AN7161NFP

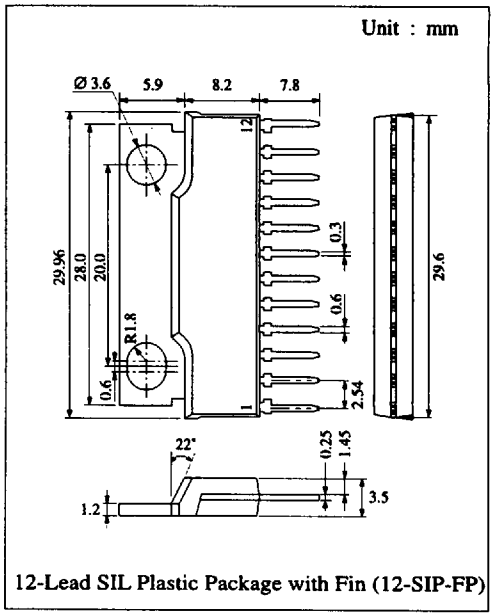
BTL High Audio Power Amplifier

■ Description

The AN7161N is a monolithic integrated circuit designed for BTL audio high power amplifier with built-in headphone amplifier. It can be widely applicable to Hi Fi, car stereo and TV sound multiplex output.

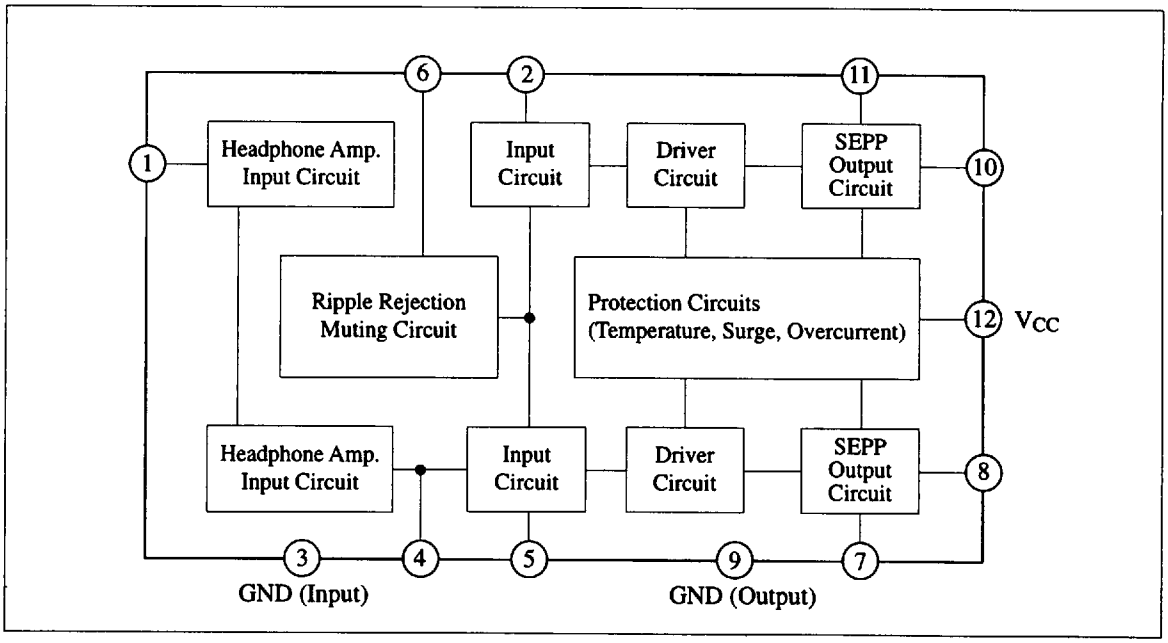
■ Features

- Low quiescent current, low distortion, low noise, high output power
- Wide supply voltage range: V_{CC} = 6V ~ 26V
- Incorporating headphone amplifier circuit
- Built-in muting circuit
- Incorporating protection circuits
- 12-Lead single-in-line package
- Fewer external components
- Low shock noise from power ON/OFF operation



12-Lead SIL Plastic Package with Fin (12-SIP-FP)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V_{CC}	26	V
Supply Current	I_{CC}	4	A
Power Dissipation	P_D	41.7	W
Surge Supply Voltage	$V_{CC(surge)}$	50	V
Operating Ambient Temperature	Topr	-30 ~ +75	°C
Storage Temperature	Tstg	-55 ~ +150	°C

Operating Supply Voltage Range: V_{CC} = 6.0V ~ 26.0V

■ Electrical Characteristics (V_{CC}=15V, R_L=4Ω, f=1kHz, Ta=25°C)

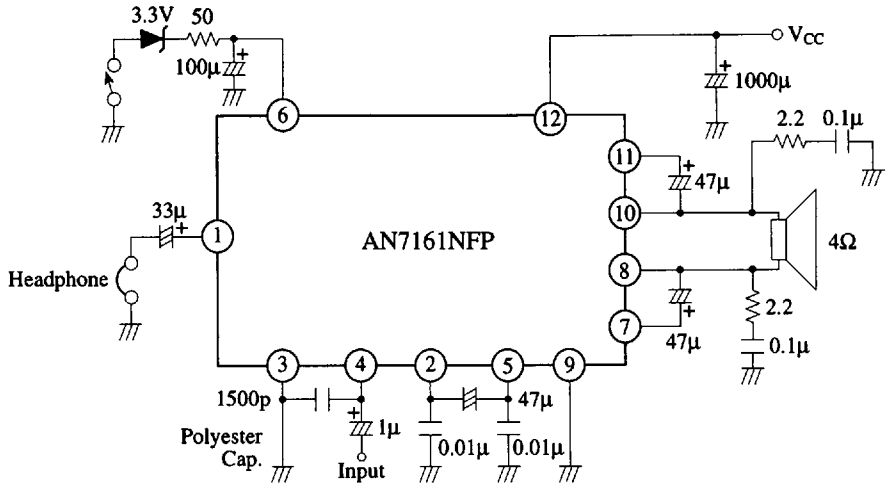
Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I_{CQ}	V_{in} = 0mV		45	76	mA
Power Amplifier						
Output Noise Voltage	V_{no}	R_g = 10kΩ, f = 15Hz~30kHz, 12dB/OCT		0.6	1.0	mV
Voltage Gain	G_V	V_{in} = 5mV	48.5	50.5	52.5	dB
Total Harmonic Distortion	THD	V_{in} = 5mV		0.15	0.5	%
Maximum Output Power	P_O	THD = 10%	20	23		W
Output Offset Voltage	$V_{O(offset)}$	R_g = 0Ω			150	mV
Headphone Amp.						
Output Noise Voltage	V_{no-H}	R_g = 10kΩ, f = 15Hz~30kHz, 12dB/OCT		0.1	0.7	mV
Voltage Gain	G_{V-H}	V_{in} = 10mV	17.5	19.5	21.5	dB
Maximum Output Voltage	P_{O-H}	THD = 1%	10			mW

Note: For Power Amplifier, R_L = 4Ω
For Headphone Amp., R_L = 33Ω

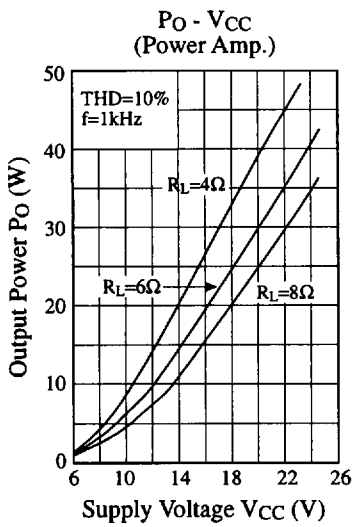
■ Pin

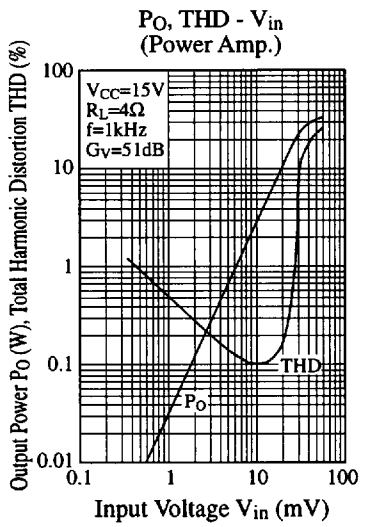
Pin No	Pin Name	Pin No	Pin Name
1	Output (Headphone)	7	Bootstrap Ch.1
2	N.F.B. Ch.2	8	Output Ch.1
3	GND (Input)	9	GND (Output)
4	Input	10	Output Ch.2
5	N.F.B Ch.1	11	Bootstrap Ch.2
6	Ripple Filter	12	V_{CC}

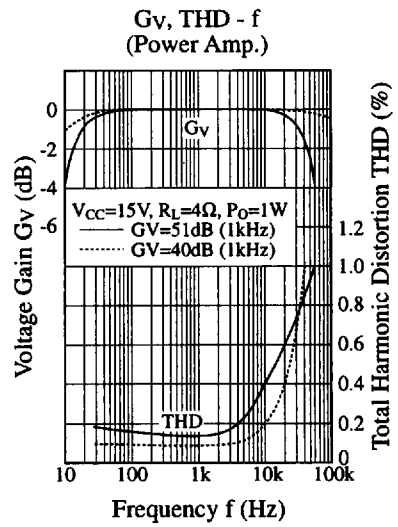
■ Application Circuit

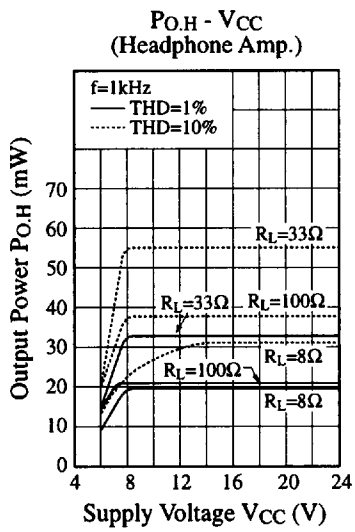


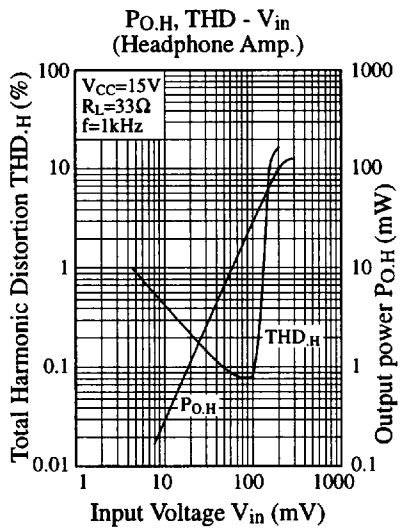
■ Characteristics Curve

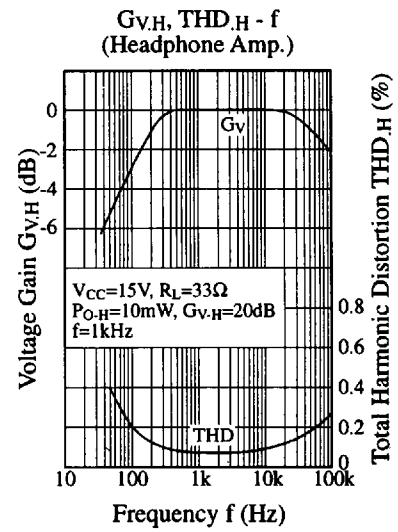




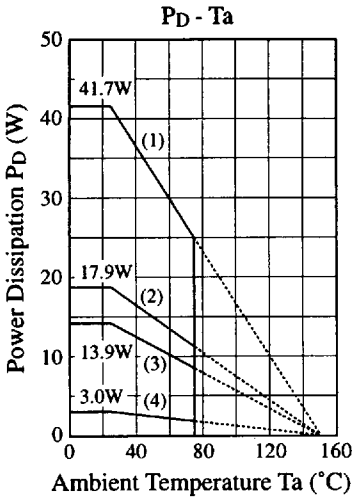








■ Characteristics Curve (Continue)



(1) Tc=Ta (θ_{j-c}=3°C/W)
(2) With a 100cm^2 x 3mm Al heat sink (black colour coated) or a 200cm^2 x 2mm Al heat sink (not lacquered)
(3) With a 100cm^2 x 2mm Al heat sink (not lacquered)
(4) Without heat sink

■ Printed Circuit Board Layout (Scale: 1:1)