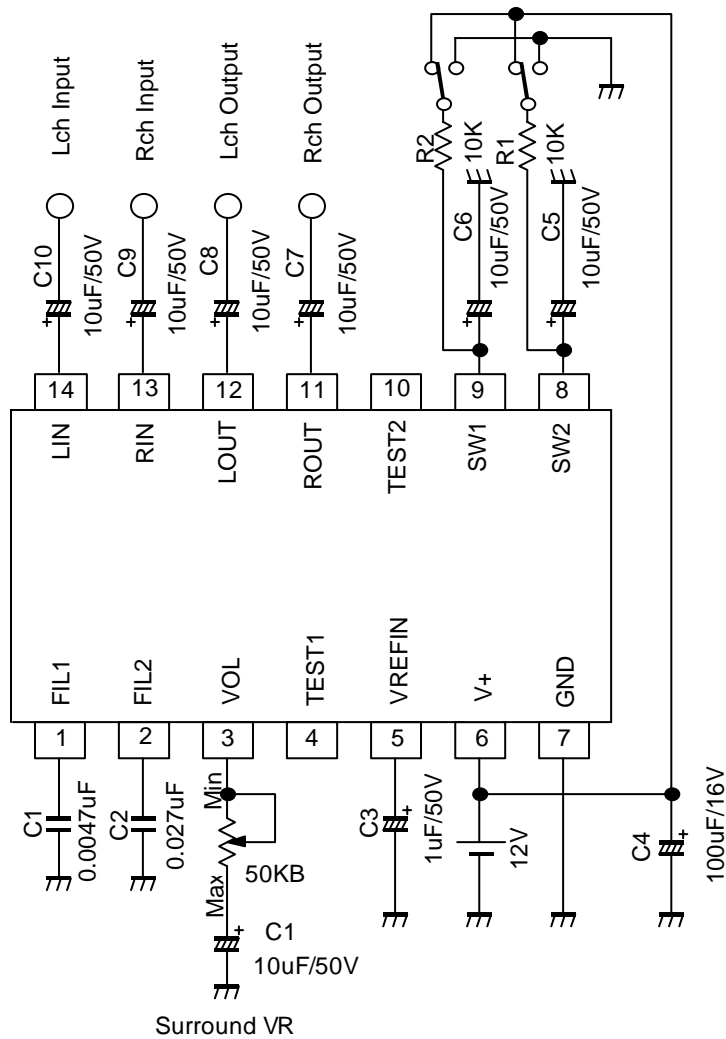
PIN NO.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1	FIL1	Filter Input		$V+/2$
2	FIL2	Filter Input		$V+/2$
3	VOL	Surround VR		$V+/2$
4 10	TEST1 TEST2	Test pin		$V+/2$

PIN NO.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
5	VREFIN	Reference Voltage Input		$V+/2$
6	V+	Power Supply		$V+$
7	GND	GND		0V
8 9	SW2 SW1	Mode Control Switch		0V

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PIN NO.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
11 12	ROUT LOUT	Rch Output Lch Output		$V+/2$
13 14	RIN LIN	Rch Input Lch Input		$V+/2$

APPLICATION CIRCUIT



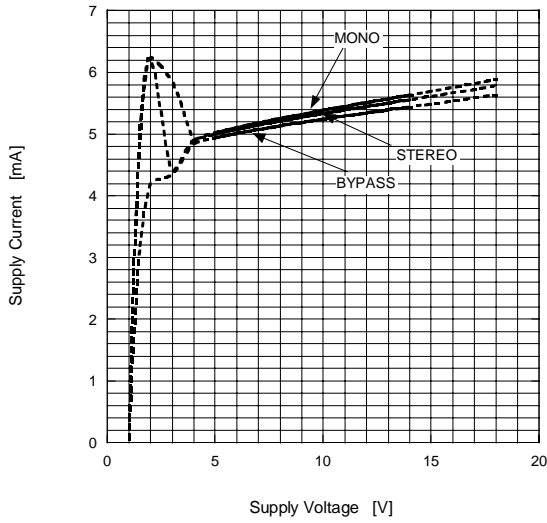
Note) In case of monaural mode (mono to stereo synthesis), input monaural signal into left channel input terminal (LIN).

Parts No.	Value	Tolerance	Parts No.	Value	Tolerance
R1,R2	10kΩ	5%	C3	1µF	20%
C1	0.0047µF	5%	C4	100µF	20%
C2	0.027µF	5%	C5,C6,C7,C8,C9,C10,C11	10µF	20%

TYPICAL CHARACTERISTICS

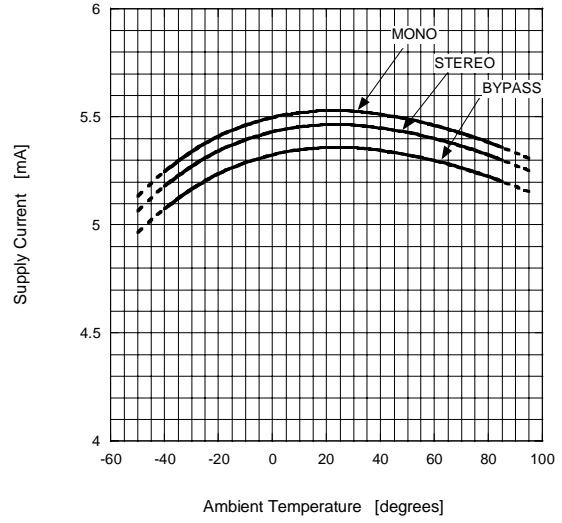
Supply Current vs Supply Voltage

V₊=1 to 18V Ta=25degrees



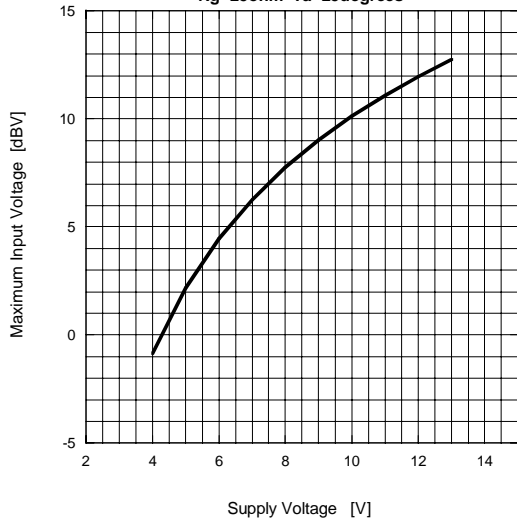
Supply Current vs Ambient Temperature

V₊=12V



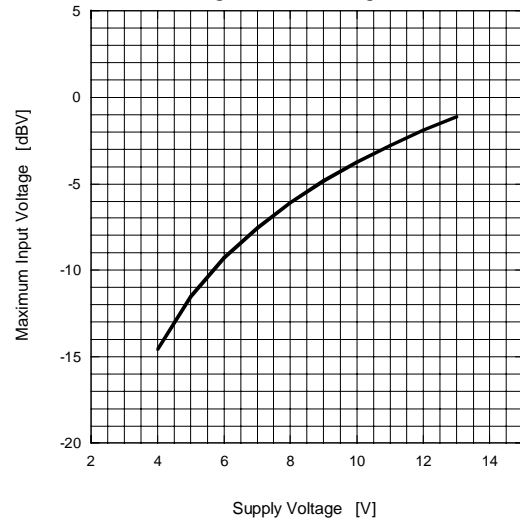
Maximum Input Voltage vs Supply Voltage (BYPASS)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees



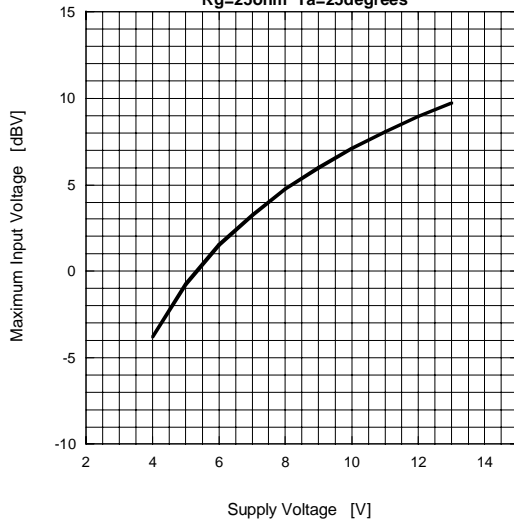
Maximum Input Voltage vs Supply Voltage (STEREO)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees



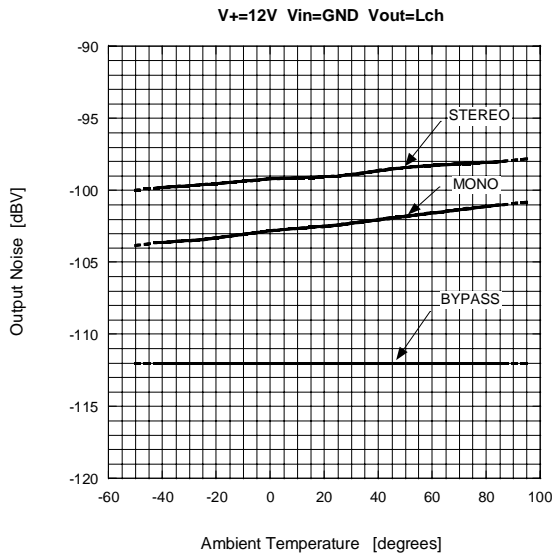
Maximum Input Voltage vs Supply Voltage (MONO)

Vin=Lch Vout=Lch f=1KHz RL=47Kohm
Rg=25ohm Ta=25degrees

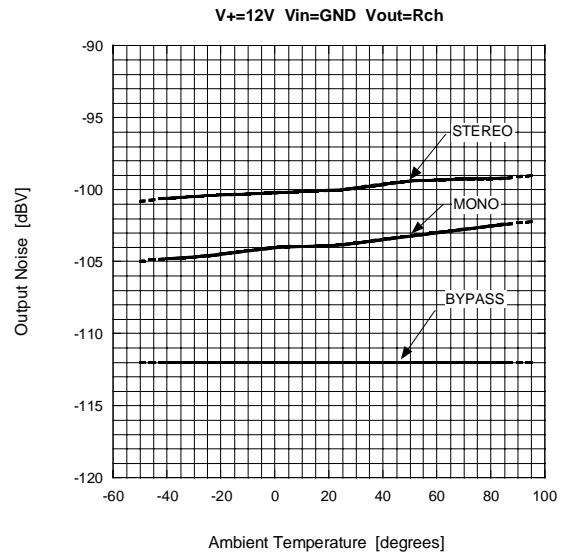


TYPICAL CHARACTERISTICS

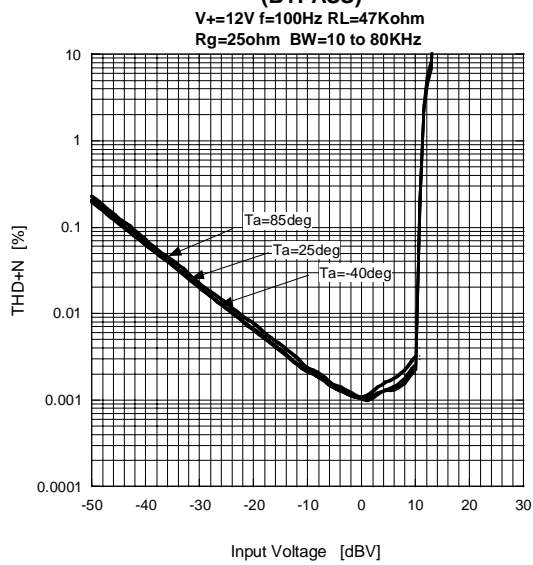
Output Noise vs Ambient Temperature



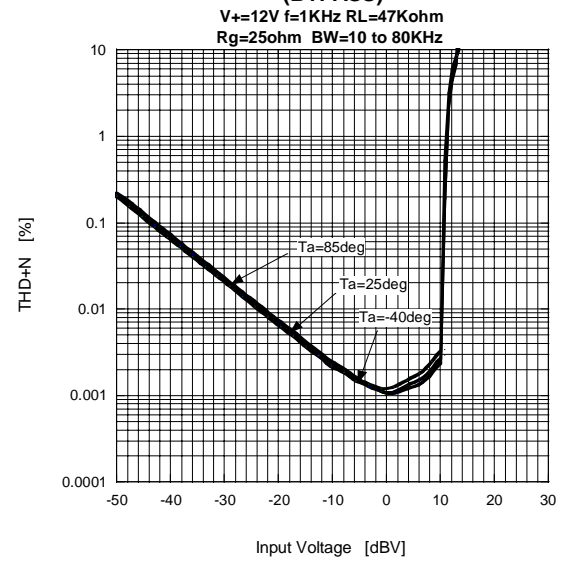
Output Noise vs Ambient Temperature



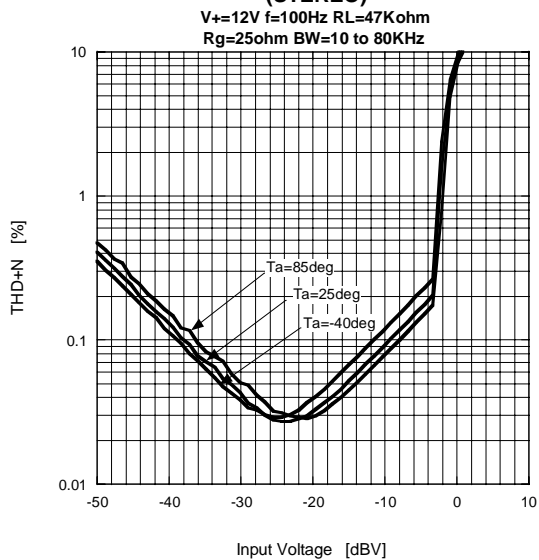
Total Harmonic Distortion vs Input Voltage (BYPASS)



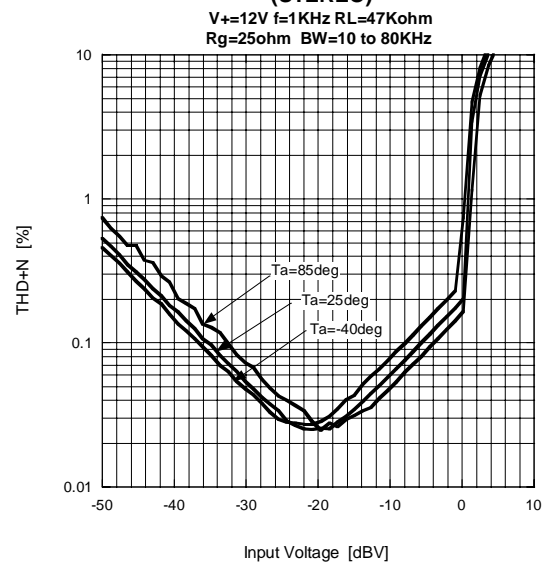
Total Harmonic Distortion vs Input Voltage (BYPASS)



Total Harmonic Distortion vs Input Voltage (STEREO)

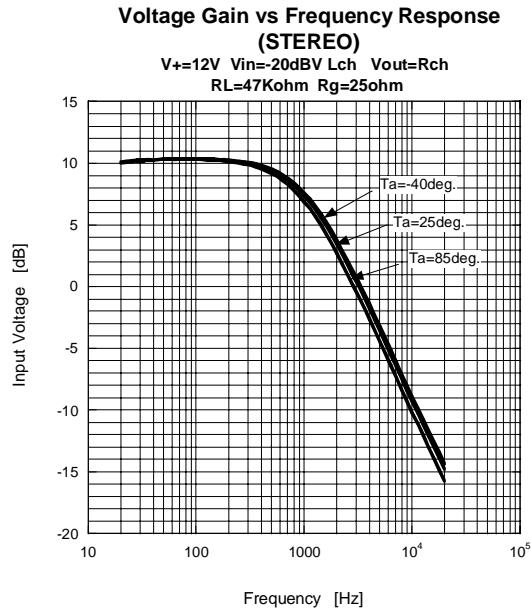
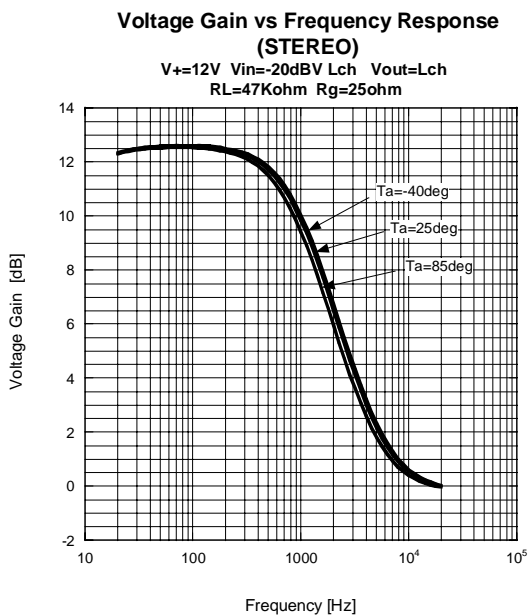
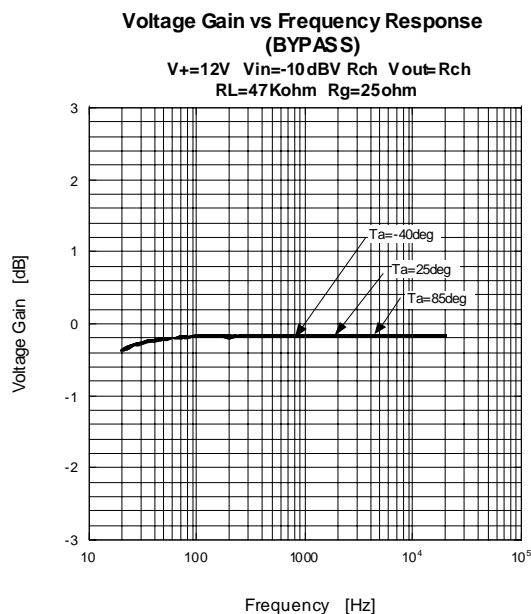
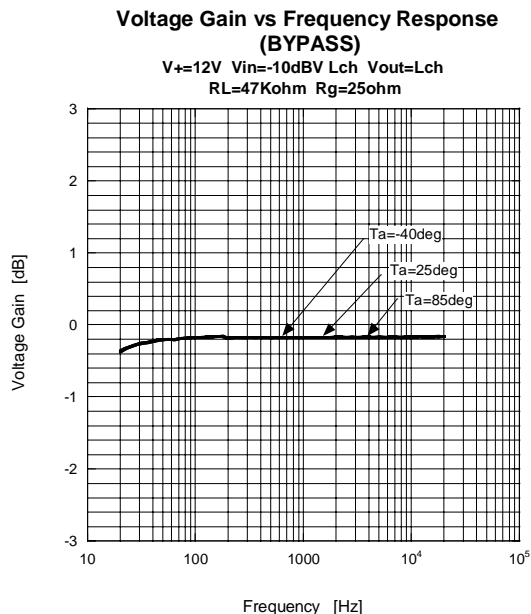
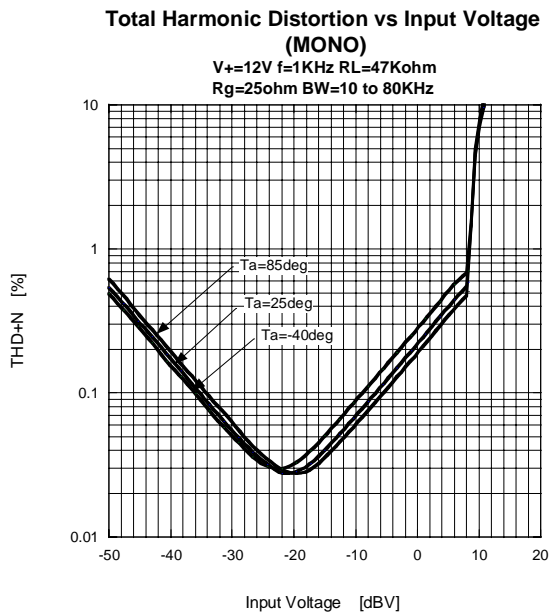
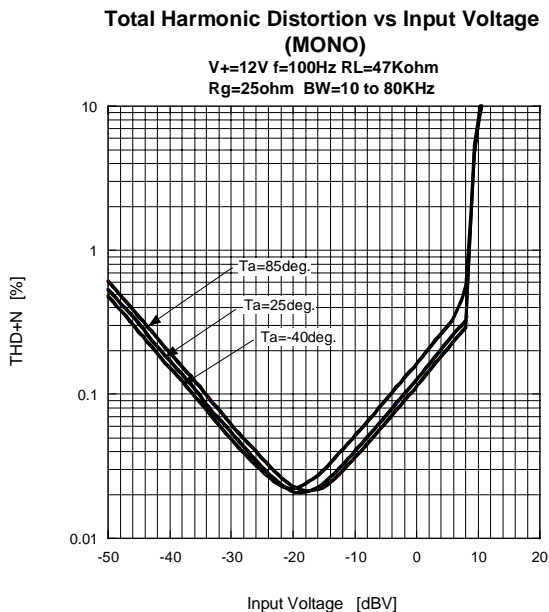


Total Harmonic Distortion vs Input Voltage (STEREO)



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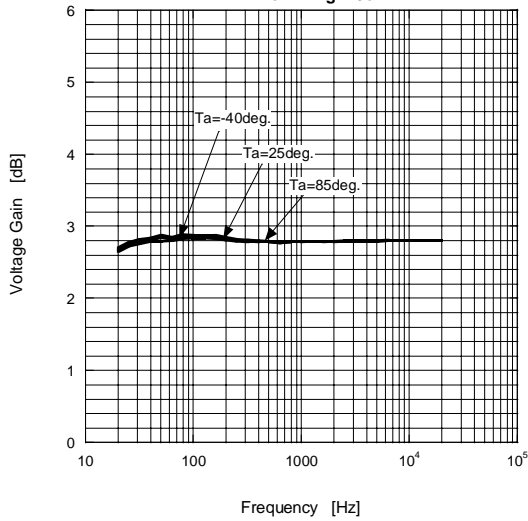
TYPICAL CHARACTERISTICS



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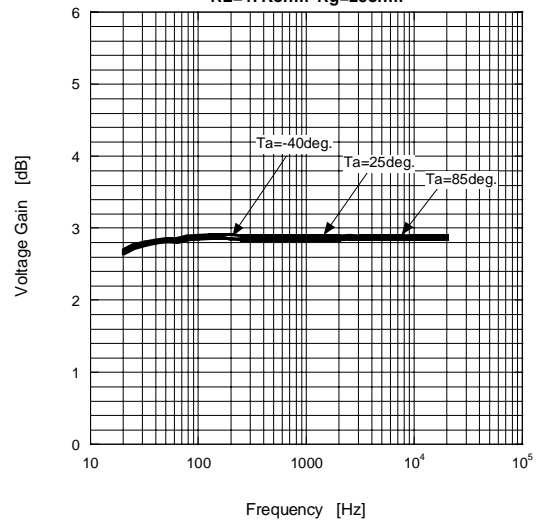
Voltage Gain vs Frequency Response (MONO)

V+=12V Vin=-10dBV Lch Vout=Lch
RL=47Kohm Rg=25ohm



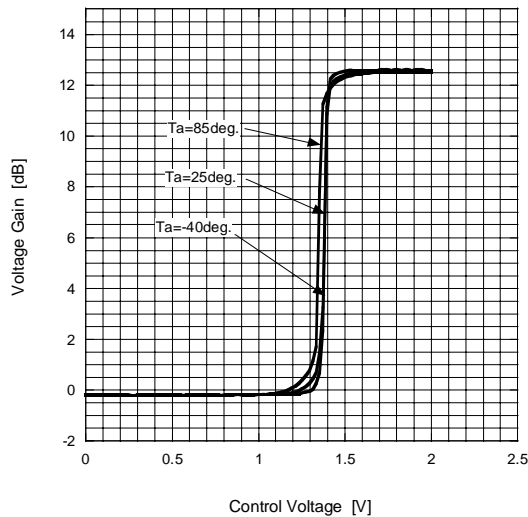
Voltage Gain vs Frequency Response (MONO)

V+=12V Vin=-10dBV Lch Vout=Rch
RL=47Kohm Rg=25ohm



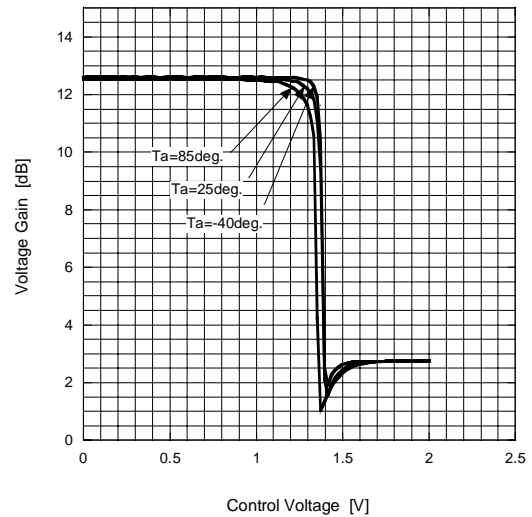
Voltage Gain vs SW1 Control Voltage

V+=12V Vin=-10dBV Lch f=100Hz Vout=Lch
BYPASS -> STEREO



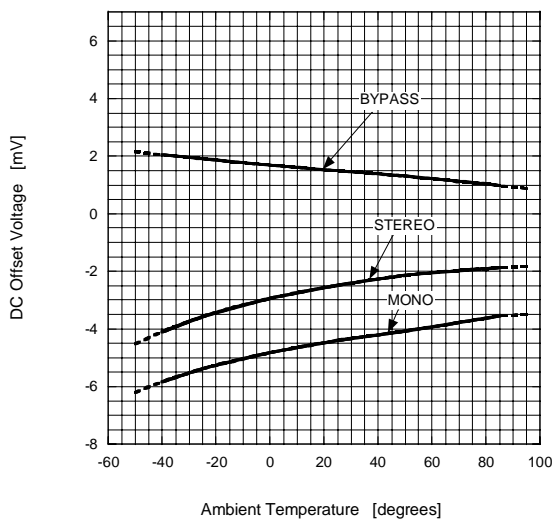
Voltage Gain vs SW2 Control Voltage

V+=12V Vin=-10dBV Lch f=100Hz Vout=Lch
STEREO -> MONO



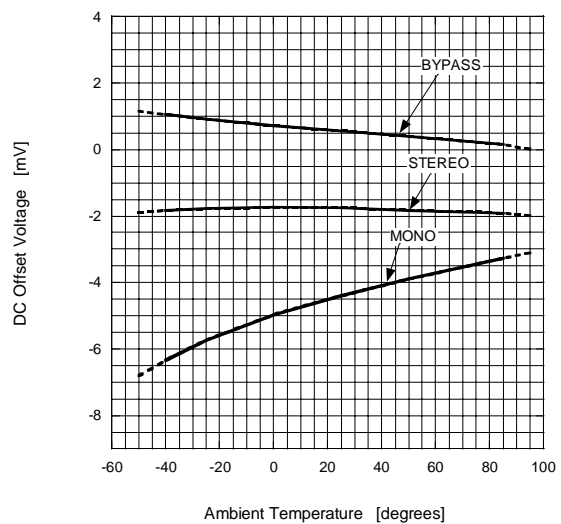
DC Offset Voltage vs Ambient Temperature

V+=12V Vout=Lch



DC Offset Voltage vs Ambient Temperature

V+=12V Vout=Rch



[CAUTION]

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