

AN7131

5W Audio Power Amplifier Circuit

■ Description

The AN7131 is a monolithic integrated circuit designed for audio power amplifiers such as portable radio, radio cassette tape recorder and car radio. Stabilized operation due to wide supply voltage.

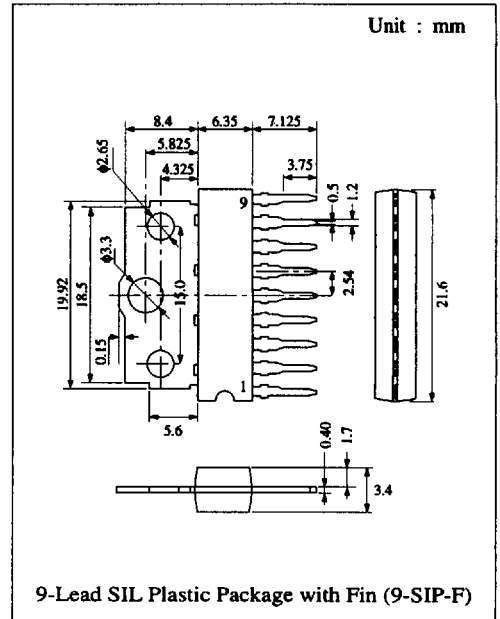
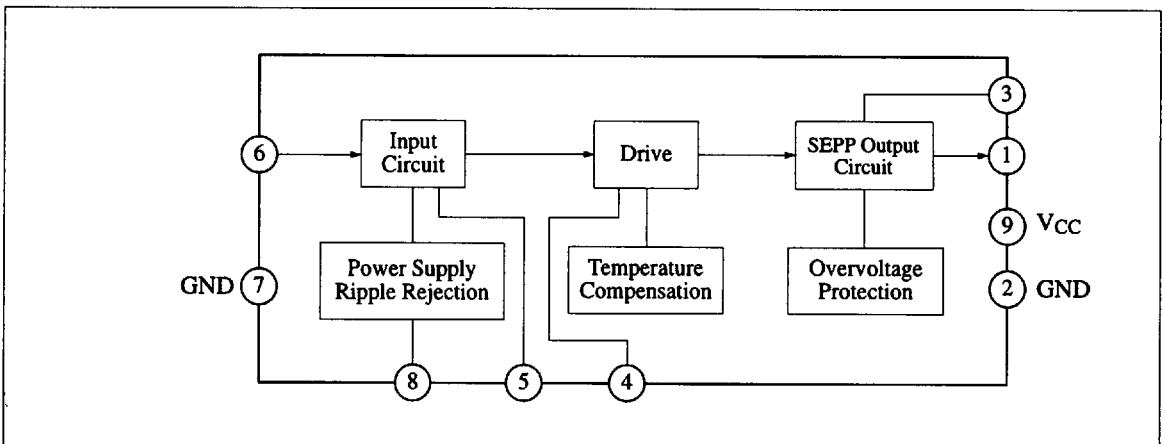
■ Features

- High gain, low distortion, low noise
- Reduction in external components
- Built-in thermal protection circuit
- Built-in over voltage protection circuit
- Incorporating automatic operating point stabilizer circuit
- Low shock noise when power is switched ON and OFF
- Low quiescent current

■ Pin

Pin No.	Pin Name
1	Output
2	GND (Output)
3	Bootstrap
4	Phase Compensation
5	N.F.B.
6	Input
7	GND (Input)
8	Ripple Filter
9	Vcc

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage *1	V _{CC}	24	V
Supply Current	I _{CC}	4	A
Power Dissipation (Ta = 30°C)	P _D	10	W
Operating Ambient Temperature	Topr	-30 ~ +75	°C
Storage Temperature	Tstg	-40 ~ +150	°C

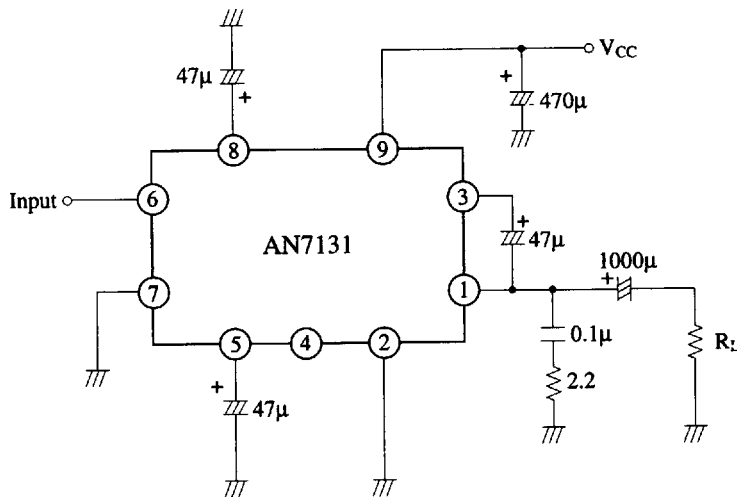
Operating Supply Voltage Range: V_{CC} = 5.0V ~ 22.0V

*1 Without input signal V_{CC} = 24V

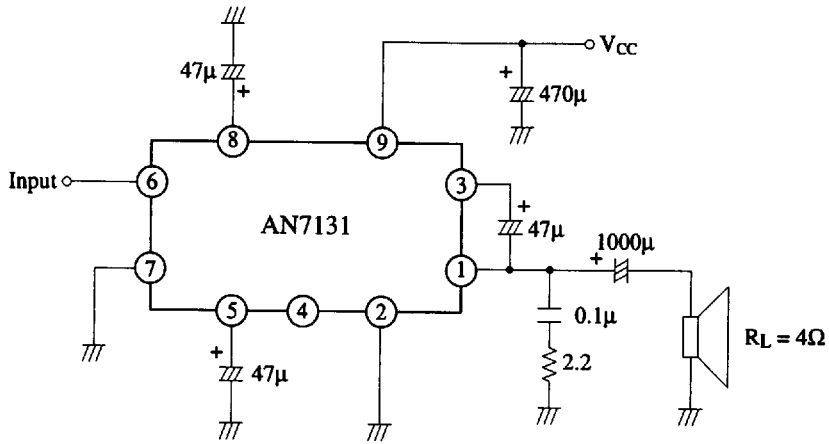
■ Electrical Characteristics (V_{CC}=13.2V, R_L=4Ω, f=1kHz, Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I _{CQ}	V _{in} = 0mV	7	20	45	mA
Voltage Gain	G _v	V _{in} = 3mV	51.5	53.5	55.5	dB
Output Power	P _O	THD = 10%	4.5	5		W
Total Harmonic Distortion	THD	V _{in} = 3mV		0.3	1	%
Output Noise Voltage	V _{no}	R _g = 10kΩ		1.5	3	mV
Input Impedance	Z _{in}			30		kΩ

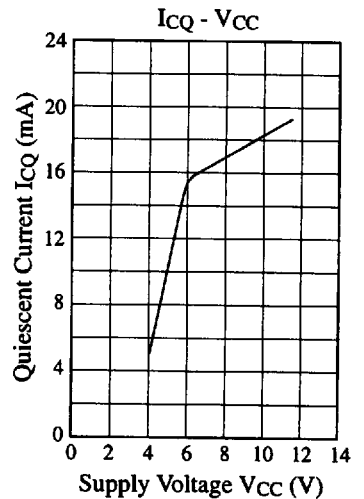
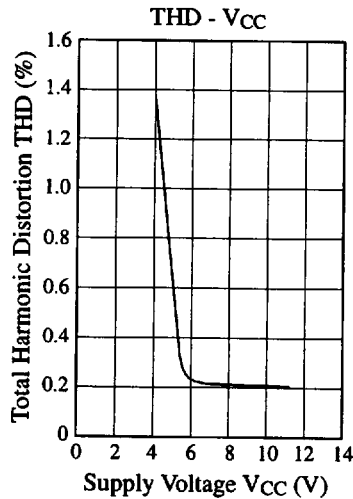
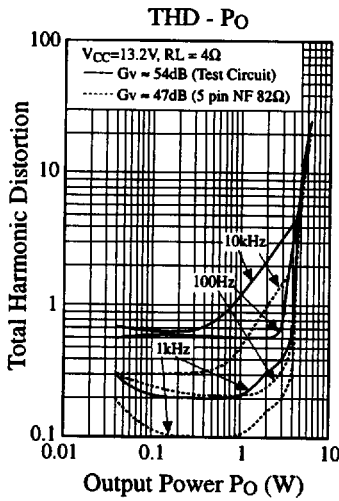
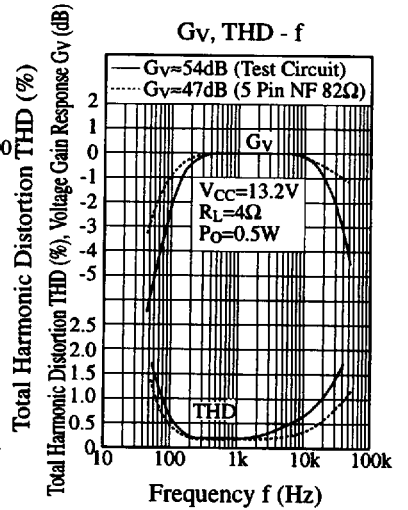
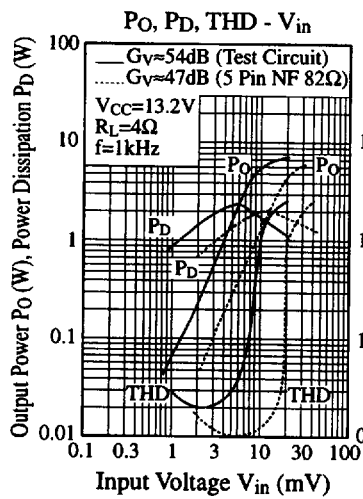
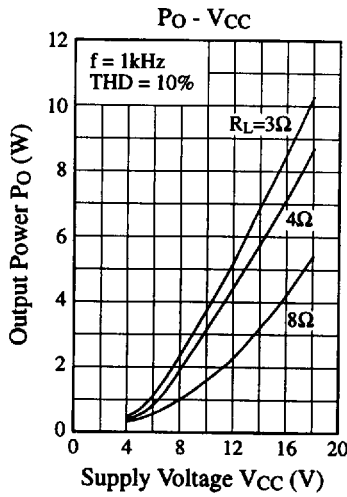
Test Circuit



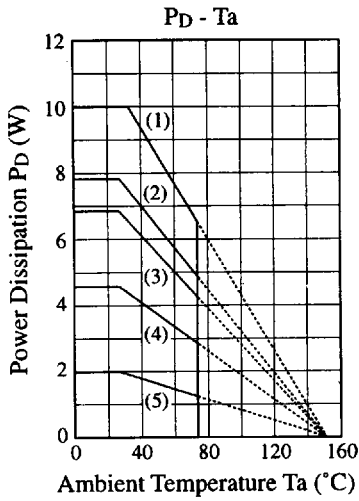
■ Application Circuit



■ Characteristics Curve



■ Characteristics Curve (Continue)



- (1) $T_c = T_a$
- (2) With a 100 x 100 x 3mm Al heat sink (black colour coated)
- (3) Without a 200 x 200 x 2mm Al heat sink
- (4) With a 25 x 25 x 2mm Al heat sink
- (5) Without heat sink

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

