AN7168

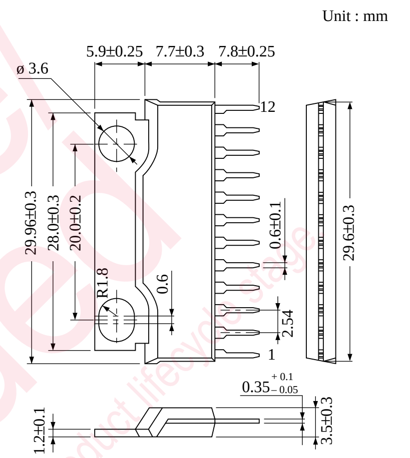
Dual 5.8W Audio Power Amplifier Circuit

■ Overview

The AN7168 is an integrated circuit designed for low distortion, low noise and low power dissipation audio set of 5.8W (13.2V, 4Ω) output. Stereo operation is enabled due to incorporating two amplifiers on one chip. 12-pin SIL package enabled compact and high integrated set. Thermal protection, short protection and excessive protection circuits are built in.

■ Features

- Highly stable operation
- Low distortion
- Low quiescent current
- Low noise
- Low shock noise from power ON/OFF operation
- Built-in muting circuit
- Fewer external components
- Incorporating protection circuits

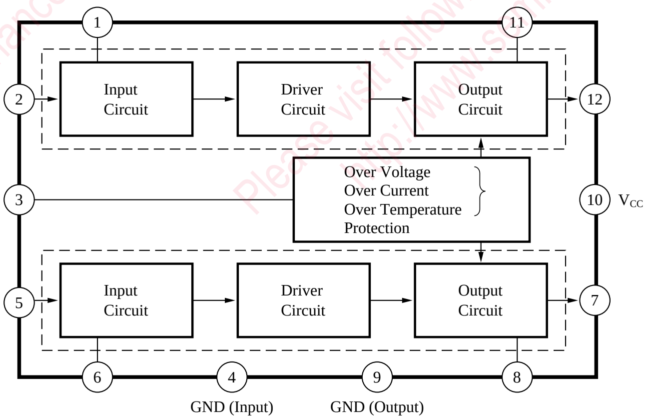


12-Lead SIP Package with Fin (HSIP012-P-0000A)

■ Pin Descriptions

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

■ Block Diagram



■ Absolute Maximum Ratings (Ta= 25˚C)

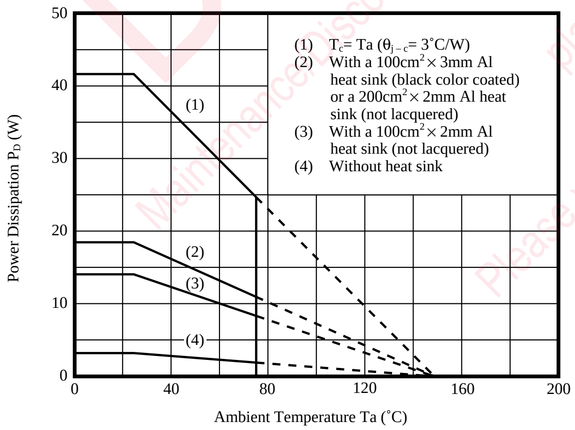
Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	24	V
Supply Current	I_{CC}	4	A
Power Dissipation Note 1)	P_D	41.7	W
Peak Supply Voltage Note 2)	$V_{CC\ (surge)}$	50	V
Operating Ambient Temperature	T_{opr}	– 30 ~ + 75	˚C
Storage Temperature	T_{stg}	– 55 ~ + 150	˚C

Note 1) $R_{\theta j-c}$ = 3˚C/W
Note 2) Voltage applied time = 0.2s

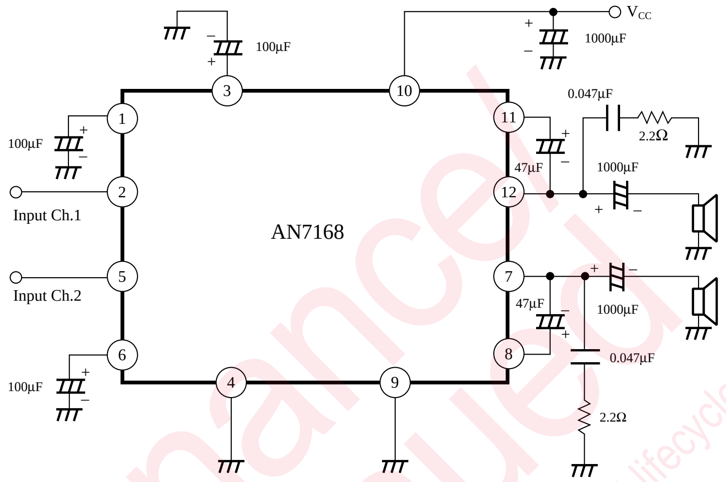
■ Electrical Characteristics (V_{CC} = 13.2V, f = 1kHz, R_L = 4Ω, Ta= 25˚C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	I_{CQ}	V_i= 0mV	30	55	100	mA
Voltage Gain	G_V	P_O= 0.5W	52	54	56	dB
Total Harmonic Distortion	THD	P_O= 0.5W, f= 1kHz	—	0.1	0.5	%
		P_O= 0.5W, f= 100Hz	—	0.1	—	
		P_O= 0.5W, f= 10kHz	—	0.2	—	
Maximum Output	P_O	THD = 10%	5	5.7	—	W
		THD = 10%, R_L= 2Ω	—	8.9	—	
		THD = 10%, R_L= 8Ω	—	3.1	—	
Output Noise Voltage	V_{no}	R_g= 10kΩ, 1000pF f = 15Hz ~ 30kHz, 12dB/OCT	—	0.8	1.5	mV
		R_g= 10kΩ, 1000pF, Without Filter	—	1.1	—	
Channel Balance	CB	P_O= 0.5W	—	0	1	dB
Channel Separation	CS	P_O= 0.5W	40	50	—	dB
Ripple Rejection Ratio	RR	P_O= 0.5W, Rg= 10kΩ, V_{ripple}= 280mVrms, f_{ripple}= 12Hz Sine wave	35	45	—	dB
Offset Voltage	$V_{O\ (offset)}$	V_i= 0mV	—	0	200	mV

P_D – Ta



■ Application Circuit



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