

M51565P

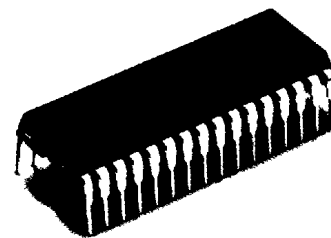
ANALOG OUTPUT AMPLIFIER FOR CD PLAYER

DESCRIPTION

The M51565FP is a semiconductor integrated circuit developed as an analog output amp for use in combination with a D/A converter for digital audio applications such as CD players.

FEATURES

- Combination with D/A converter produces analog output of low distortion
- Built-in driver circuit makes it possible to drive each switch with input of small bias current
- Includes high-speed switch driver for use at sampling frequency 88.2kHz



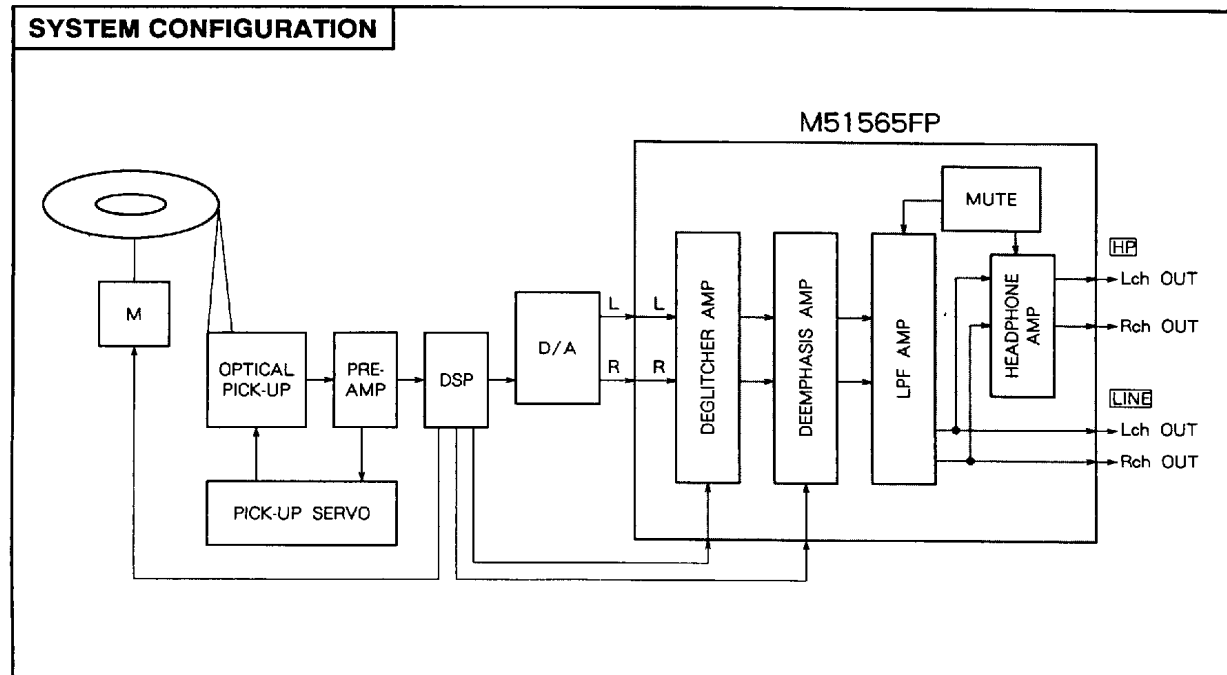
Outline 32P4B

1.778mm pitch 400mil SDIP
(8.9mm × 28.0mm × 3.8mm)

RECOMMENDED OPERATING CONDITIONS

Supply voltage range..... $V_{CC}, V_{EE} = \pm 4.5 \sim \pm 5.5V$
 Rated supply voltage..... $V_{CC}, V_{EE} = \pm 5V$
 Rated power dissipation215mW

SYSTEM CONFIGURATION



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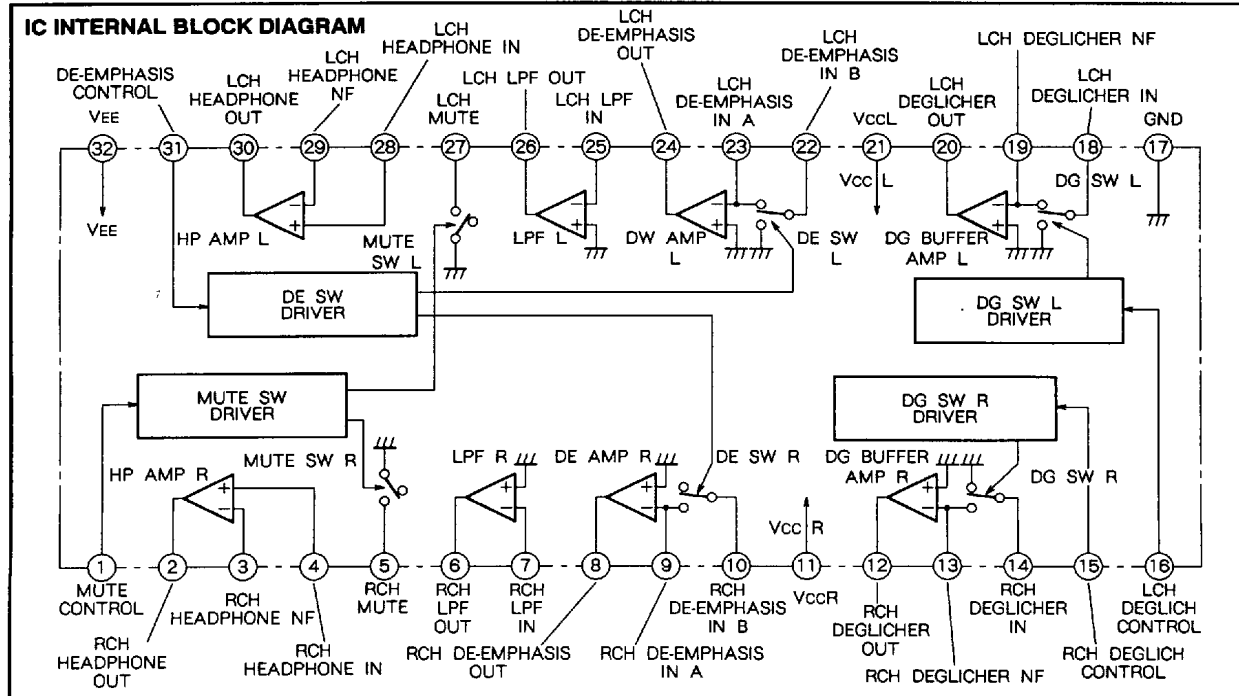
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PIN CONFIGURATION

MUTE CONTROL	1	32	VEE
RCH HEADPHONE OUT	2	31	DE-EMPHASIS CONTROL
RCH HEADPHONE NF	3	30	LCH HEADPHONE OUT
RCH HEADPHONE IN	4	29	LCH HEADPHONE NF
RCH MUTE	5	28	LCH HEADPHONE IN
RCH LPF OUT	6	27	LCH MUTE
RCH LPF IN	7	26	LCH LPF OUT
RCH DE-EMPHASIS OUT	8	25	LCH LPF IN
RCH DE-EMPHASIS IN A	9	24	LCH DE-EMPHASIS OUT
RCH DE-EMPHASIS IN B	10	23	LCH DE-EMPHASIS IN A
VccR	11	22	LCH DE-EMPHASIS IN B
RCH DEGLICHER OUT	12	21	VccL
RCH DEGLICHER NF	13	20	LCH DEGLICHER OUT
RCH DEGLICHER IN	14	19	LCH DEGLICHER NF
RCH DEGLICHER CONTROL	15	18	LCH DEGLICHER IN
LCH DEGLICHER CONTROL	16	17	GND

Outline 32P4B

IC INTERNAL BLOCK DIAGRAM



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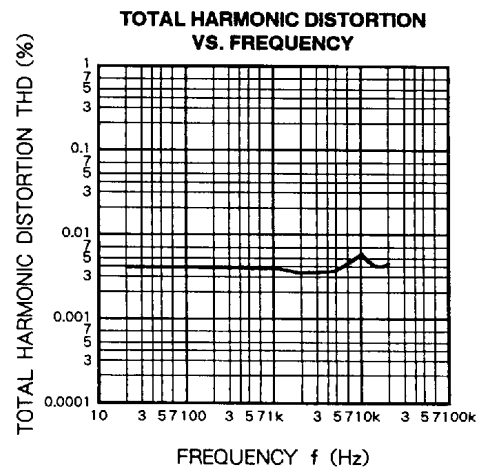
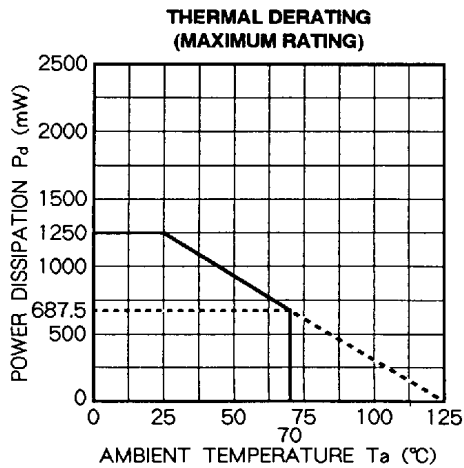
ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V_{CC-VEE}	Supply voltage	11	V
I_{CC}, I_{EE}	Circuit current	100	mA
P_d	Power dissipation	1250	mW
K_θ	Thermal derating	12.5	mW/ $^\circ\text{C}$
T_{opr}	Operating temperature	$-20 \sim +70$	$^\circ\text{C}$
T_{stg}	Storage temperature	$-40 \sim +125$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5\text{V}$, $V_{EE} = -5\text{V}$, $T_a = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{CC}	Circuit current1	$I_{CC1} + I_{CC2}$, zero input signal	14	43	70	mA
I_{EE}	Circuit current2	zero input signal	-65	-40	-12	mA
THD	Line out	Total harmonic distortion	-	0.004	0.009	%
S/N		Signal/noise ratio	85	96	-	dB
CS		Channel separation	70	83	-	dB
ATT		Mute attenuation	6	18	-	dB
V_{OHPMAX}	Headphone amplifier Maximum output voltage	$f = 1\text{kHz}$, THD=3%, $R_L = 30\Omega$, $G_v = 20\text{dB}$, R_s (short circuit protection resistor)=150 Ω	0.20	0.33	-	Vrms
I_{BDG}	DG SW bias current	$V_{in} = 5\text{V}$, pin ⑤, ⑥	-	10	50	μA
V_{IH}	High level input voltage	pin ①, ⑤, ⑥, ⑨	3	-	5	V
V_{IL}	Low level input voltage	pin ①, ⑤, ⑥, ⑨	0	-	1.5	V

TYPICAL CHARACTERISTICS



[illegible]

Note 1. CX23035, CXD1125, $f_s = 44.1\text{kHz}$, only
C CXD1130 CXD1135
 $f_s = 44.1\text{kHz}$ ("H" at pin ⑤)
 $f_s = 88.2\text{kHz}$ ("L" at pin ⑤)
2. L/R of DG control signal are inverted.

Units Resistance : Ω
Capacitance : F

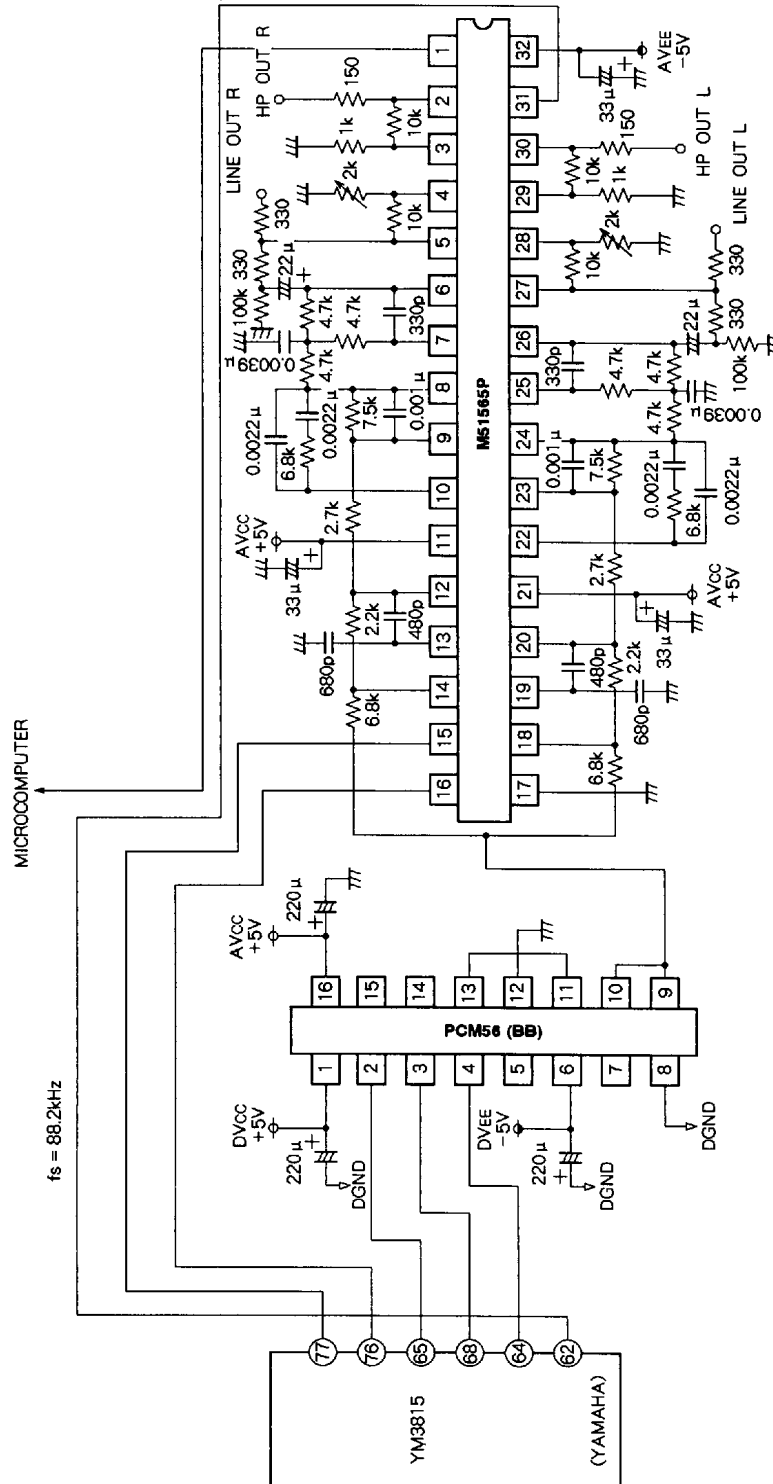
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APPLICATION EXAMPLE 3 (Signal Processing IC YM3815) (DAC PCM56)



Units Resistance : Ω
Capacitance : F

Units Resistance : Ω
Capacitance : F