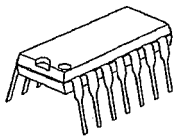
AUDIO FILTER AMPLIFIER

■ GENERAL DESCRIPTION

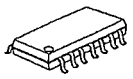
The NJM2133 is a dual audio filter amplifier for digital audio. It includes two-channel voltage follower, capacitors, and resistors for Low Pass Filter. It also includes standby function which applies to low consumption power design.

It is suitable for CD , CD-ROM , DVD , and any other digital audio equipments.

■ PACKAGE OUTLINE



NJM2133D



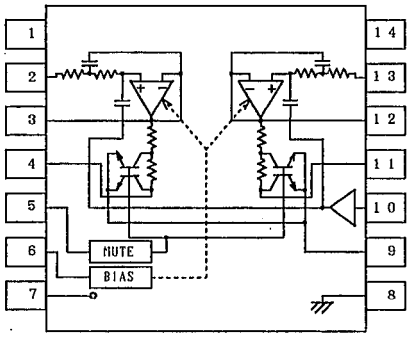
NJM2133M

NJM2133V

■ FEATURES

- Single Supply
- Operating Voltage (V^+=4.5～5.5V)
- Internal voltage follower (Two channels)
- Internal C and R for LPF
- Standby Function
- Mute Function
- High S/N Retio (86dB typ.)
- Bipolar Technology
- Package Outline DIP14, DMP14, SSOP14

■ PIN CONFIGURATION



NJM2133D
NJM2133M
NJM2133V

PIN FUNCTION

1:NC	8:GND
2:IN1	9:REF2
3:OUT1	10:REF1
4:MUTE1	11:MUTE 2
5:MUTE	12:OUT2
6:STANDBY	13:IN2
7:V^+	14:NC

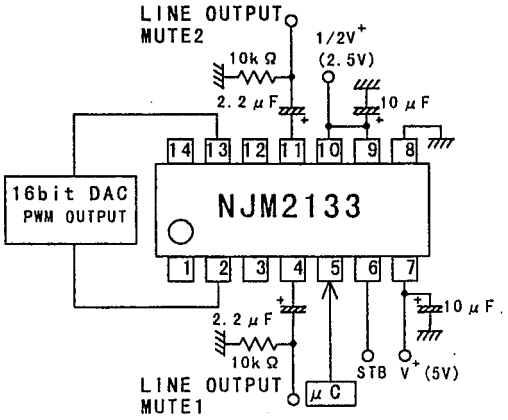
■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	12	V
Power Dissipation	P_D	(DIP8) 700 (DMP8) 300 (SSOP8) 300	mW
Operating Temperature Range	T_{opr}	-25～+75	℃
Storage Temperature Range	T_{stg}	-40～+125	℃

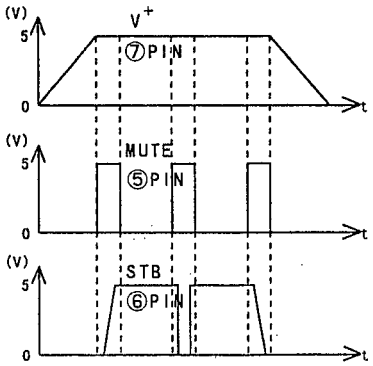
■ ELECTRICAL CHARACTERISTICS (V^+=5V, f=1kHz, Vi=1.0Vrms, Vref1=2.5V, Vref2=2.5V, RL=10kΩ, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	Icc1		—	4.0	6.0	mA
Standby Operating Current	Icc2	6pin=GND	—	1	—	mA
Voltage Gain1	Gv1		-1.0	0	1.0	dB
Voltage gain2	ΔGv2	f=20kHz, Difference from Gv1	-0.5	0	0.5	dB
Voltage Gain3	Gv3	f=80kHz	—	-3	—	dB
Channel Balance	ΔGv1	at Gv1	-0.5	0	0.5	dB
Total Harmonic Distortion	THD	Vo=0.2Vrms	—	0.015	0.05	%
S/N Ratio	S/N	BW=20~20kHz, Rg=0Ω Vi=1.0Vrms reference	80	86	—	dB
Channel Separation	CS	Measuring CH:no signal, BW=20~20kHz Other CH:Vi=1.0Vrms	74	80	—	dB
Mute Attenuation	ATT	Vi=1.0Vrms, 5pin=V^+, 6pin=GND	70	90	—	dB
Output Offset Voltage Drift	Voff	at Mute ON/OFF	-10	0	10	mV
Mute Voltage	Vmute	5pin, at Mute	3.5	—	—	V
Standby Voltage	Vstb	6pin, at Standby	—	—	1.0	V

■ APPLICATION CIRCUIT



■ POWER ON TIMING CHART



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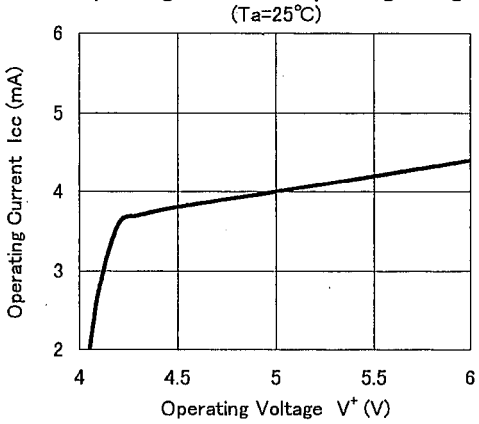
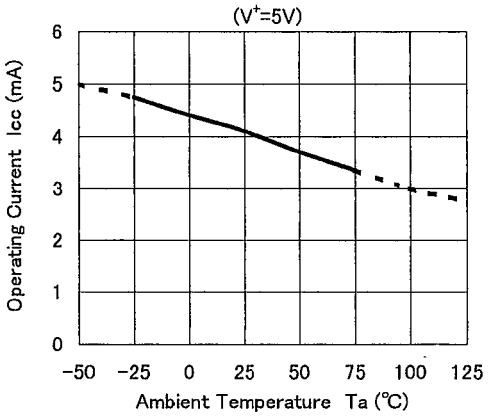
■ TYPICAL CHARACTERISTICS

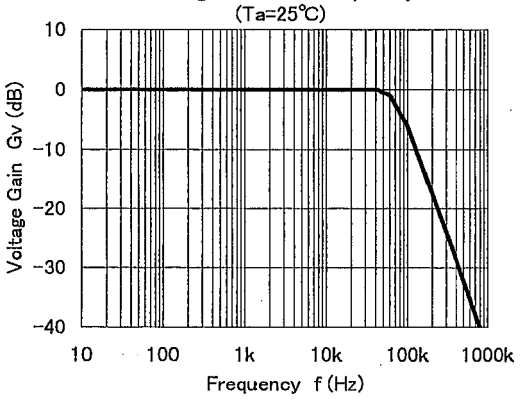
Operating Current vs. Operating Voltage
(Ta=25°C)



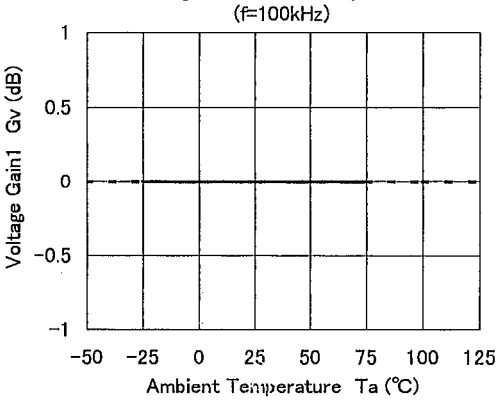
Operating Current vs. Temperature
(V^+=5V)



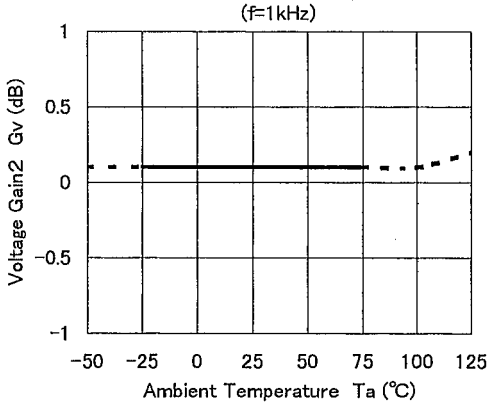
Voltage Gain vs. Frequency
(Ta=25°C)



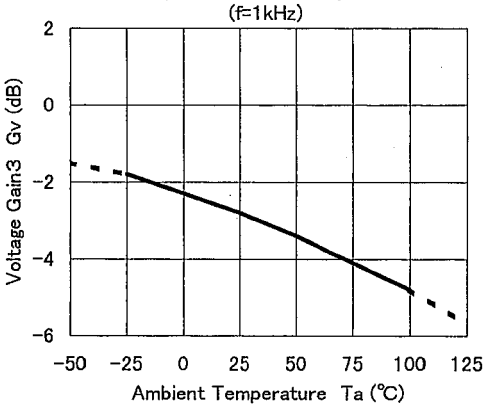
Voltage Gain1 vs. Temperature
(f=100kHz)



Voltage Gain2 vs. Temperature
(f=1kHz)



Voltage Gain3 vs. Temperature
(f=1kHz)



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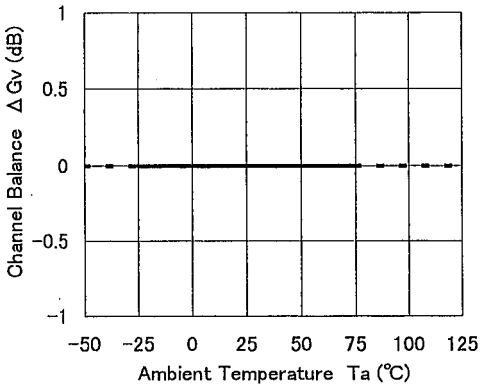
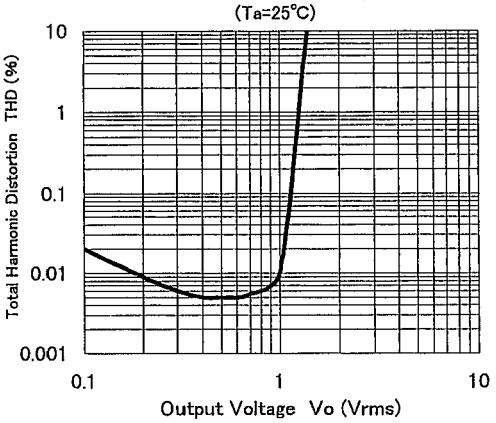
■ TYPICAL CHARACTERISTICS

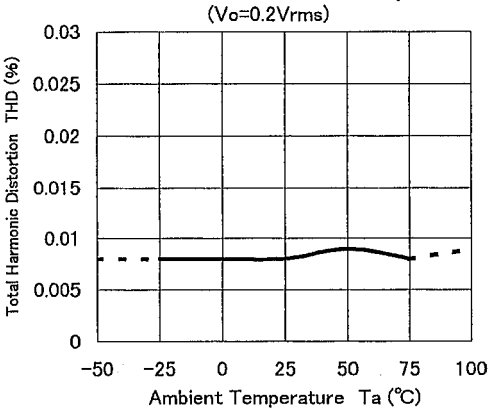
Channel Balance vs. Temperature
(f=1kHz)



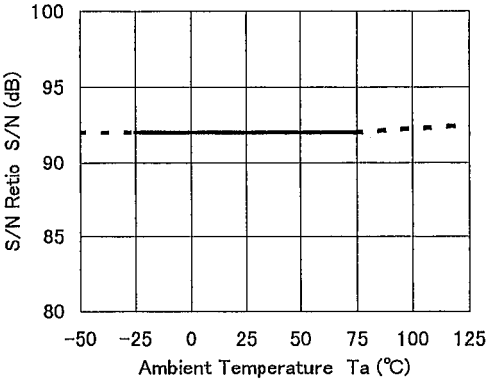
Total Harmonic Distortion vs. Output Voltage
(Ta=25℃)



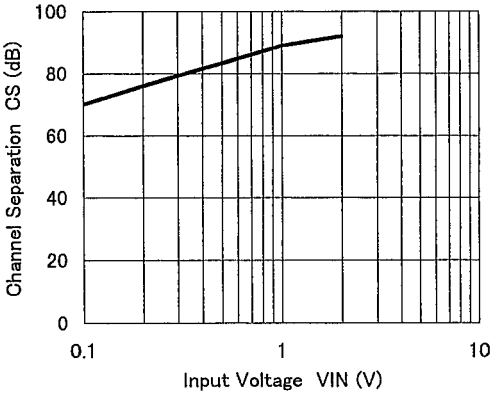
Total Harmonic Distortion vs. Temperature
(Vo=0.2Vrms)



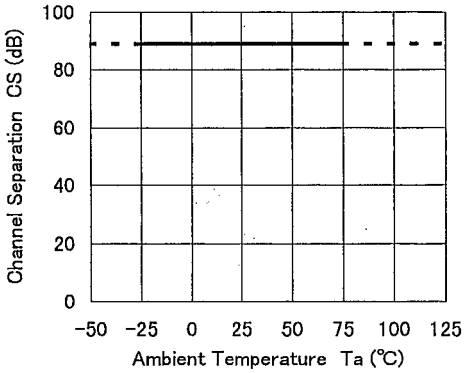
S/N Retio vs. Temperature
(V^+=5V)



Channel Separation vs. Input Voltage
(Ta=25℃)



Channel Separation vs. Temperature
(V_{IN}=1.5Vrms)



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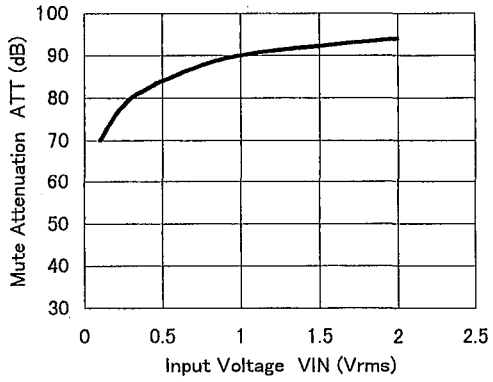
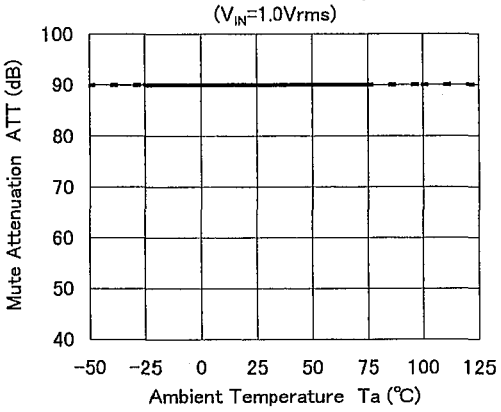
■ TYPICAL CHARACTERISTICS

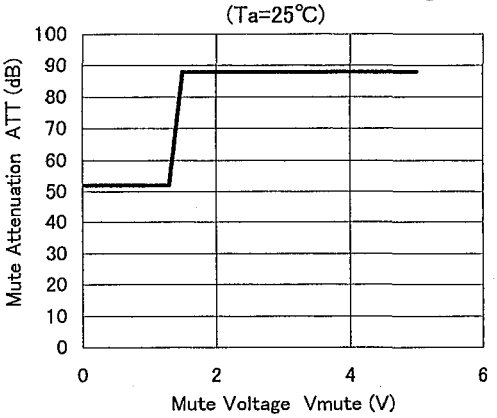
Mute Attenuation vs. Input Voltage
(Ta=25°C)



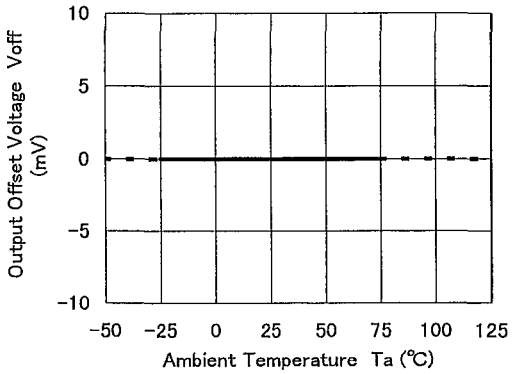
Mute Attenuation vs. Temperature
(V_{IN}=1.0Vrms)



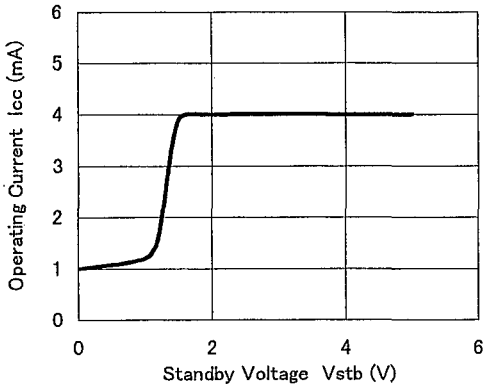
Mute Attenuation vs. Mute Voltage
(Ta=25°C)



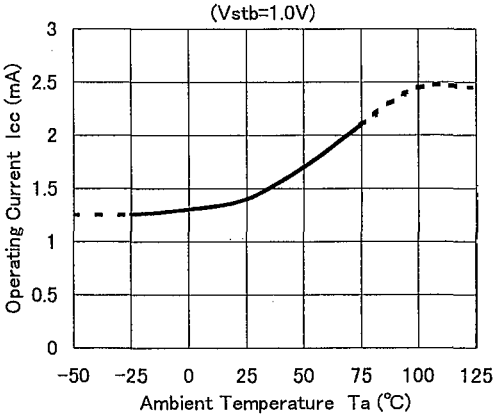
Output Offset Voltage vs. Temperature
(V^+=5V)



Operating Current vs. Standby Voltage
(Ta=25°C)



Operating Current vs. Temperature
(Vstb=1.0V)



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MEMO