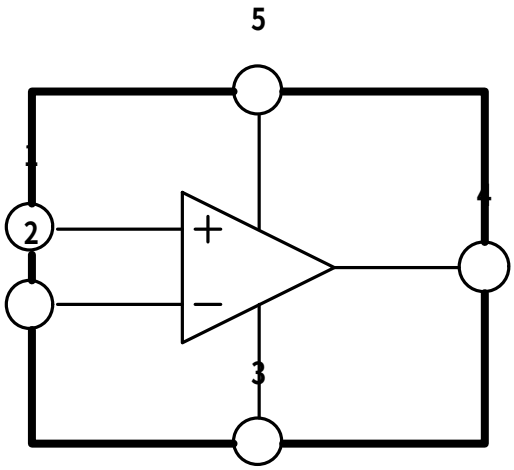
1. Overview

The HD1875 is a 20W mono audio power amplifier with high fidelity characterized by low harmonic distortion, high output power, few external components and it can safeguard the output against overloads, thermal runaway, short circuit and so on. Besides these above, with advanced manufacturing process, the HD1875 can be used for hi-fis, stereo recorders and other audio systems. Its **features** are:

- Output power as high as over 30W
- Open loop gain 90dB (Typ)
- Low THD: f = 1kHz，P_O = 20W，THD = 0.015%（Typ）
- Wide power bandwidth: $\triangle f_p$ = 70 kHz
- Short circuit protection system
- Thermal shut-down system
- High output current: I_{om}= 4A (Typ)
- Wide supply voltage range: V_{CC}=16~60V
- Built-in output protection diode
- Ripple rejection (94dB)
- FZIP5

2. Block Diagram and Pin Description

2.1 Block Diagram



2.2 Pin Description

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	IN	Signal Input	4	OUT	Output
2	NF	Negative feedback	5	V_{CC}	V_{CC}
3	V_{EE}/GND	Ground			

3. Electrical Characteristics

3.1 Absolute Maximum Ratings

Unless otherwise specified, T_{amb}= 25℃

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	60	V
Input Voltage	V_{in}	V_{CC}	V
Thermal Resistance 1	θ jc	3	℃/W
Thermal Resistance 2	θ_{jA}	73	℃/W
Power Dissipation	P_D	41.6	W
Operating Temperature	T_{amb}	-20 ~ 70	℃
Storage Temperature	T_{stg}	-65~150	℃

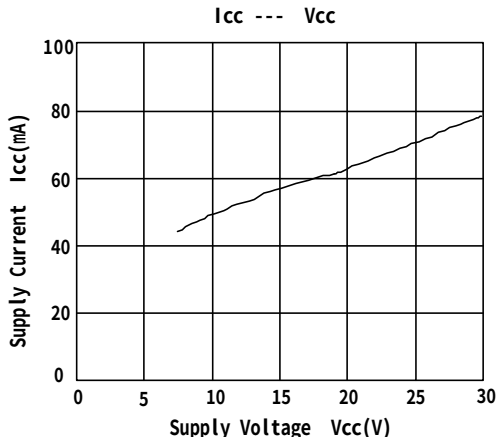
Notes: With the operating temperature above 55℃, the maximum output power into a load of 4Ω will be decreased based on the heat sink of 1℃/W.

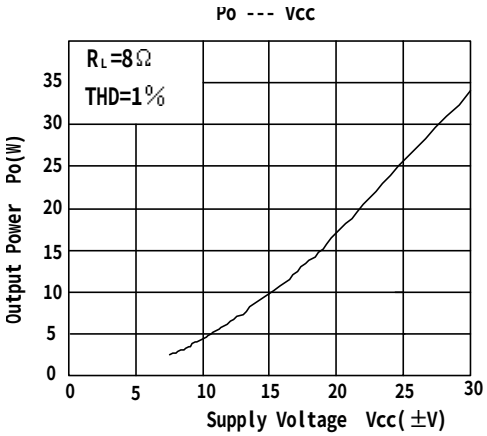
3.2 Electrical Characteristics

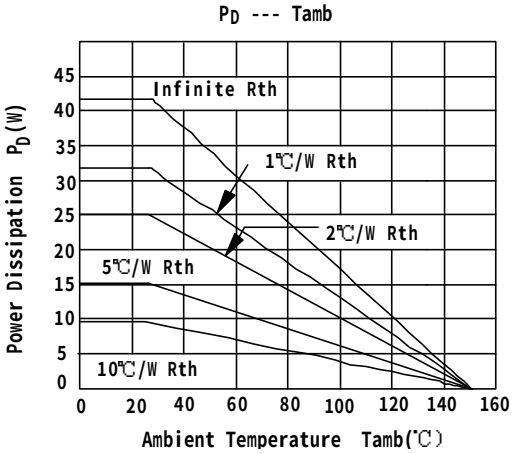
Unless otherwise specified, T_{amb}= 25℃, V_{CC} = ±25V, R_L = 8Ω, A_V = 26dB, f = 1kHz, P_O = 20W

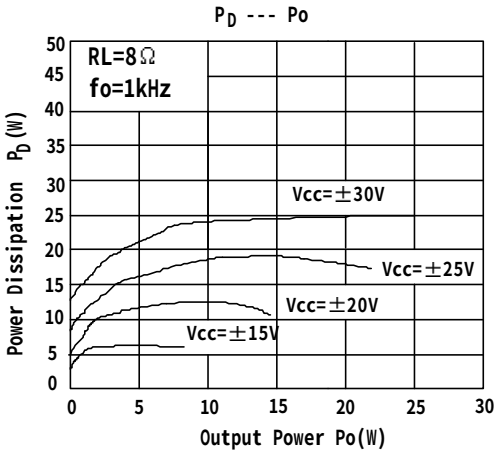
Parameter	Symbol	Test Conditions	Value			Unit
			Min	Typ	Max	
Quiescent Current	I_{CCQ}	V_i= 0		70	100	mA
Output Power	P_O	THD = 1%		25		W
Total Harmonic Distortion	THD			0.015		%
		f = 20kHz		0.05	0.4	
		R_L= 4Ω		0.022		
		R_L = 4Ω, f = 20kHz		0.07	0.6	
Offset Voltage	V_{fs}		-15	±1	15	mV
Input Bias Current	I_B		-2	±0.2	2	uA
Input Offset Current	I_{fs}		-0.5	0	0.5	uA
Bandwidth	BW	f = 20kHz		5.5		MHz
Open Loop Voltage Gain	A_{VO}	DC		90		dB
Power Supply Rejection Ratio	PSRR	V_{CC}, 1kHz, 1V	52	95		dB
		V_{EE}, 1kHz, 1V	52	83		
Slew Rate	SR	70kHz, BW		8		V/uS
Max Output Current	I_m	V_{out} = V_{CC} -10V	3	4		A
Equivalent Input Noise Voltage	V_{no}	R_S = 600Ω, CCIR		3		uV

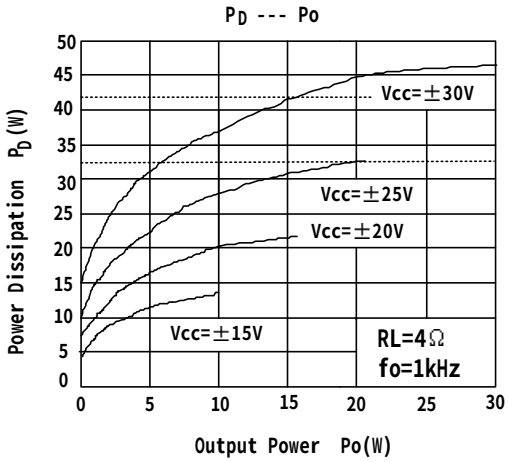
4. Characteristics Curve

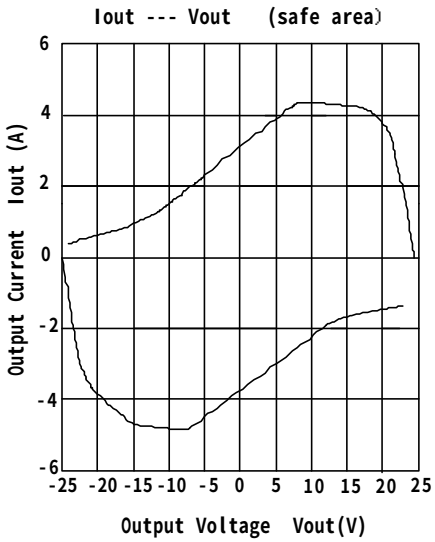


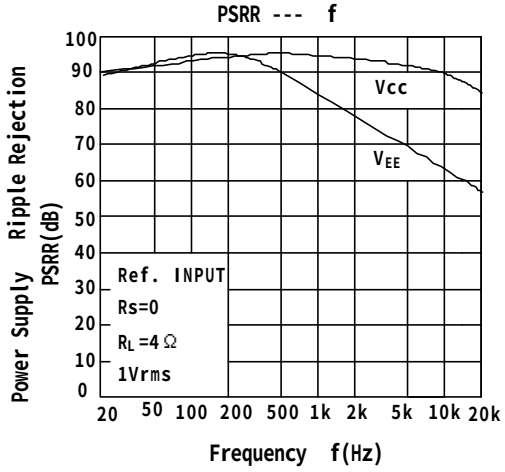


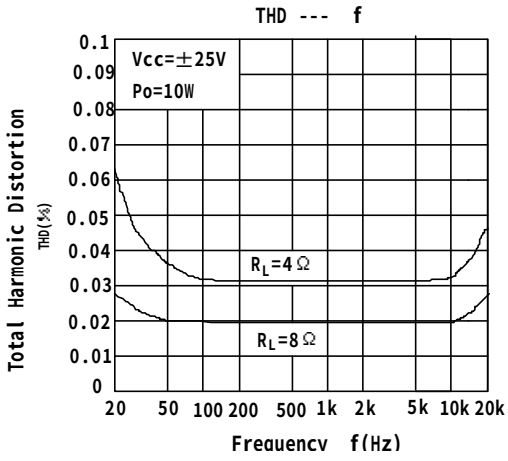


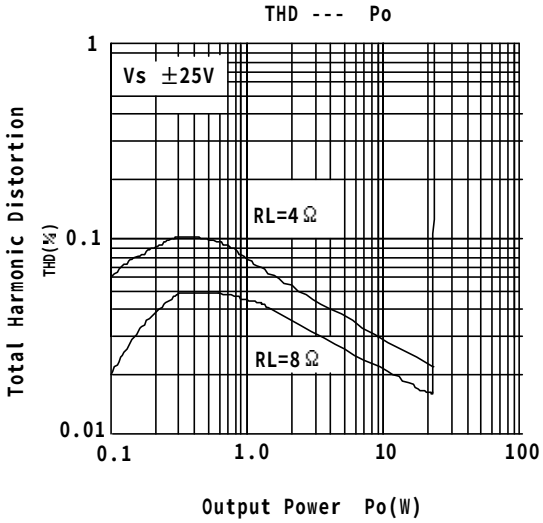


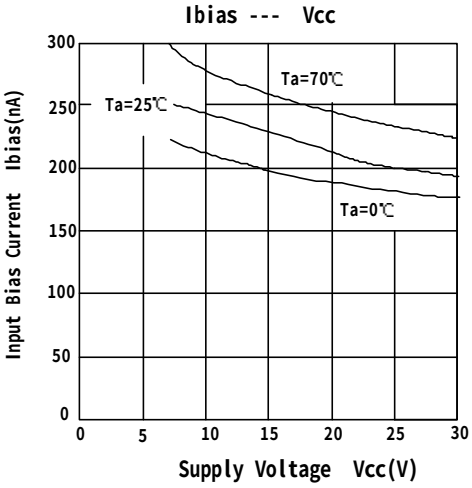












5. Application Circuit

5. 1 OCL Way

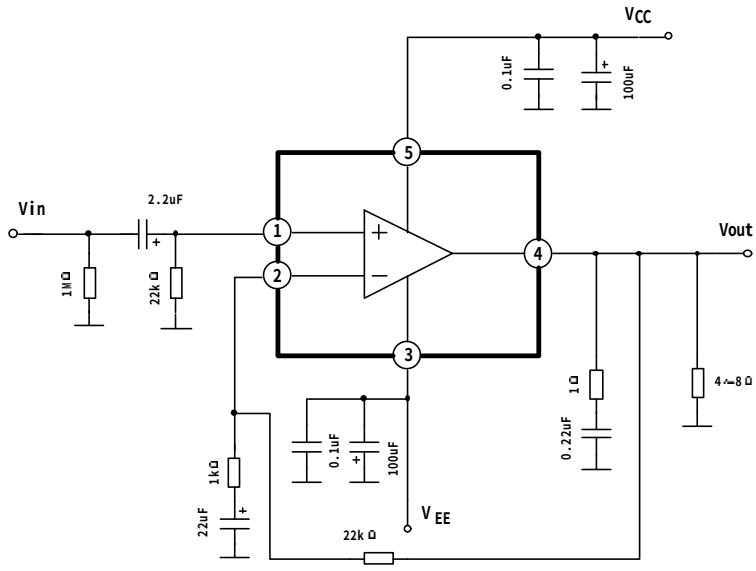


Fig 5.1

5.2 OTL Way

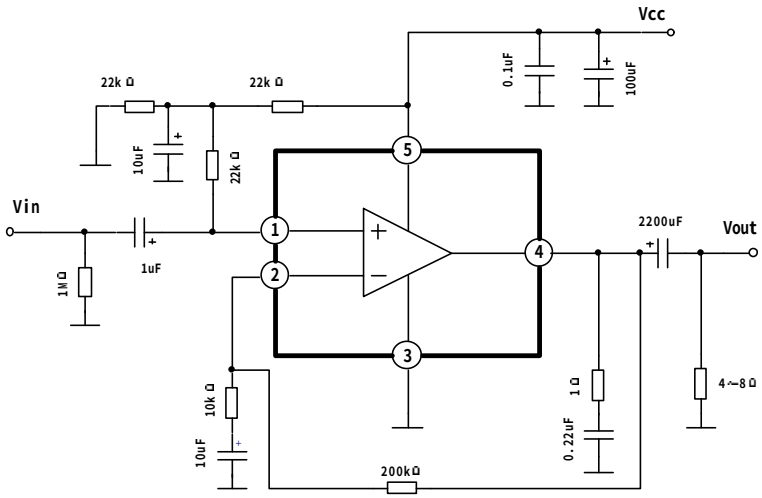


Fig 5.2

5.3 Notes

(1)Be careful the arrangement of the large signal ground and the small signal ground in case of oscillation.

(2) The anti-oscillation of the output ground should be as close as possible to IC pins.

(3) Using large enough heat sink if necessary according to the practical situation.

6. Package Dimensions