AN7170

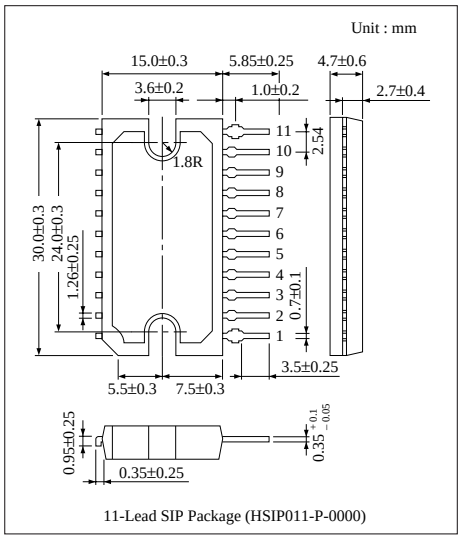
18W Audio Power Amplifier Circuit

■ Overview

The AN7170 is an integrated circuit manufactured by high voltage process designed for power amplifier of bus, track amplifier. Wide operating supply voltage range with output of 18W at 26.4V. It can be widely used for bus, truck amp., car stereo, home entertainment stereo set and TV sound multiplex output.

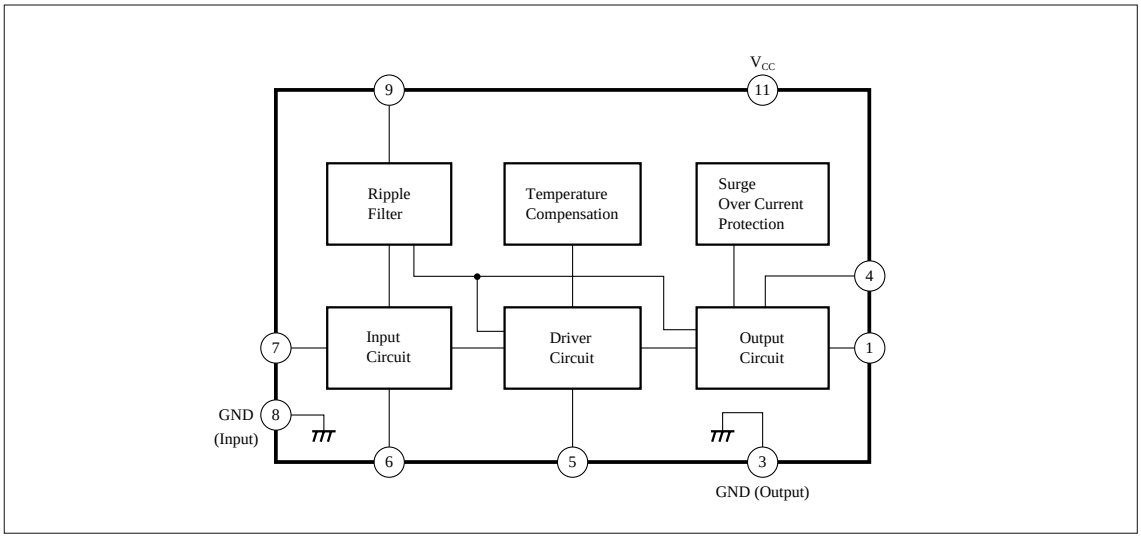
■ Features

- High output power : P_O =18W
- High surge voltage : $V_{CC\ (surge)}$ = 60V $_{(max.)}$
- Wide supply voltage range : $V_{CC\ (opr)}$ = 8 ~ 35V
- Incorporating protection circuits (overvoltage, overcurrent, temperature, load short)
- Incorporating automatic operating point stabilizer circuit
- Low distortion, low 1/f noise



11-Lead SIP Package (HSIP011-P-0000)

■ Block Diagram



■ Absolute Maximum Ratings (Ta= 25˚C)

Parameter	Symbol	Rating	Unit
Supply Voltage (at no signal)	V_{CC}	35	V
Supply Voltage (at operation)	V_{CC}	30	V
Peak Supply Voltage Note 1)	$V_{CC\ (surge)}$	60	V
Supply Current	I_{CC}	4	A
Power Dissipation Note 2)	P_D	31.25	W
Operating Ambient Temperature	T_{opr}	– 30 ~ + 75	˚C
Storage Temperature	T_{stg}	– 55 ~ + 150	˚C

Note 1) Pulse Voltage application t = 0.2s
Note 2) Ta = 25˚C (θ_{j-c} = 4˚C/W)

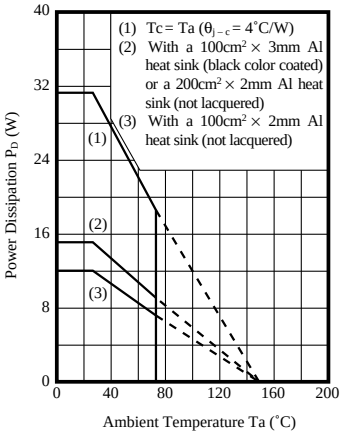
■ Electrical Characteristics (V_{CC} = 26.4V, f = 1kHz, Ta= 25˚C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
(R_L= 8Ω)						
Quiescent Circuit Current	I_{CQ}	V_i= 0mV	40	75	160	mA
Voltage Gain	G_V	V_i= 3mV	51	53	55	dB
No Distortion Maximum Output	P_O	THD= 1%	8	9.5	—	W
		THD= 10%	10.5	12	—	W
Total Harmonic Distortion	THD	V_i= 3mV	—	0.1	0.7	%
Output Noise Voltage	V_{no}	R_g= 10kΩ, DIN A Filter	—	0.7	1.5	mV
Ripple Rejection Ratio	RR	V_i= 0mV, R_g= 0Ω	—	40	—	dB
Input Impedance	Z_i		—	30	—	kΩ
(R_L= 4Ω)						
No Distortion Maximum Output	P_O	THD= 1%	—	13	—	W
		THD= 10%	—	18	—	W

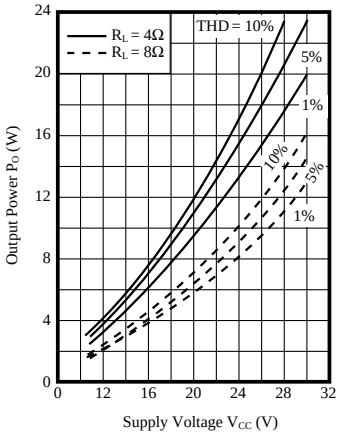
■ Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	Output	7	Input
2	NC	8	GND (Input)
3	GND (Output)	9	Ripple Filter
4	Bootstrap	10	NC
5	Phase Compensation	11	V_{CC}
6	Negative Feedback	—	—

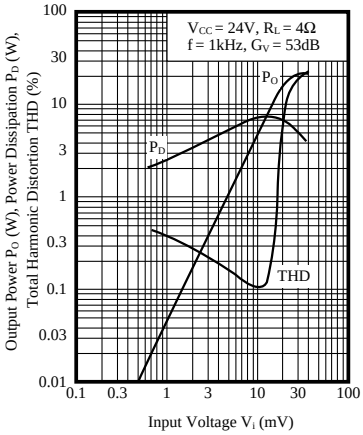
P_D – Ta



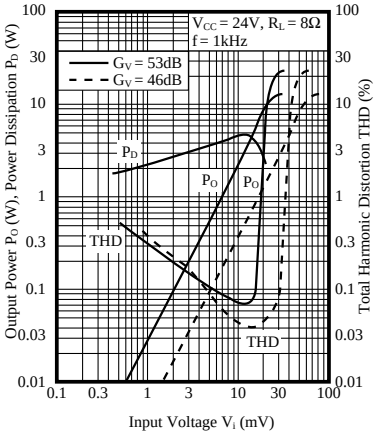
P_O – V_{CC}



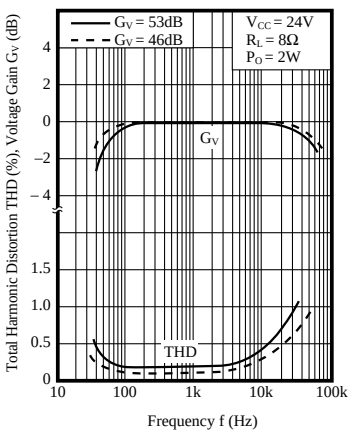
P_O, P_D, THD – V_i



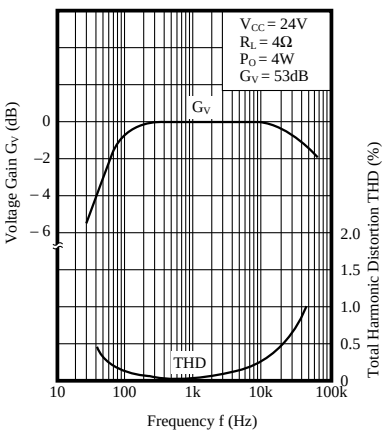
P_O, P_D, THD – V_i



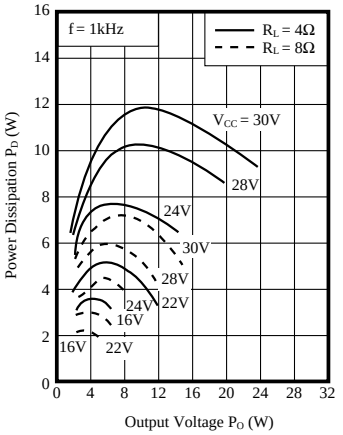
G_V, THD – f



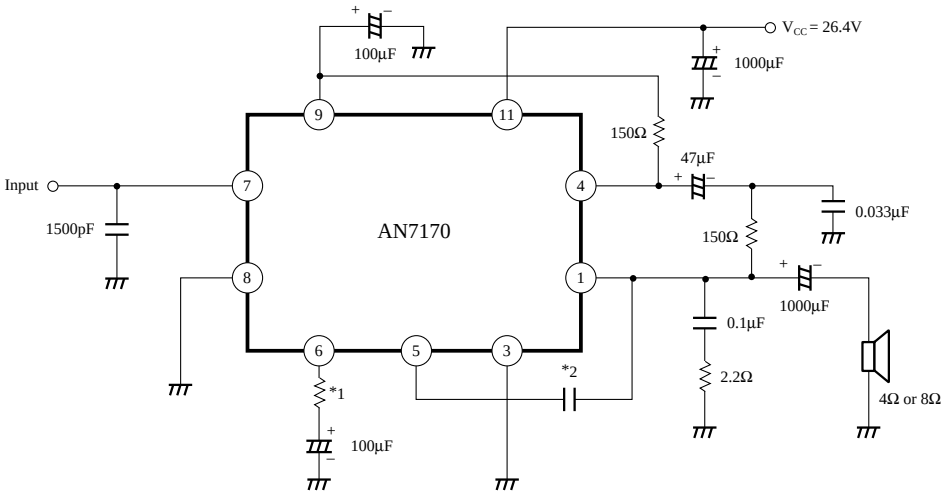
G_V, THD – f



P_D – P_O



■ Application Circuit



*1. 82Ω at G_V = 46dB, R = 0 at G_V = 53dB
*2. 12pF at G_V = 46dB, 8pF at G_V = 53dB
(C = 0 is allowable for frequency characteristics adjustment in high band)

■ Printed Circuit Board Layout

Scale : 1/1

