

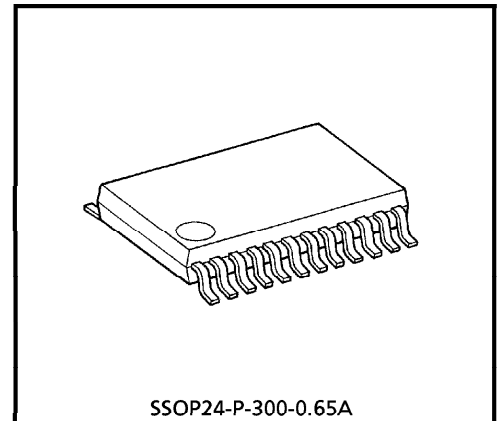
TA2120FN

LOW CONSUMPTION CURRENT STEREO HEADPHONE POWER AMPLIFIER FOR PORTABLE CD (3V USE)

The TA2120FN is a low consumption current stereo headphone power amplifier developed for portable CD players (3V). This IC has active bass boost, output limiter, input pin for beep sound.

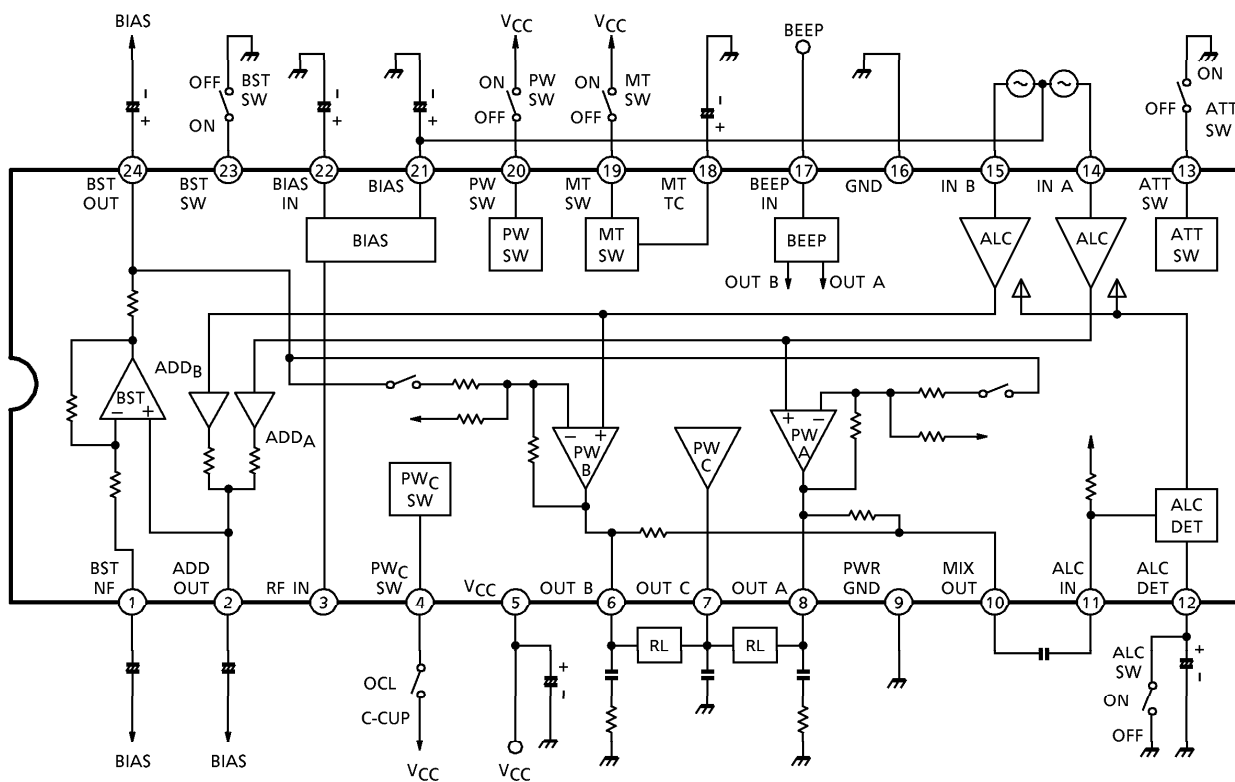
FEATURES

- Low consumption current : $I_{CCQ} = 1.9\text{mA}$ (C-CUP) (typ.)
 $I_{CCQ} = 2.6\text{mA}$ (OCL) (typ.)
- Two kinds of gain mode available : $G_V = 16\text{dB}$ or 8.5dB
- Output power ($V_{CC} = 2.0\text{V}$, $f = 1\text{kHz}$, $\text{THD} = 10\%$, $R_L = 16\Omega$)
 $P_o = 8\text{mW}$ (typ.)
- Low noise : $V_{NO} = -98\text{dBV}$ (typ.)
- Built-in the center amplifier ON/OFF function.
(Favorable for low dissipation current in the C-Couple output configuration)
- Built-in active bass boost system
- Built-in output limiter function
- Input pin for beep sound
- Excellent ripple rejection ratio
- Built-in capacitor for reducing buzz noise
- Built-in power mute
- Built-in a power on/off switch
- Operating supply voltage range ($T_a = 25^\circ\text{C}$) : $V_{CC}(\text{opr}) = 1.8 \sim 4.5\text{V}$



SSOP24-P-300-0.65A
Weight : 0.14g (Typ.)

BLOCK DIAGRAM



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	4.5	V
Output Current	I _o (peak)	100	mA
Power Dissipation	P _D (Note)	550	mW
Operating Temperature	T _{opr}	– 25~75	°C
Storage Temperature	T _{stg}	– 55~150	°C

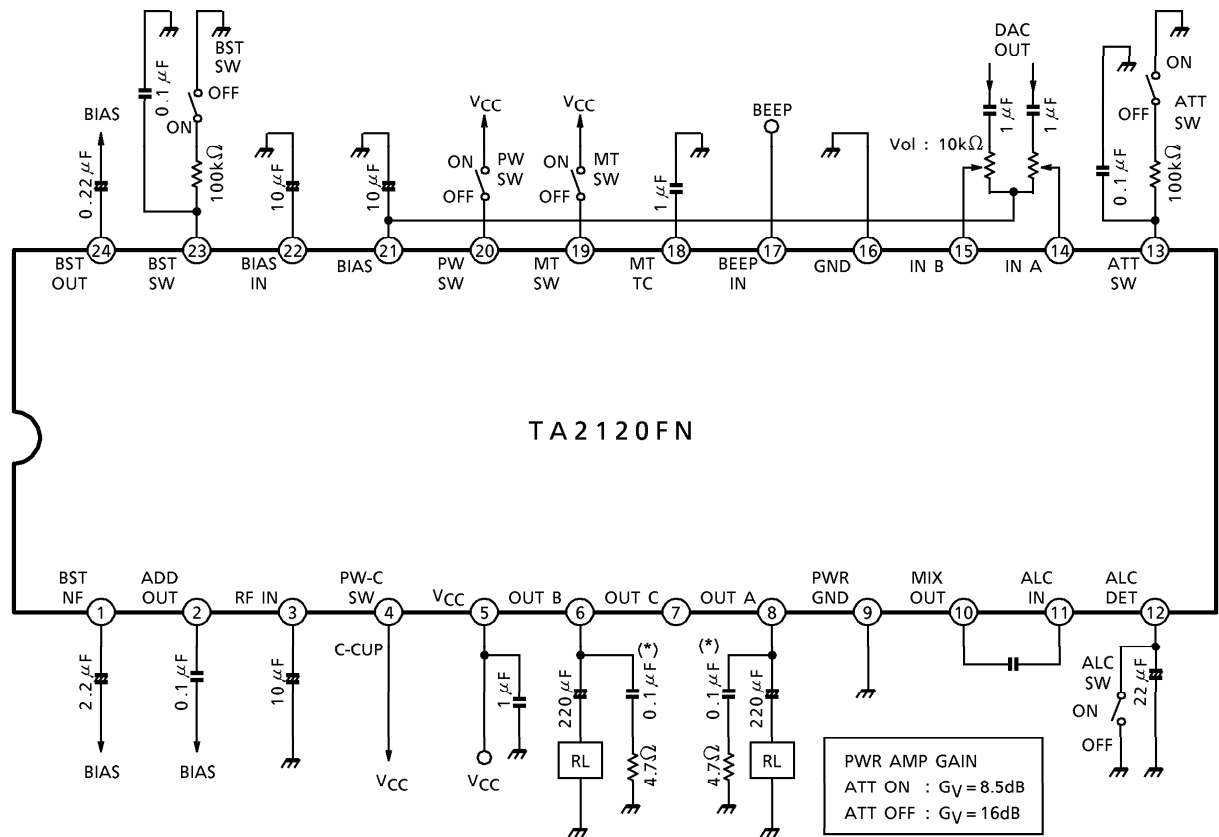
(Note) Deleted above 25°C in the proportion of 4.4mW / 1°C.

ELECTRICAL CHARACTERISTICS

(Unless otherwise specified : V_{CC} = 2.4V, R_g = 600Ω, R_L = 16Ω, f = 1kHz, Ta = 25°C
 SW1 : a, SW2 : a, SW3 : OPEN, SW4 : a, SW5 : a, SW6 : OPEN, SW7 : ON,
 SW8 : ON

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Supply Current		I _{CC1}	—	IC OFF (C-Couple) SW1 : b, SW2 : b, SW3 : ON	—	0.1	5	μA
		I _{CC2}		IC OFF (OCL) SW1 : b, SW2 : b	—	0.1	5	μA
		I _{CC3}		MUTE ON (C-Couple) SW2 : b, SW3 : ON	—	1	2	mA
		I _{CC4}		MUTE ON (OCL) SW2 : b	—	1.7	3	mA
		I _{CC5}		No signal (C-Couple) SW3 : ON	—	1.9	3.5	mA
		I _{CC6}		No signal (OCL)	—	2.6	4.5	mA
Consumption Supply Current		I _{CC7}	—	P _O = 0.5mW + 0.5mW (C-Couple), SW3 : ON	—	6.6	—	mA
		I _{CC8}		P _O = 0.5mW + 0.5mW (OCL)	—	12.1	—	
Power Amplifier Stage	Voltage Gain (1)	G _{V1}	—	V _O = – 22dBV, SW6 : GND	5.5	8.5	10.5	dB
	Voltage Gain (2)	G _{V2}	—	V _O = – 22dBV	14	16	18	
	Output Power	P _{omax}	—	THD = 10%, V _{CC} = 2.0V	5	8	—	mW
	Total Harmonic Distortion	THD	—	V _O = – 12.2dBV	—	0.1	0.5	%
	Output Noise Voltage	V _{no}	—	R _g = 600Ω, Filter : IHF-A, SW5 : b	—	– 98	– 92	dBV
	Crosstalk	CT	—	V _O = – 12.2dBV	24	40	—	dB
	Ripple Rejection Ratio	RR	—	V _{CC} = 1.8V, fr = 100Hz, Vr = – 20dBV	69	75	—	dB
	Mute Attenuation	MUTE	—	V _O = – 12.2dBV, SW2 : b	80	90	—	dB
	Beep Voltage	VBEEP	—	V Beep IN = 0dBV, SW2 : b	– 56	– 51	– 46	dBV
Boost Gain		Bst	—	V _O = – 30dBV, f = 100Hz, SW7 : ON→OPEN	9	11.5	14	dB
Output Limiter Level		V _{ALC}	—	V _{in} = – 20dBV, SW8 : OPEN	– 41.5	– 39.5	– 37.5	dBV

APPLICATION CIRCUIT 1 (C-Couple MODE)



(*) MONOLITHIC CERAMIC CAPACITOR

APPLICATION CIRCUIT 2 (OCL MODE)

