

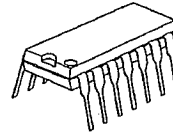
AUDIO FILTER AMPLIFIER

■ GENERAL DESCRIPTION

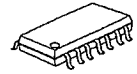
The NJM2133 is a dual audio filter amplifier for digital audio. It includes two-channel voltage follower, capacitors, and resistors for Low Pass Filter. It also includes standby function which applies to low consumption power design.

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

■ PACKAGE OUTLINE



NJM2133D



NJM2133M

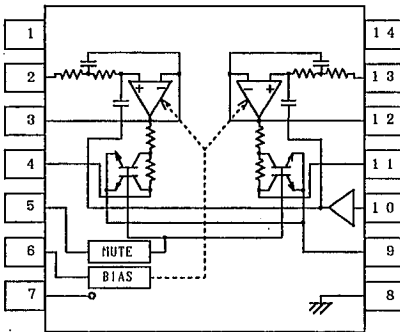


NJM2133V

■ FEATURES

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

■ PIN CONFIGURATION



NJM2133D  
NJM2133M  
NJM2133V

PIN FUNCTION

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

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	12	V
Power Dissipation	P <sub>D</sub>	(DIP8) 700 (DMP8) 300 (SSOP8) 300	mW
Operating Temperature Range	T <sub>OPR</sub>	-25~+75	°C
Storage Temperature Range	T <sub>STG</sub>	-40~+125	°C

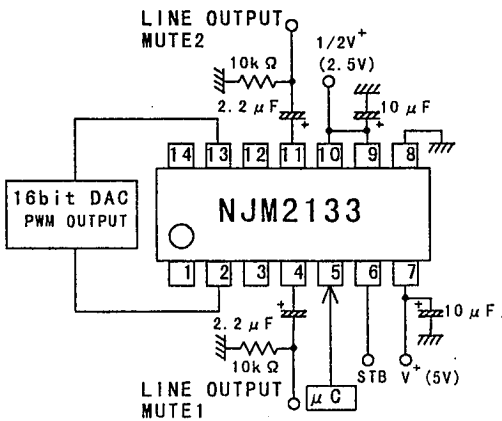
■ ELECTRICAL CHARACTERISTICS

( $V^+=5V$ ,  $f=1kHz$ ,  $V_i=1.0V_{rms}$ ,  $V_{ref1}=2.5V$ ,  $V_{ref2}=2.5V$ ,  $R_L=10k\Omega$ ,  $T_a=25^\circ C$ )

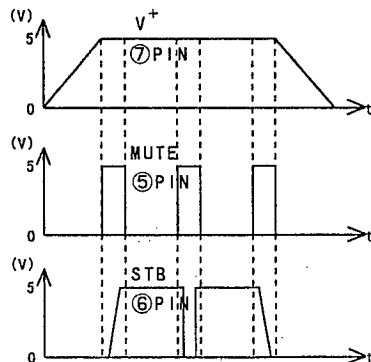
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>oc1</sub>		—	4.0	6.0	mA
Standby Operating Current	I <sub>oc2</sub>	6pin=GND	—	1	—	mA
Voltage Gain1	G <sub>v1</sub>		-1.0	0	1.0	dB
Voltage gain2	$\Delta$ G <sub>v2</sub>	f=20kHz, Difference from G <sub>v1</sub>	-0.5	0	0.5	dB
Voltage Gain3	G <sub>v3</sub>	f=80kHz	—	-3	—	dB
Channel Balance	$\Delta$ G <sub>v1</sub>	at G <sub>v1</sub>	-0.5	0	0.5	dB
Total Harmonic Distortion	THD	V <sub>o</sub> =0.2V <sub>rms</sub>	—	0.015	0.05	%
S/N Ratio	S/N	BW=20~20kHz, R <sub>g</sub> =0 $\Omega$ V <sub>i</sub> =1.0V <sub>rms</sub> reference	80	86	—	dB
Channel Separation	CS	Measuring CH: no signal, BW=20~20kHz Other CH: V <sub>i</sub> =1.0V <sub>rms</sub>	74	80	—	dB
Mute Attenuation	ATT	V <sub>i</sub> =1.0V <sub>rms</sub> , 5pin=V <sup>+</sup> , 6pin=GND	70	90	—	dB
Output Offset Voltage Drift	V <sub>off</sub>	at Mute ON/OFF	-10	0	10	mV
Mute Voltage	V <sub>mute</sub>	5pin, at Mute	3.5	—	—	V
Standby Voltage	V <sub>stb</sub>	6pin, at Standby	—	—	1.0	V

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■ APPLICATION CIRCUIT

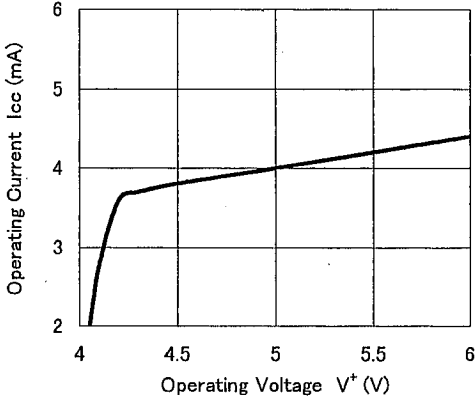


■ POWER ON TIMING CHART

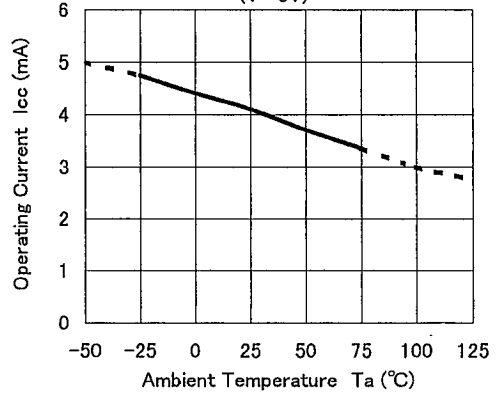


## TYPICAL CHARACTERISTICS

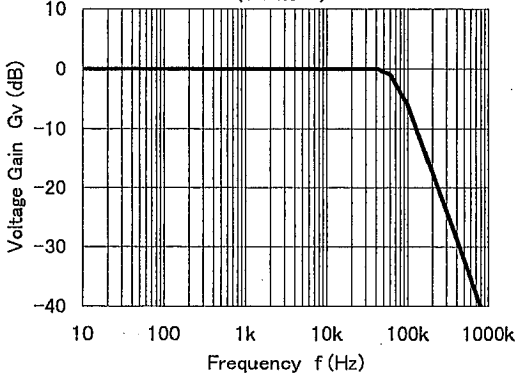
Operating Current vs. Operating Voltage  
( $T_a=25^\circ\text{C}$ )



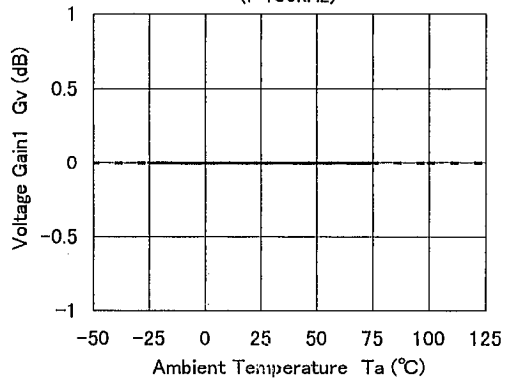
Operating Current vs. Temperature  
( $V^+=5\text{V}$ )



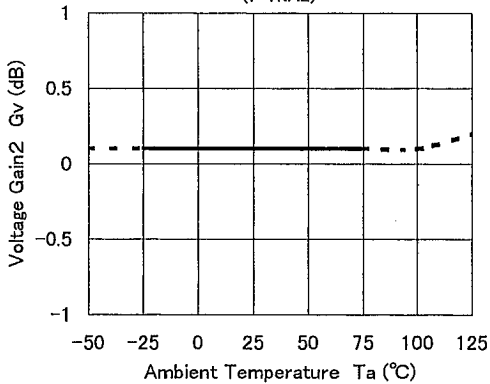
Voltage Gain vs. Frequency  
( $T_a=25^\circ\text{C}$ )



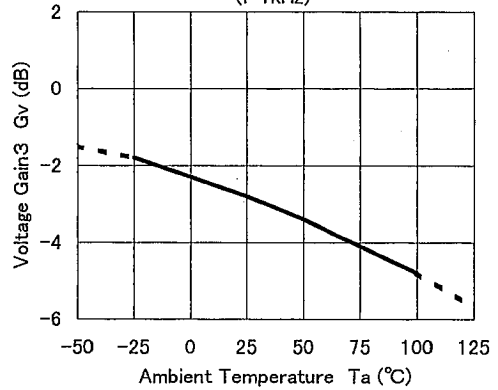
Voltage Gain1 vs. Temperature  
( $f=100\text{kHz}$ )



Voltage Gain2 vs. Temperature  
( $f=1\text{kHz}$ )

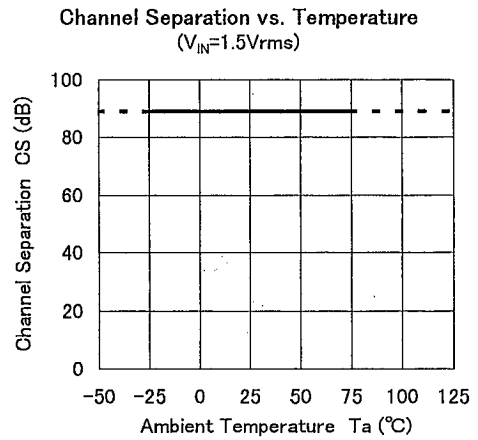
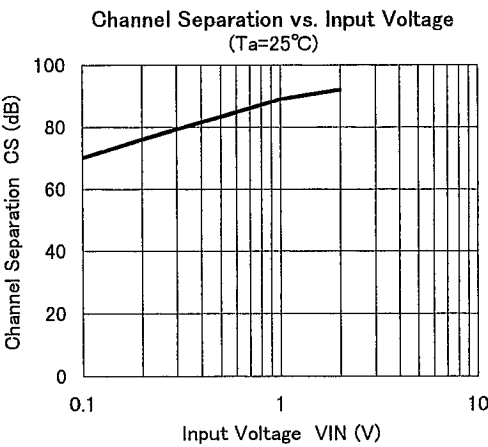
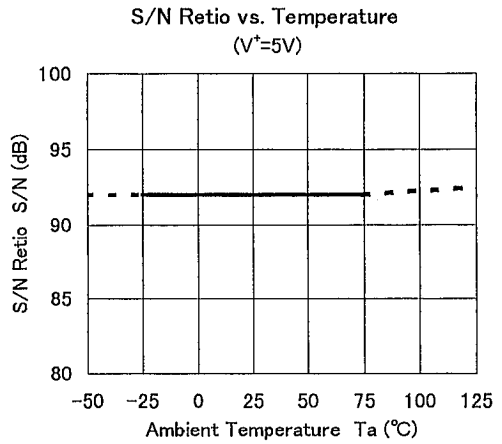
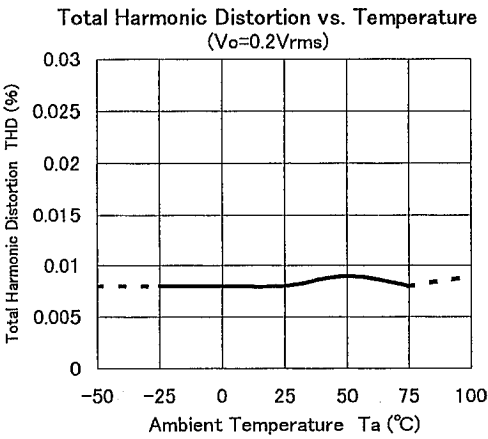
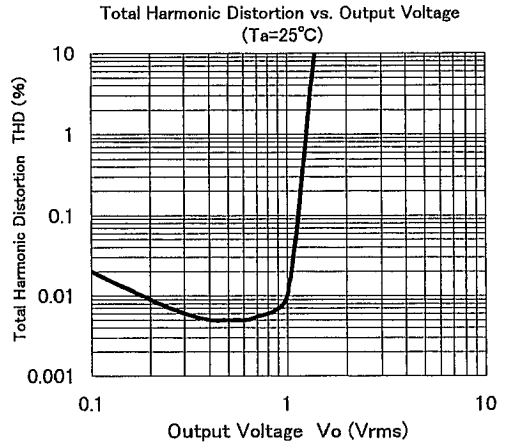
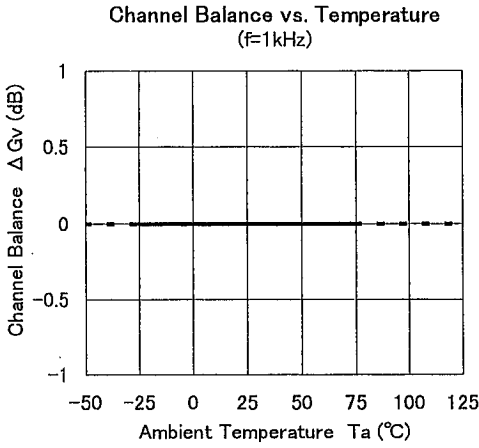


Voltage Gain3 vs. Temperature  
( $f=1\text{kHz}$ )



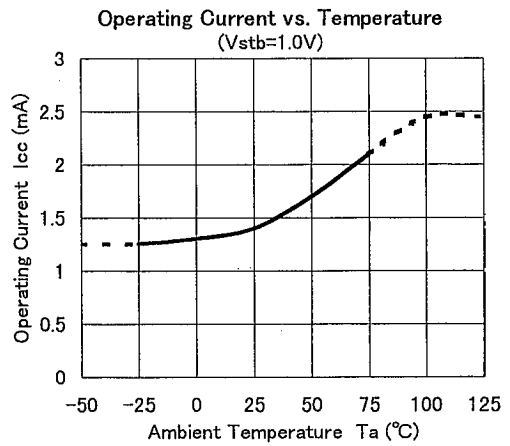
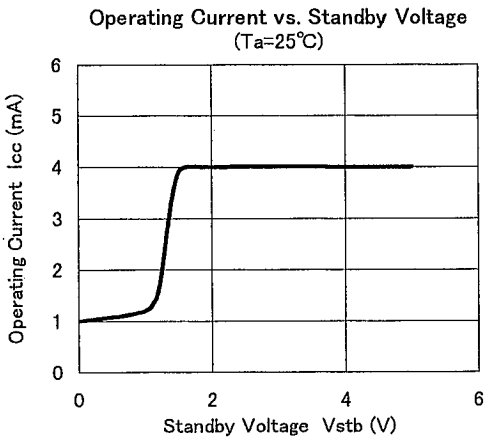
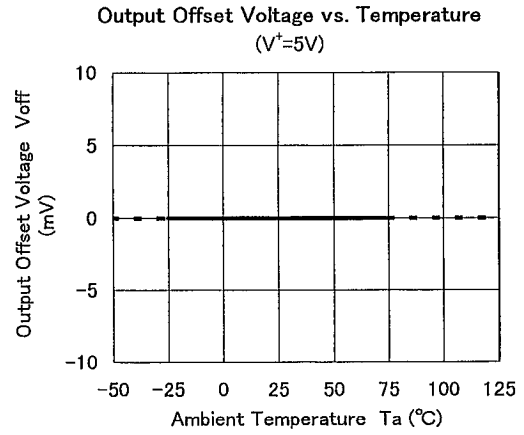
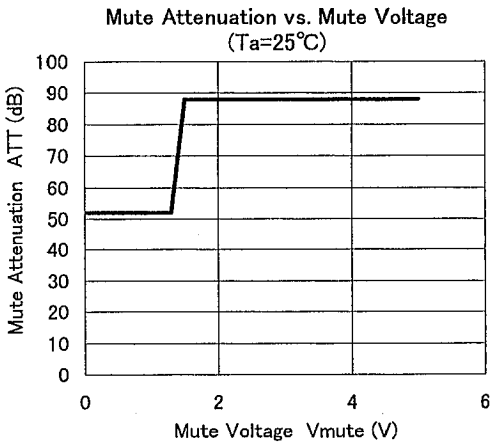
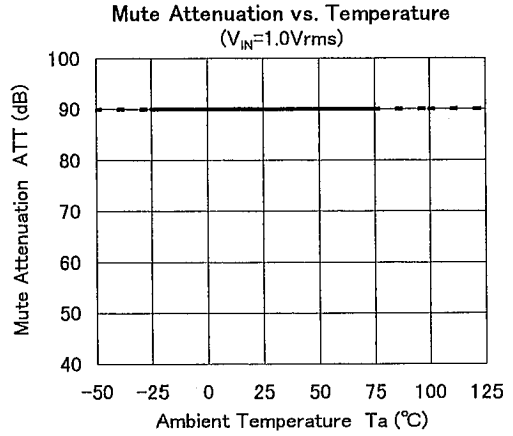
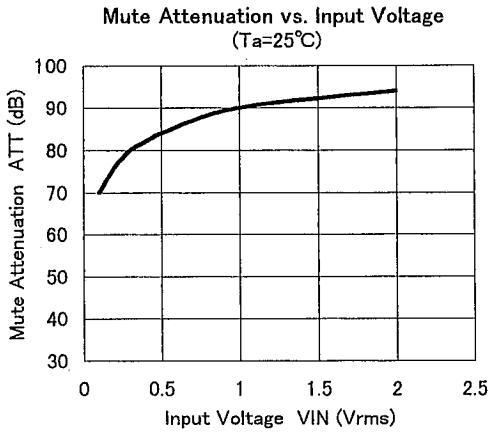
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■ TYPICAL CHARACTERISTICS



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## TYPICAL CHARACTERISTICS



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## MEMO

[CAUTION]

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