

AN7134NR

Dual 7.5W Audio Power Amplifier Circuit

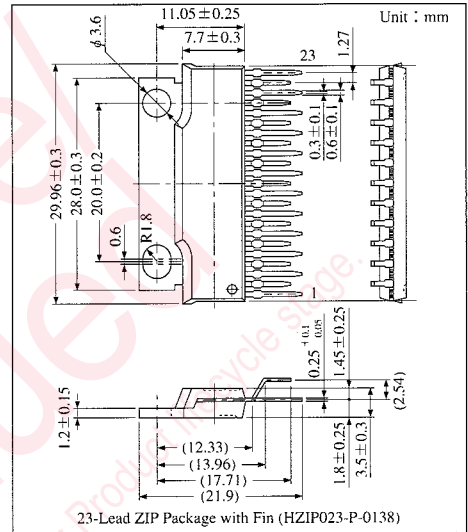
Overview

The AN7134NR is an audio power IC developed for audio output stage (7.5W×2-channel) of radio cassette recorder with CD.

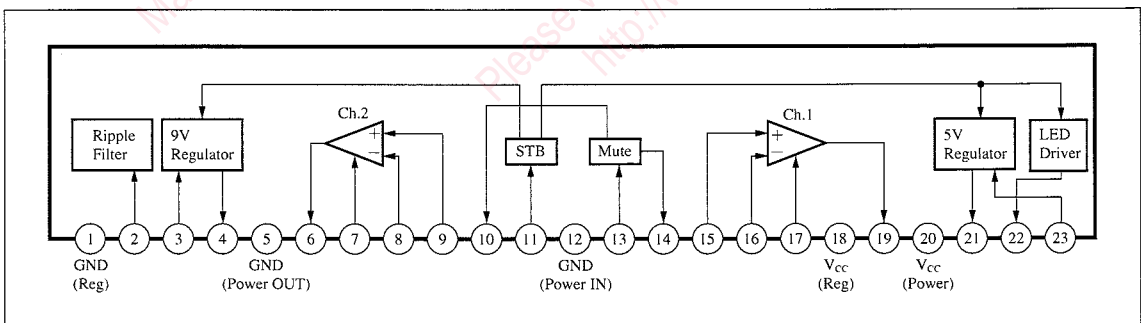
9V/5V regulator and LED driver, interlocked with stand-by function, allow you to control all system power supply with the AN7134NR.

Features

- Audio output : 7.5W×2-channel
- Possible to use as power supply of pre-amp./tuner/microcomputer, etc. with 9V/5V regulator built-in. ($I_{out} = 300mA$)
- LED driver built-in.
- With stand-by function (A large capacitance switch is not needed for power supply of a set.)
- Muting function built-in.



Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	24	V
Supply Current	I _{CC}	6	A
Power Dissipation	P _D	62.5	W
Operating Ambient Temperature	T _{opr}	-25 ~ +75	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V _{CC}	6V ~ 18V*

* 24V at no signal.

■ Electrical Characteristics (V_{CC}=15V, R_L=3Ω, f_{req.}=1kHz, Ta=25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	I _{CQ}	V _{in} =0mV	—	20	35	mA
Current at Stand-by	I _{STB}	STB-Off	—	—	100	μA

<Power Amp. Section>

Output Noise Voltage	V _{no}	V _{in} =0mV, R _g =10kΩ DIN/AUDIO FILTER	—	0.29	0.75	mVrms
Voltage Gain	G _V	V _{in} =10mVrms	43	45	47	dB
Total Harmonic Distortion	THD	V _{in} =10mVrms	—	0.2	0.6	%
Maximum Output	P _O	THD=10%	7	7.5	—	W
Ripple Rejection Ratio	RR _P	V _{in} =0mV, R _g =0Ω V _r =300mVrms, f _r =120Hz	45	54	—	dB
Channel Balance	CB	V _{in} =10mVrms	-1	—	1	dB
Muting Effect	MUT	I _{mute} =2mA Source Imp=5kΩ	42	47	—	dB

<9V Power Supply Section>

Output Voltage	V _{out1}	I _{out} =300mA	8.5	9	9.5	V
Load Stability	REG _{L1}	I _{out} =0mA/300mA	—	—	5	%
Ripple Rejection Ratio	RR ₁	I _{out} =300mA V _r =300mVrms, f _r =120Hz	40	45	—	dB

<5V Power Supply Section>

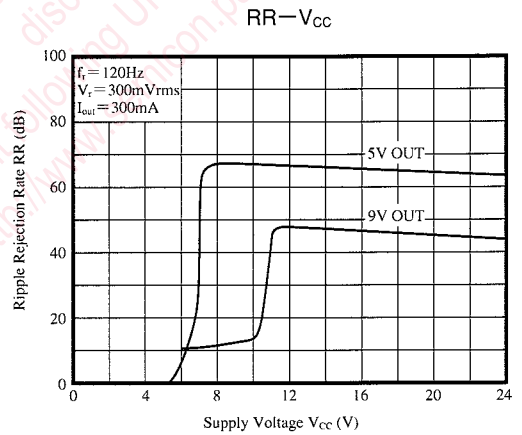
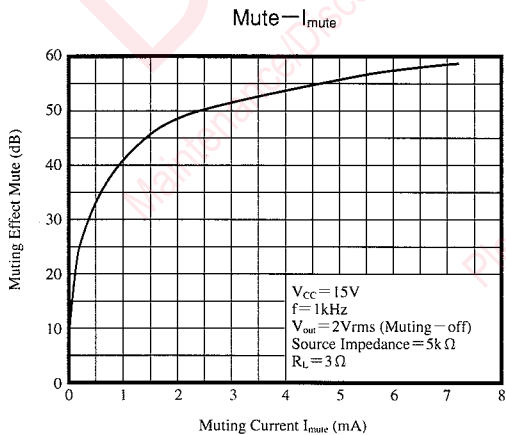
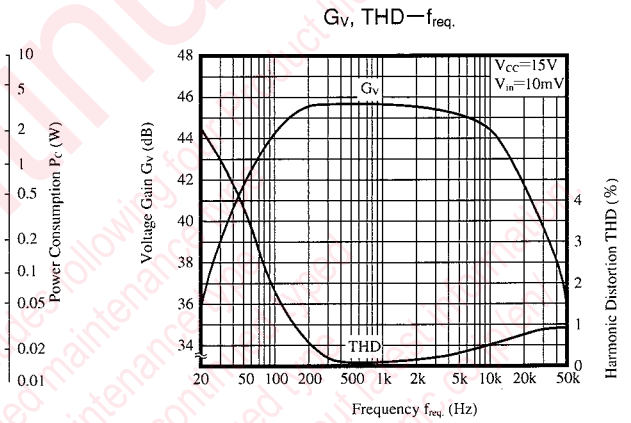
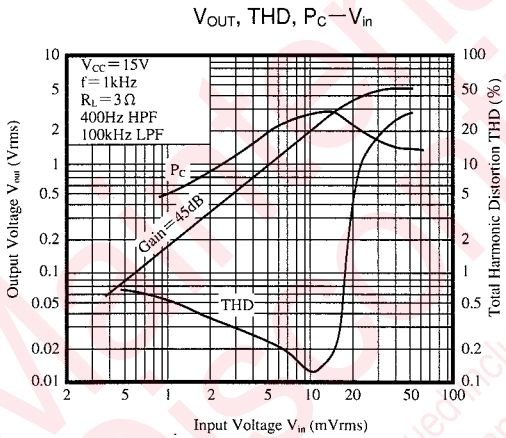
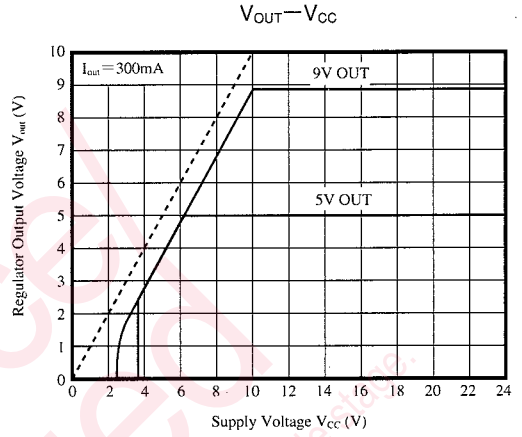
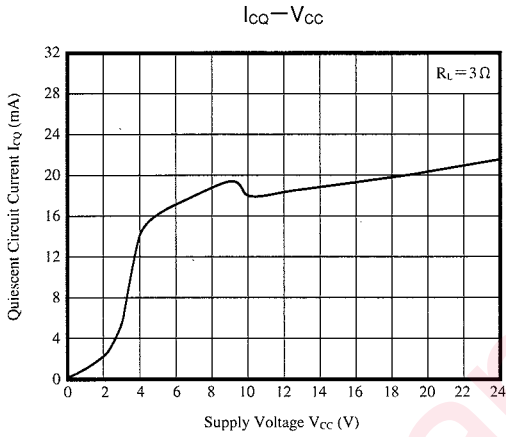
Output Voltage	V _{out2}	I _{out} =300mA	4.75	5	5.25	V
Load Stability	REG _{L2}	I _{out} =0mA/300mA	—	—	5	%
Ripple Rejection Ratio	RR ₂	I _{out} =300mA V _r =300mVrms, f _r =120Hz	50	58	—	dB

<LED Driver Section>

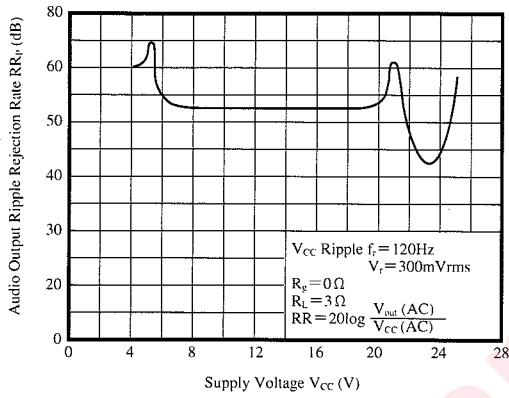
Maximum Output Current	I _{out3}	R _L =300Ω	30	—	—	mA
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ICs for
Audio
Common
Use

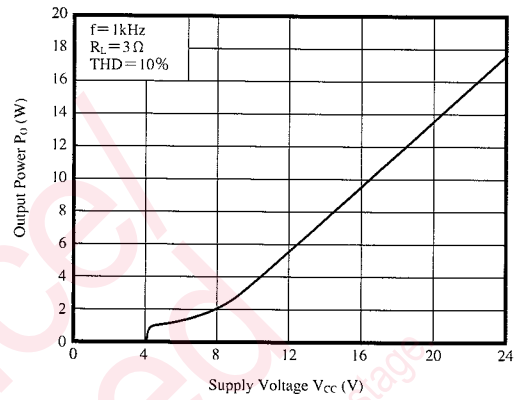
■ Characteristics Curve



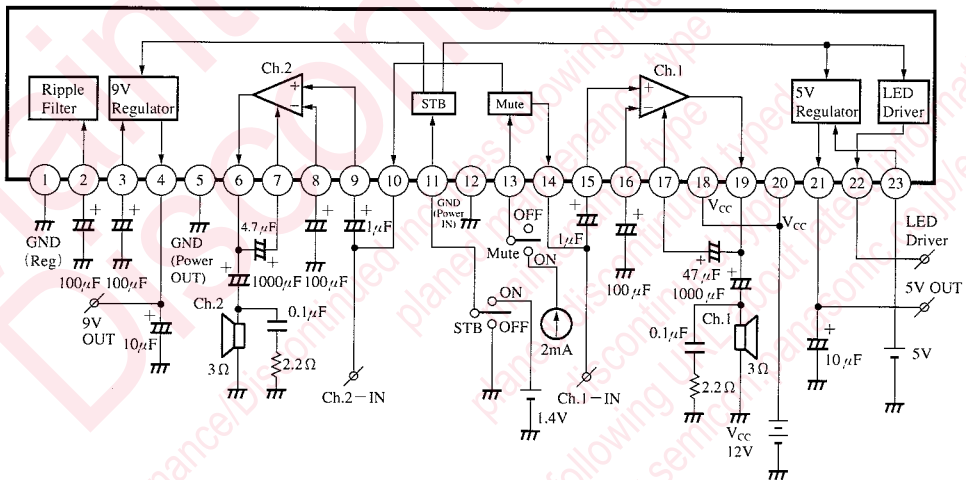
Audio Out Ripple Rejection— V_{CC}



$P_o - V_{CC}$



■ Application Circuit



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Pin Descriptions

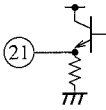
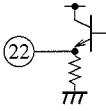

Pin No.	Pin Name	Description	Equivalent Circuit
1	GND (regulator side)	GND pin for regulator	
2	Ripple Filter (audio side)	Connect capacitor to raise audio output circuit ripple rejection ratio.	
3	Ripple Filter (9V regulator side)	Connect capacitor to raise 9V regulator ripple rejection ratio.	
4	9V Regulator Output	9V constant voltage output pin (Output current more than 300mA)	
5	GND (audio output side)	GND pin for audio output circuit	
6	Ch.2 Audio Output	Ch.2 audio output pin ($G_v = 45\text{dB}$)	
7	Ch.2 Bootstrap	Ch.2 bootstrap pin	
8	Ch.2 Negative Feedback	Ch.2 negative feedback pin	
9	Ch.2 Input	Ch.2 input signal applied pin	
10	Ch.2 Muting	Ch.2 input signal muting pin	

■ Pin Descriptions (Cont.)

Pin No.	Pin Name	Description	Equivalent Circuit
11	Stand-by	Circuit mode (Stand-by ↔ Operation) switching pin	
12	GND (audio input side)	GND pin for input signal source	—
13	Muting Control	Muting ON ↔ OFF switching pin	
14	Ch.1 Muting	Ch.1 input signal muting pin	
15	Ch.1 Input	Ch.1 input signal applied pin	
16	Ch.1 Negative Feedback	Ch.1 negative feedback pin	
17	Ch.1 Bootstrap	Ch.1 bootstrap pin	
18	Supply Pin (audio output side)	Supply pin for audio output circuit	—
19	Ch.1 Audio Output	Ch.1 audio signal output pin (G _v = 45dB)	
20	Supply Pin (regulator side)	Supply pin for regulator	—

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■ Pin Descriptions (Cont.)

Pin No.	Pin Name	Description	Equivalent Circuit
21	5V Regulator Output	5V constant voltage output pin (Output current more than 300mA)	
22	LED Driver	LED driver pin (Output current more than 300mA)	
23	5V Input	5V voltage input pin	

■ Precautions on Use

1. Don't short output pin to power supply and GND pin at $V_{CC} \geq 18V$.
2. Don't short between pins.

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