

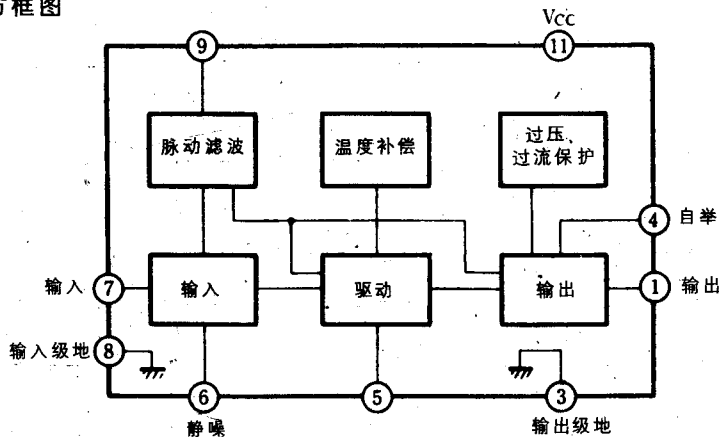
# AN7170 18W 低功率放大器 11脚单列直插式塑封

松下

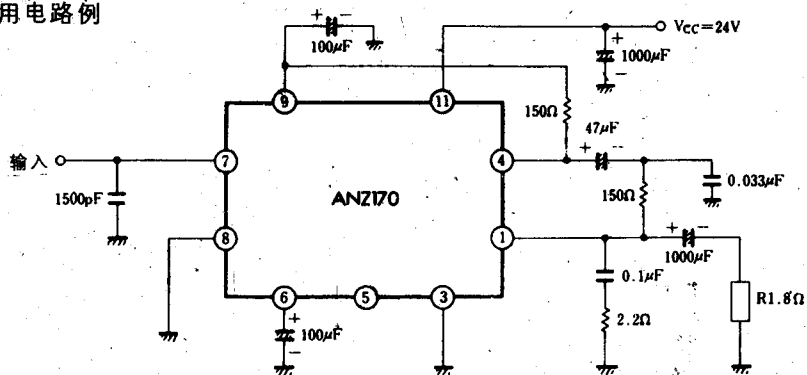
是为公共汽车、卡车功率放大器设计的集成电路,用26.4V的电源电压,能得到18W的输出;

- 工作电源电压范围8~35V;
- 内含工作点自动稳定电路及过压、过流、过热、负荷短路等保护电路。

方框图



应用电路例



## 极限参数 ( $T_a = 25^\circ\text{C}$ )

$V_{CC}$	35V(无信号时)
	30V(工作时)
$V_{CC(surge)}$	60V ( $t = 0.2\text{sec}$ )
$I_{CC}$	4A
$P_r$	31.25W
$T_{op}$	-30 ~ +75°C
$T_{stg}$	-55 ~ +150°C

## 电特性参数 ( $V_{CC} = 26.4\text{V}$ , $f = 1\text{kHz}$ , $T_a = 25^\circ\text{C}$ )

符号	测定条件	参数值			单位
		最小	典型	最大	
( $R_L = 4\Omega$ )					
$I_{CC(zs)}$	$V_i = 0$	40	75	160	mA
$G_v$	$V_i = 3\text{mV}$				
$P_o$	$KF = 1\%$	10	13		W
	$KF = 10\%$	15	18		
$KF$	$V_i = 3\text{mV}$		0.1	0.7	%
$Z_i$			30		kΩ
$N_o$	$R_s = 10\text{k}\Omega$ , DIN A 附滤波		0.7	1.5	mV
$RR$	$R_s = 0$ , $V_i = 0$	35			dB
( $R_L = 8\Omega$ )					
$P_o$	$KF = 1\%$	8.5	9.5		W
	$KF = 10\%$	11	12		

低周波電力増幅器

松下電子

AN7141N (1W)

動作電源電圧：3.8V~1.8V (6V)  
標準負荷：4Ω

■特徴

- 発振安定度が良い
- AM/FMのRF部への不要輻射が少ない

■最大定格 (T<sub>A</sub> = 25℃)

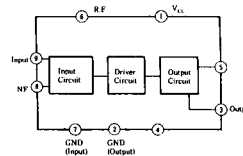
記号	定格	単位
V <sub>CC</sub>	18	V
I <sub>CCPK</sub>	2	A
P <sub>D</sub>	1.25	W
T <sub>OP1</sub>	-30/75	℃
T <sub>OP2</sub>	-55/150	℃

■電気的特性 (V<sub>CC</sub> = 6V, R<sub>L</sub> = 4Ω)

記号	測定条件	最小	標準	最大	単位
I <sub>a</sub>		5	8.5	12	mA
G <sub>v</sub>	V <sub>OUT</sub> = 0.5V	41.5	43.5	45.5	dB
P <sub>OUT</sub>		0.7	0.9		W
THD	V <sub>OUT</sub> = 0.5V		0.7	1.1	%
N <sub>OUT</sub>	R <sub>G</sub> = 10kΩ, 条件G		0.3	0.5	mV

■パッケージ：9ピン プラスチック SIL

■ブロック図



Pin No.	記号	Pin Name
1	入力	V <sub>CC</sub>
2	RF	GND (Output)
3	出力	Output
4	クロム...	System voltage detector
5	...	Bootstrap
6	...	Ripple Filter
7	...	GND (Input)
8	...	RF B
9	...	Input

AN7170 (18W)

動作電源電圧：8~3.5V (26.4V)  
標準負荷：8Ω

■特徴

- 自動動作点安定回路内蔵
- 各種保護回路内蔵
- 過電圧保護, 過電流保護
- 温度保護, 負荷短絡保護

■最大定格 (T<sub>A</sub> = 25℃)

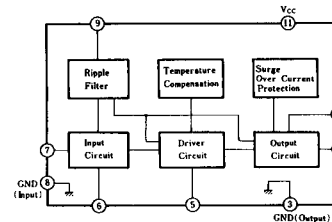
記号	定格	単位
V <sub>CCSU</sub>	60	V
V <sub>CCNS</sub>	35	V
V <sub>CCOP</sub>	30	V
I <sub>CCPK</sub>	4	A
P <sub>D</sub>	31.25	W
θ <sub>J-C</sub>	4	℃/W
T <sub>OP1</sub>	-30/75	℃
T <sub>OP2</sub>	-55/150	℃

■電気的特性 (V<sub>CC</sub> = 26.4V, R<sub>L</sub> = 8Ω)

記号	測定条件	最小	標準	最大	単位
I <sub>a</sub>		40	75	160	mA
G <sub>v</sub>	V <sub>IN</sub> = 3mV	51	53	55	dB
P <sub>OUT</sub>	R <sub>L</sub> = 4Ω	10.5	12		W
THD	V <sub>IN</sub> = 3mV		0.1	0.7	%
N <sub>OUT</sub>	R <sub>G</sub> = 10kΩ, DIN-A		0.7	1.5	mV
SVR	R <sub>G</sub> = 0Ω		40		dB
R <sub>IN</sub>			30		kΩ

■パッケージ：11ピン プラスチック SIL (パワータイプ)

■ブロック図



# AN7170

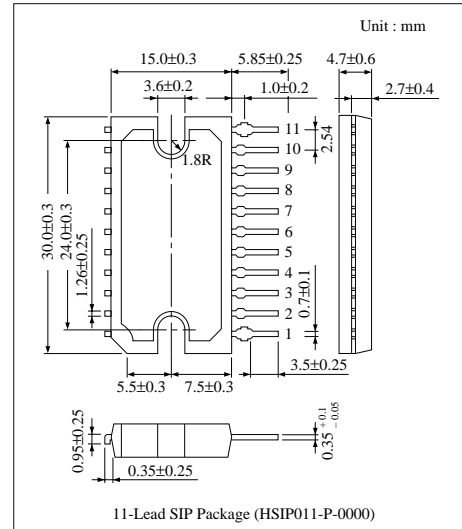
## 18W Audio Power Amplifier Circuit

### ■ Overview

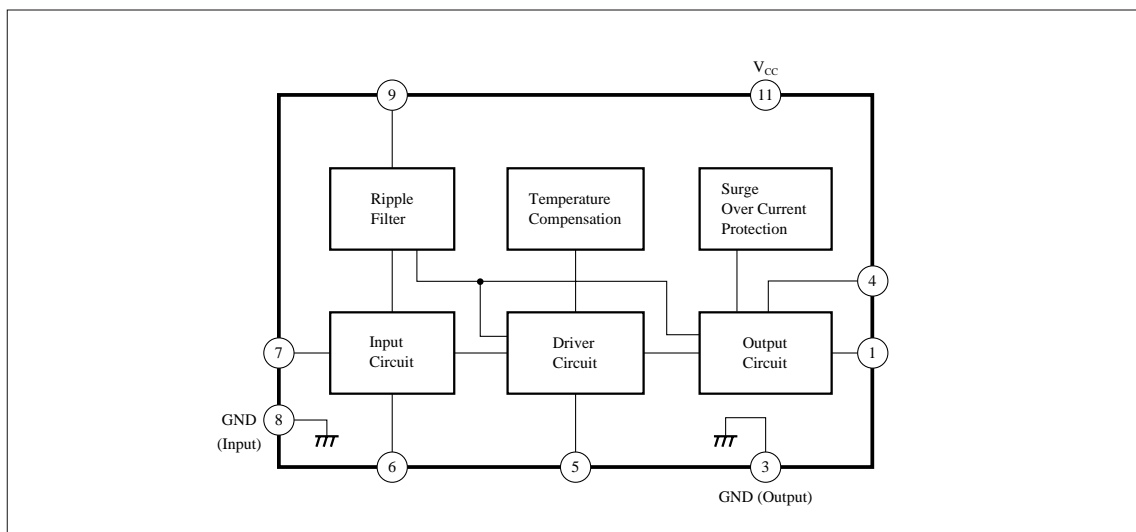
The AN7170 is an integrated circuit manufactured by high voltage process designed for power amplifier of bus, track amplifier. Wide operating supply voltage range with output of 18W at 26.4V. It can be widely used for bus, truck amp., car stereo, home entertainment stereo set and TV sound multiplex output.

### ■ Features

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



### ■ Block Diagram



### ■ Absolute Maximum Ratings (Ta= 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage (at no signal)	V <sub>CC</sub>	35	V
Supply Voltage (at operation)	V <sub>CC</sub>	30	V
Peak Supply Voltage <sup>Note 1)</sup>	V <sub>CC(surge)</sub>	60	V
Supply Current	I <sub>CC</sub>	4	A
Power Dissipation <sup>Note 2)</sup>	P <sub>D</sub>	31.25	W
Operating Ambient Temperature	T <sub>opr</sub>	- 30 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	- 55 ~ + 150	°C

Note 1) Pulse Voltage application t = 0.2s

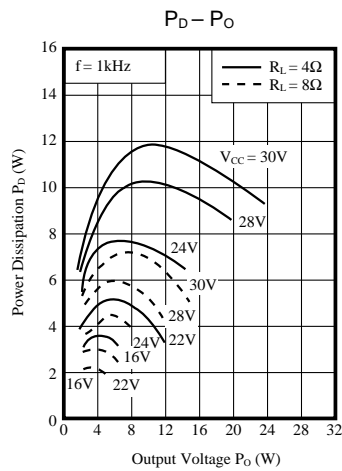
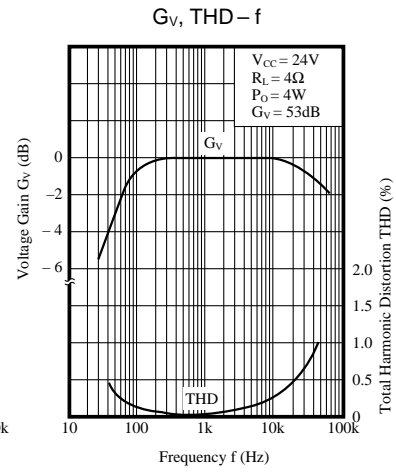
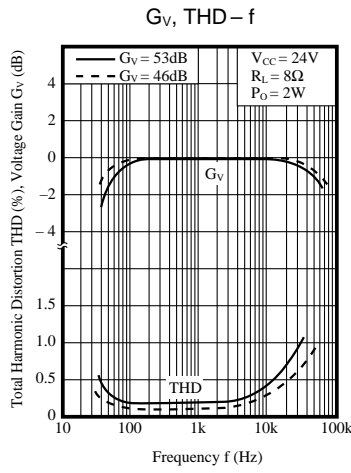
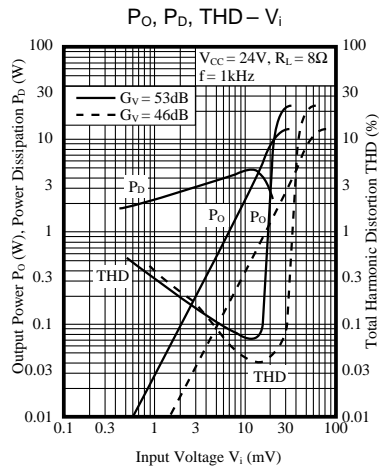
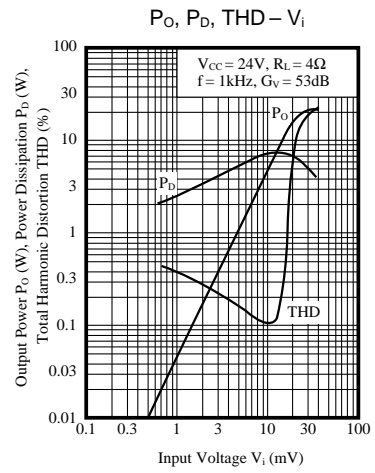
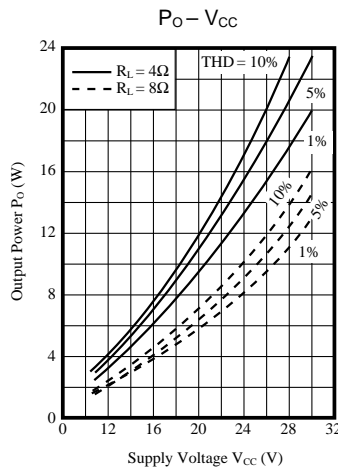
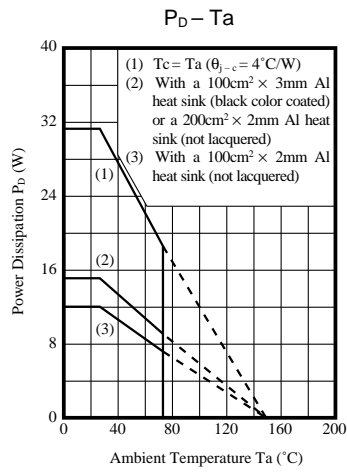
Note 2) Ta = 25°C (θ<sub>j-c</sub> = 4°C/W)

### ■ Electrical Characteristics (V<sub>CC</sub>= 26.4V, f = 1kHz, Ta= 25°C)

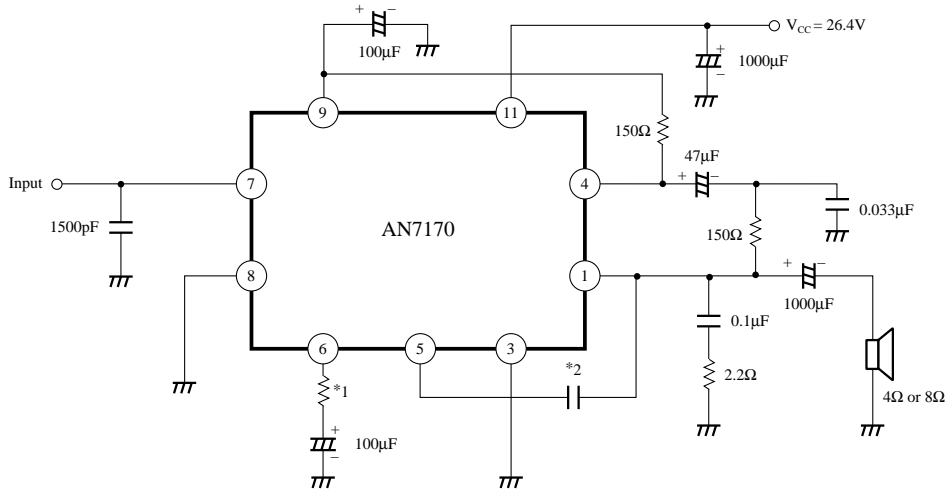
Parameter	Symbol	Condition	min.	typ.	max.	Unit
<b>(R<sub>L</sub>= 8Ω)</b>						
Quiescent Circuit Current	I <sub>CQ</sub>	V <sub>i</sub> = 0mV	40	75	160	mA
Voltage Gain	G <sub>V</sub>	V <sub>i</sub> = 3mV	51	53	55	dB
No Distortion Maximum Output	P <sub>O</sub>	THD= 1%	8	9.5	—	W
		THD= 10%	10.5	12	—	W
Total Harmonic Distortion	THD	V <sub>i</sub> = 3mV	—	0.1	0.7	%
Output Noise Voltage	V <sub>no</sub>	R <sub>g</sub> = 10kΩ, DIN A Filter	—	0.7	1.5	mV
Ripple Rejection Ratio	RR	V <sub>i</sub> = 0mV, R <sub>g</sub> = 0Ω	—	40	—	dB
Input Impedance	Z <sub>i</sub>		—	30	—	kΩ
<b>(R<sub>L</sub>= 4Ω)</b>						
No Distortion Maximum Output	P <sub>O</sub>	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 <sub>CC</sub>
6	Negative Feedback	—	—



■ Application Circuit



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

■ Printed Circuit Board Layout

