

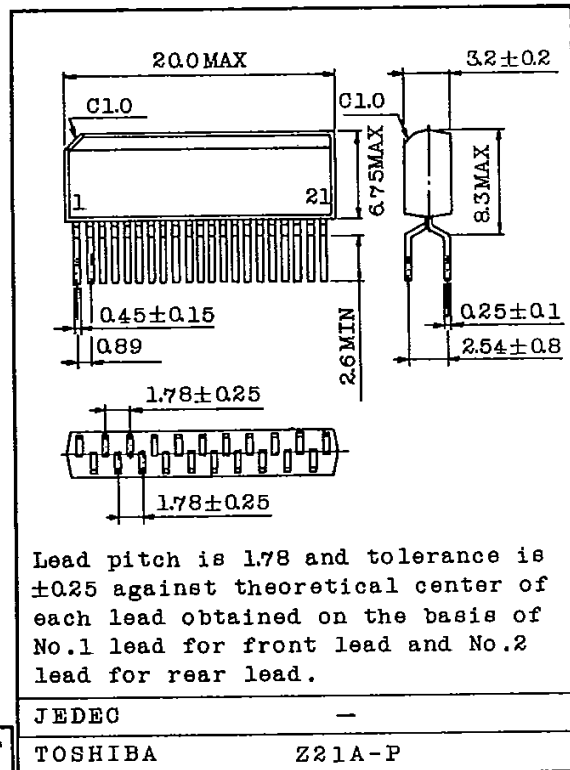
# TA7415P

## OUTPUT AMP. FOR CD PLAYER

TA7415P is an audio output (de-emphasis) amp. in CD players of portable type or low-end model.

- . 5V single power supply. (3-8V operation is possible)
- . Right and left stereo channel head phone driver amp. is built in.
- . Low distortion ratio. -83dB or less.
- . De-emphasis ON/OFF switch is built in.
- . Package is ZIP21-pin. Compact design is possible.

Unit in mm

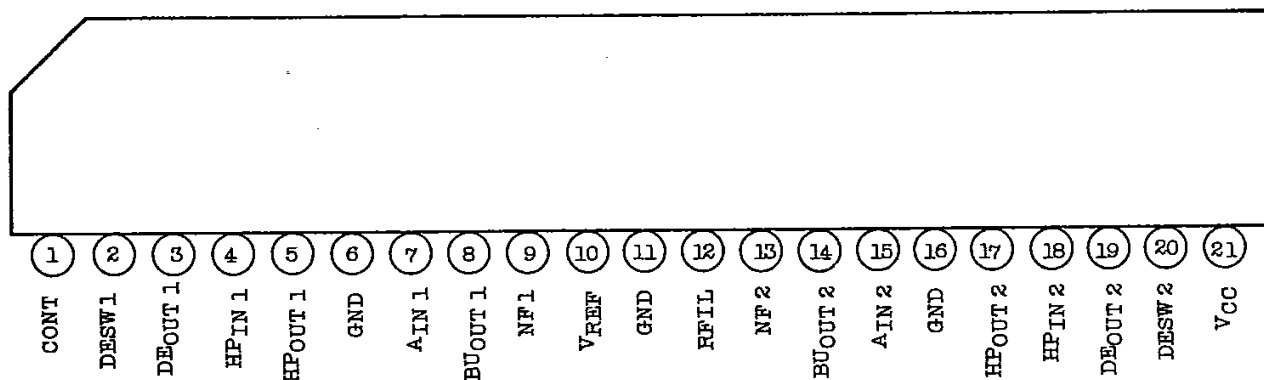


## MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V <sub>CC</sub>	9	V
Power Dissipation	P <sub>D</sub>	750*	mW
Operating Temperature	T <sub>opr</sub>	-25~75	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

\* Derated above Ta=25°C in the proportion of 6mW/deg.

## PIN CONNECTIONS



## ELECTRICAL CHARACTERISTICS

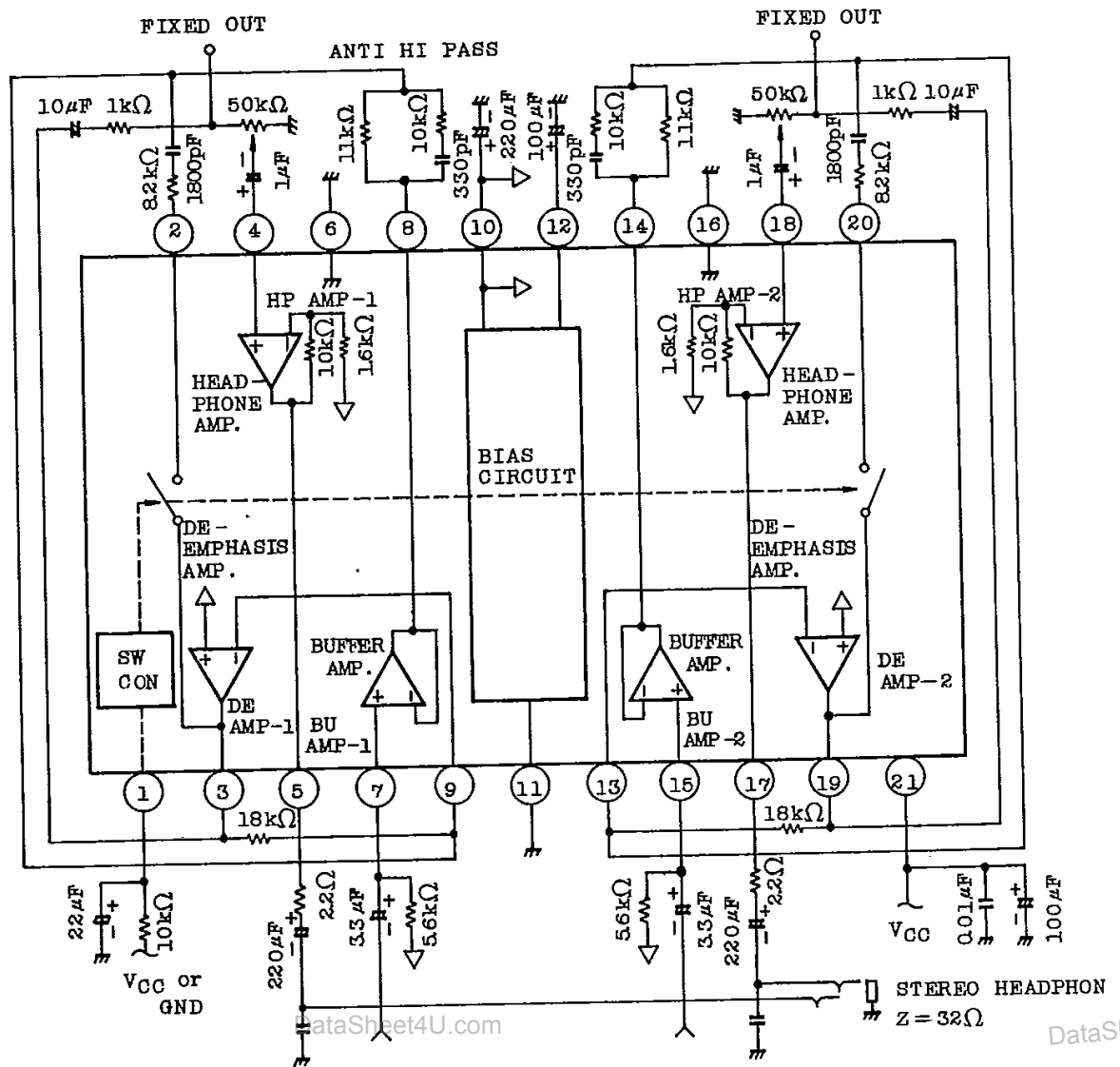
(Unless otherwise specified,  $V_{CC}=5V$ ,  $f=1kHz$ ,  $T_a=25^\circ C$ )

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		$I_{CCQ}$	-	$V_{IN}=0$	5	9	12.5	mA
DE-EMPHASIS AMP.	Distortion Ratio	THD <sub>DE1</sub>	3	$V_O=620mV_{rms}$ Emphasis ON	-	-	-85	dB
		THD <sub>DE2</sub>	3	$V_O=620mV_{rms}$ Emphasis OFF	-	-	-83	
		THD <sub>DE3</sub>	3	$V_O=620mV_{rms}$ , $f=10kHz$ Emphasis OFF	-	-	-80	
	Gain	GV <sub>DE1</sub>	3	$V_O=620mV_{rms}$ , $f=10kHz$ Emphasis ON	-3.4	-2.9	-2.4	dB
		GV <sub>DE2</sub>	3	$V_O=620mV_{rms}$ , $f=1kHz$ Emphasis OFF	3.8	4.3	4.8	
	Output Voltage	V <sub>OM</sub>	3	THD=1%, $f=1kHz$ Emphasis OFF	-	-	0.9	V <sub>rms</sub>
	Cross Talk	CT <sub>1</sub>	3	$V_O=620mV_{rms}$ , $f=1kHz$	83	-	-	dB
CT <sub>2</sub>		3	$V_O=620mV_{rms}$ , $f=10kHz$	80	-	-		
Ripple Rejection Ratio	RR	2	$V_{IN}=-30dBV$	40	-	-	dB	
HEADPHONE AMP.	Output Power	P <sub>OUT</sub>	3	THD=10%	20	-	-	mW
	Distortion Ratio	THD <sub>HP</sub>	3	$P_O=10mW$	-	-70	-50	dB
	Gain	GV <sub>HP</sub>	3	$P_O=10mW$	15.5	17	18.5	dB
	Input Resistance	R <sub>IN</sub>	1		15	20	27	k $\Omega$
	Output Offset Voltage	V <sub>OS</sub>	-	$V_S \cdot V_{REF}$	70	140	180	mV
OTHERS	Reference Voltage	V <sub>REF</sub>	-		2.45	2.5	2.55	V
	Switch Control Voltage	"H" Level	V <sub>IH</sub>	-	3.5	-	5	V
		"L" Level	V <sub>IL</sub>	-	0	-	1	

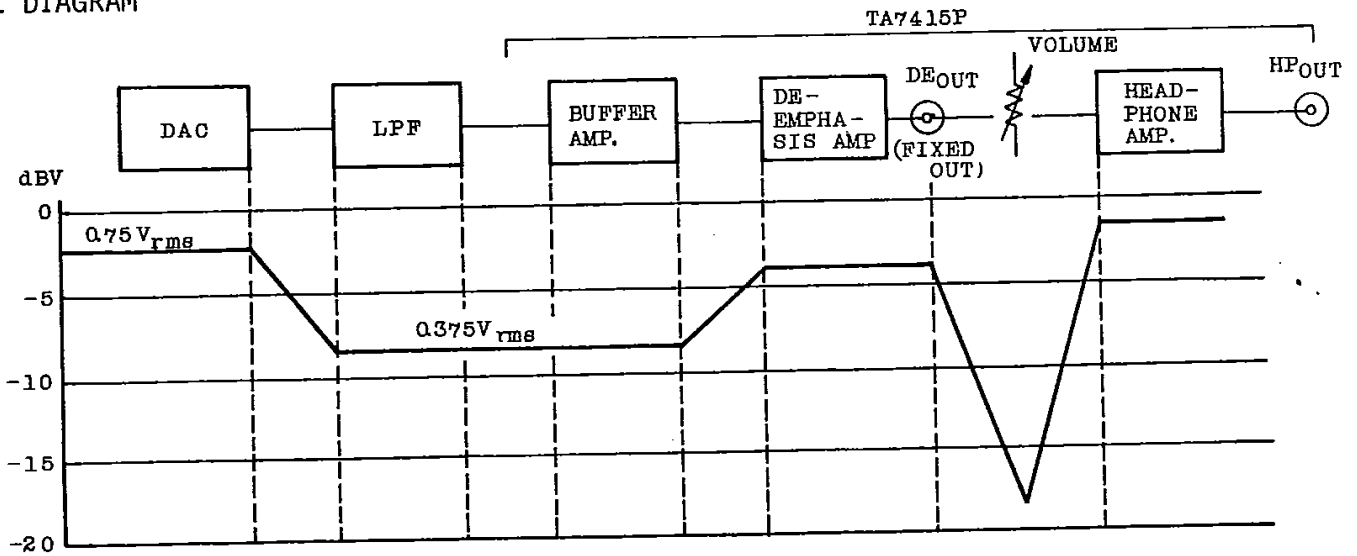
## FUNCTION OF EACH PIN

PIN No.	SYMBOL	I/O	FUNCTION DESCRIPTION	REMARKS
1	CONT	I	De-emphasis ON/OFF switching terminal. At "H" level, De-emphasis turns ON.	
2	DESW <sub>1</sub>	I	De-emphasis ON/OFF switching terminal-1.	
3	DEOUT1	O	De-emphasis amp. output terminal-1.	
4	HPIN1	I	Headphone amp. input terminal-1.	
5	HPOUT1	O	Headphone amp. output terminal-1.	
6	GND	-	Ground terminal.	
7	AIN1	I	Audio signal input terminal-1.	Connection with passive LPF is possible.
8	BUOUT1	O	Buffer amp. output terminal-1. AIN1 signal buffer output.	
9	NF1	I	De-emphasis amp. negative phase input terminal.	
10	VREF	-	Reference voltage supply terminal.	Connect capacitor for filter between this terminal and GND.
11	GND	-	Ground terminal.	
12	RFIL	I	Ripple filter connection terminal.	Connect capacitor for filter between this terminal and GND.
13	NF2	I	De-emphasis amp. negative phase input terminal-2.	
14	BUOUT2	O	Buffer amp. output terminal-2. AIN2 signal buffer output.	
15	AIN2	I	Audio signal input terminal-2.	Connection with passive LPF is possible.
16	GND	-	Ground terminal.	
17	HPOUT2	O	Headphone amp. output terminal-2.	
18	HPIN2	I	Headphone amp. input terminal-2.	
19	DEOUT2	O	De-emphasis amp. output terminal-2.	
20	DESW2	I	De-emphasis ON/OFF switching terminal-2.	
21	VCC	-	Power supply terminal.	

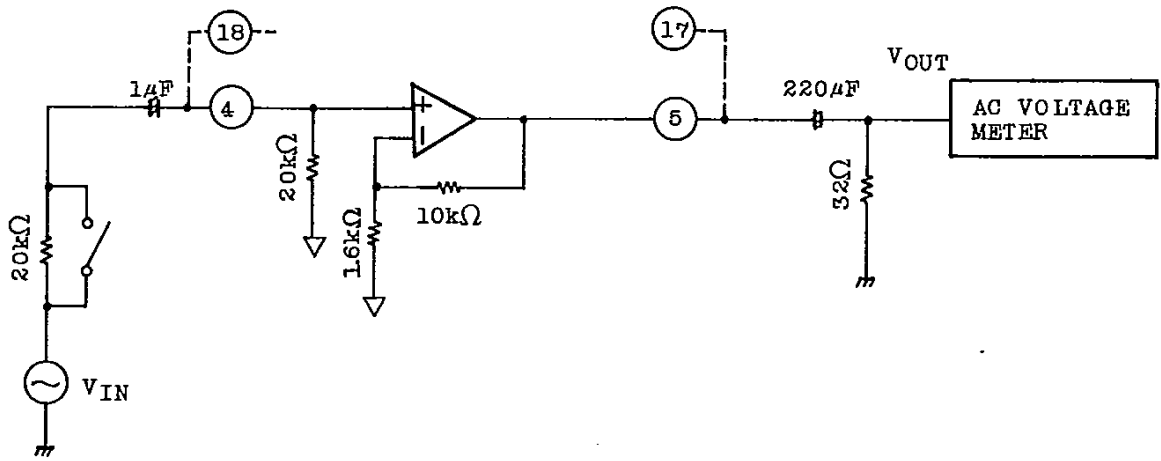
Note: Connect GND terminal outside IC (pins 6,11,16).



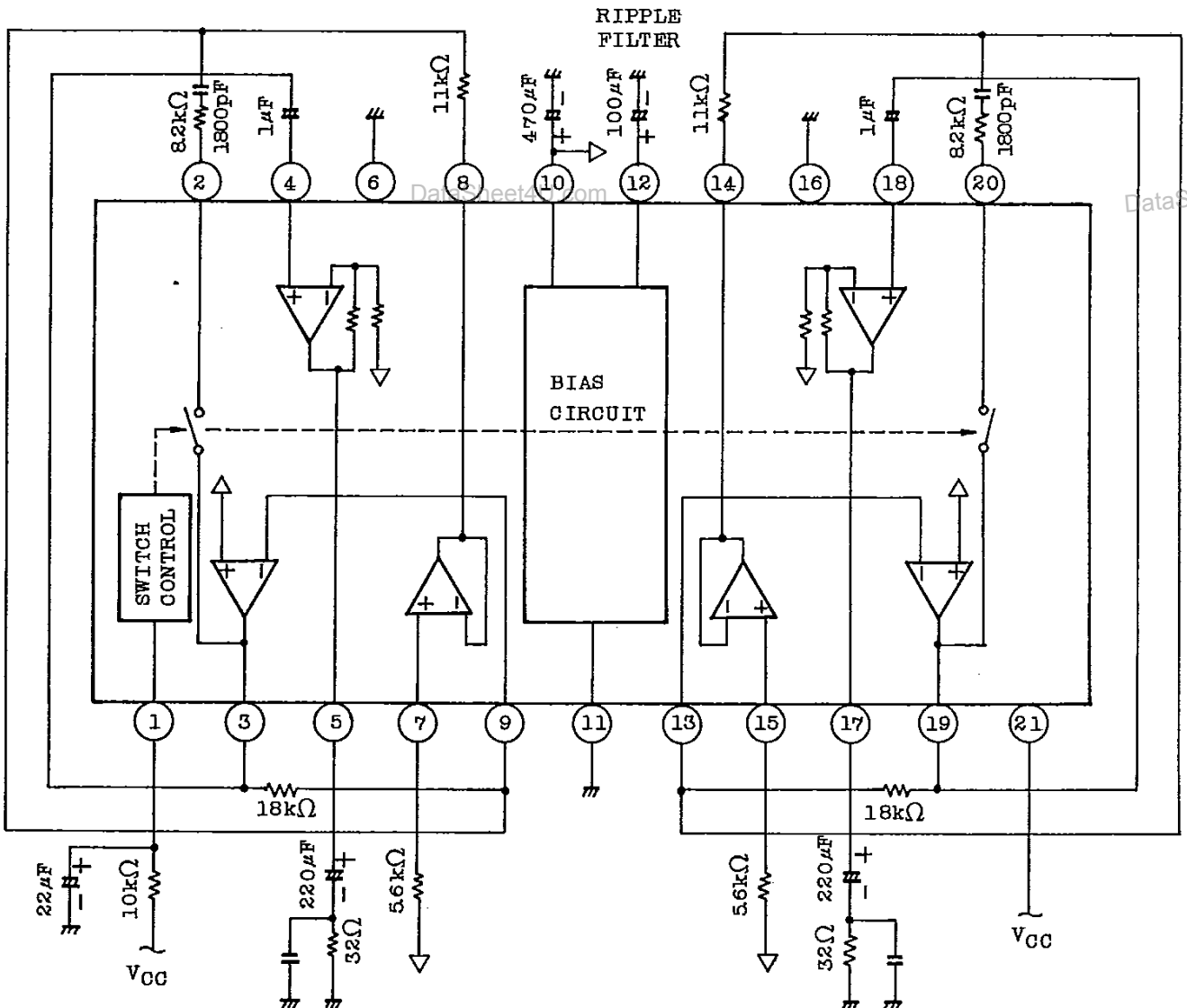
LEVEL DIAGRAM



### TEST CIRCUIT 1



### TEST CIRCUIT 2



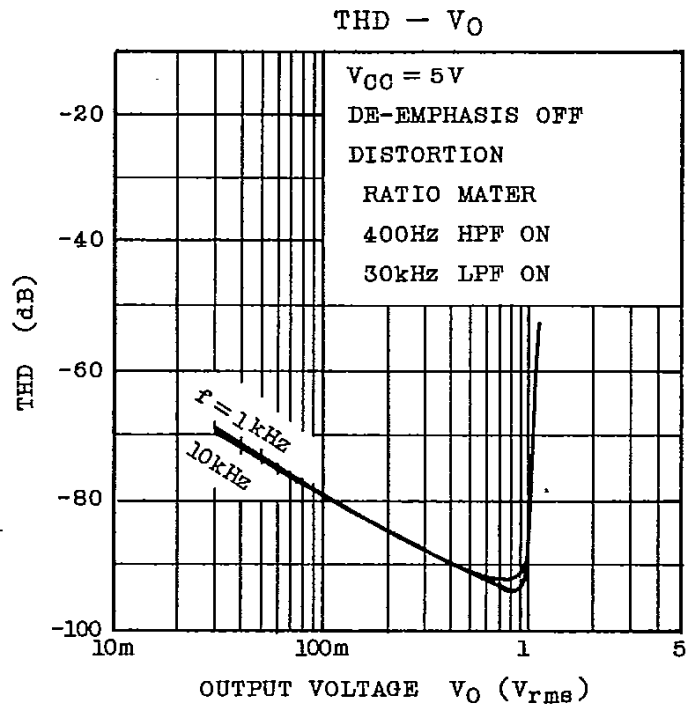
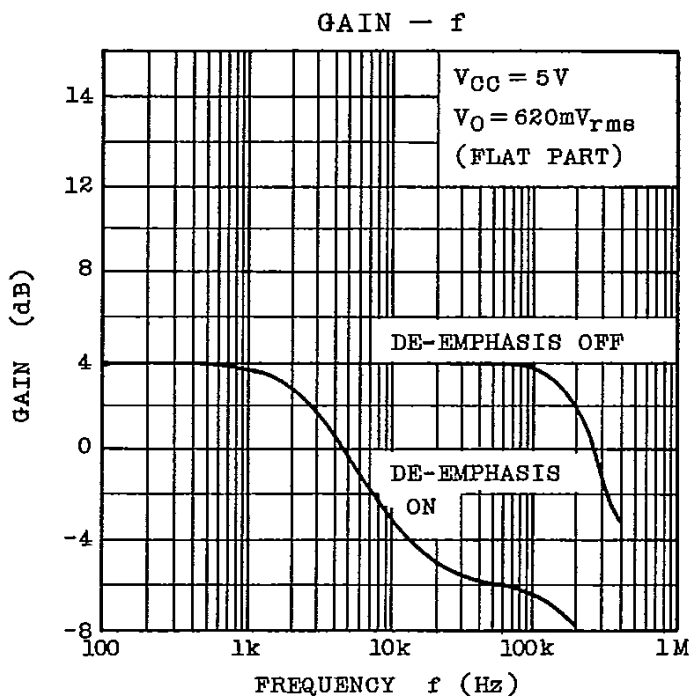
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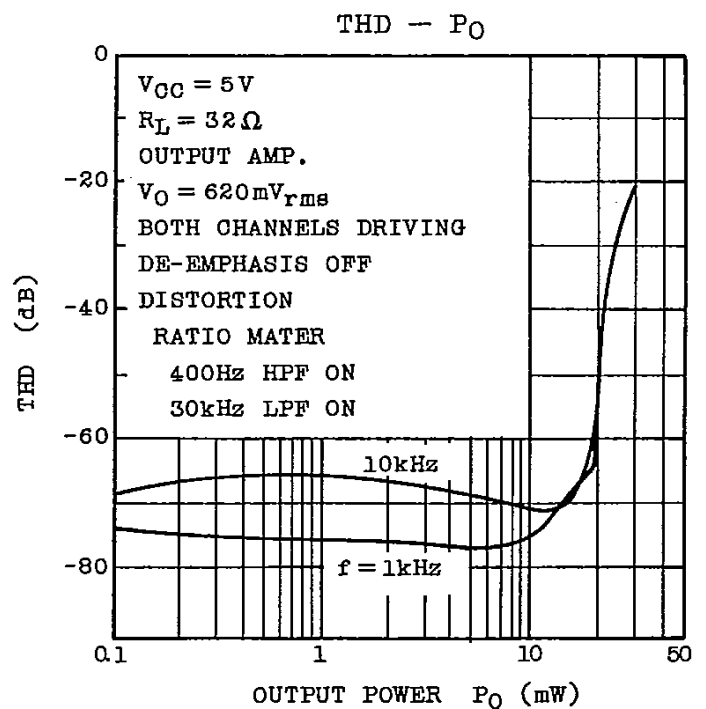
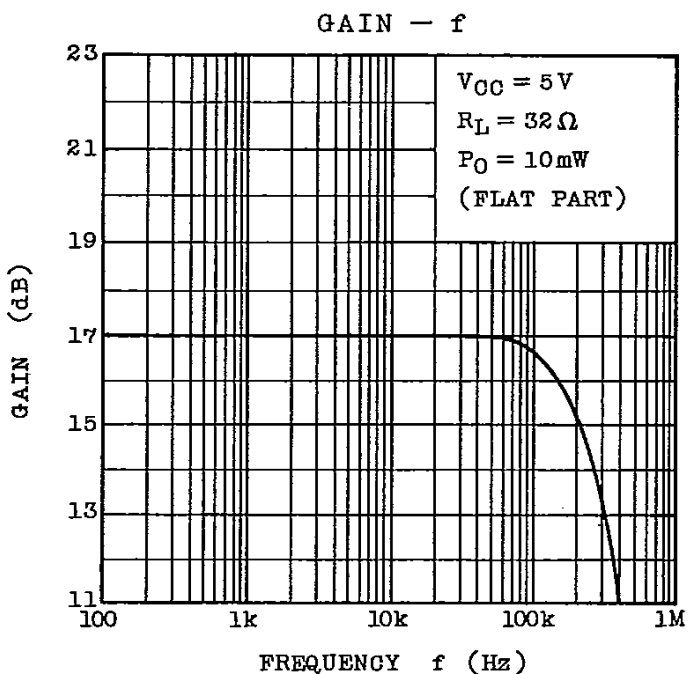
## (1) OUTPUT AMP.



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## (2) HEADPHONE AMP.



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