TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7331P, TA7331F

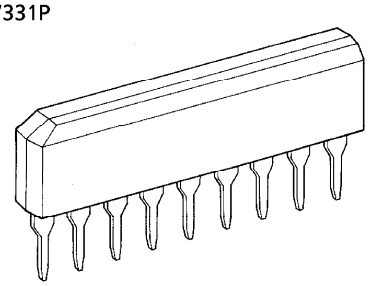
LOW QUIESCENT CURRENT AUDIO POWER AMPLIFIER FOR MINI / MICRO CASSETTE TAPE RECORDER

The TA7331P and TA7331F are an audio power amplifier designed for use in low voltage consumer applications. Especially it is suitable for mini / micro cassette tape recorder and pocket radio applications.
As the quiescent current is only 3mA at 3V, it is best for battery operation.

FEATURES

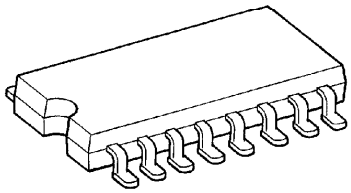
- Operating supply voltage range
  : $V_{CC\ (opr)} = 2 \sim 5V \cdots$ TA7331P (Ta = 25°C)
  $V_{CC\ (opr)} = 2 \sim 4V \cdots$ TA7331F (Ta = 25°C)
- Low quiescent current : $I_{CCQ} = 3mA$ (Typ.)
  ($V_{CC} = 3V$, Ta = 25°C)
- OTL audio power amplifier
- TA7331F (SO) is standard model of flat package

TA7331P



SIP9-P-2.54A

TA7331F (SO)



SSOP16-P-225-1.00

Weight
SIP9-P-2.54A : 0.92g (Typ.)
SSOP16-P-225-1.00 : 0.14g (Typ.)

OUTPUT POWER TABLE (f = 1kHz, THD = 10%, Ta = 25°C)

CONDITION \ PACKAGE		TA7331P	TA7331F
$V_{CC} = 3V$	$R_L = 8\Omega$	120mW	120mW
	$R_L = 4\Omega$	200mW	200mW
	$R_L = 8\Omega$ BTL	400mW	400mW
$V_{CC} = 4.5V$	$R_L = 8\Omega$	300mW	Cannot use
	$R_L = 4\Omega$	500mW	

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V_{CC}	8	V
Operating Supply Voltage	TA7331P	V_{CC}	5	V
	TA7331F		4	
Power Dissipation	TA7331P	P_D (Note)	700	mW
	TA7331F		350	
Operating Temperature		T_{opr}	−10~60	°C
Storage Temperature		T_{stg}	−55~150	°C

(Note) Derated above 25°C in the proportion of 5.6mW/°C for TA7331P and 2.8mW/°C for the TA7331F.

ELECTRICAL CHARACTERISTICS

TA7331P

Unless otherwise specified, V_{CC} = 3V, f = 1kHz, R_L = 4Ω, Ta = 25°C

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ} (1)	—		—	3	5	mA
	I_{CCQ} (2)	—	V_{CC} = 4.5V	—	5	6.5	
Voltage Gain	G_V (1)	—	R_{NF} = 0Ω, C_{NF} = 33μF	47	50	53	dB
	G_V (2)	—	R_{NF} = 82Ω, C_{NF} = 33μF	—	40	—	
Output Power	P_O (1)	—	THD = 10%	170	200	—	mW
	P_O (2)	—	R_L = 8Ω, THD = 10%, V_{CC} = 4.5V	—	300	—	
Total Harmonic Distortion	THD (1)	—	P_O = 100mW, R_{NF} = 0Ω	—	1.0	5	%
	THD (2)	—	P_O = 50mW, R_{NF} = 0Ω, R_L = 8Ω	—	0.8	—	
Output Noise Voltage	V_{no}	—	R_g = 1kΩ, BPF≒50Hz~20kHz	—	0.2	0.4	mV_{rms}

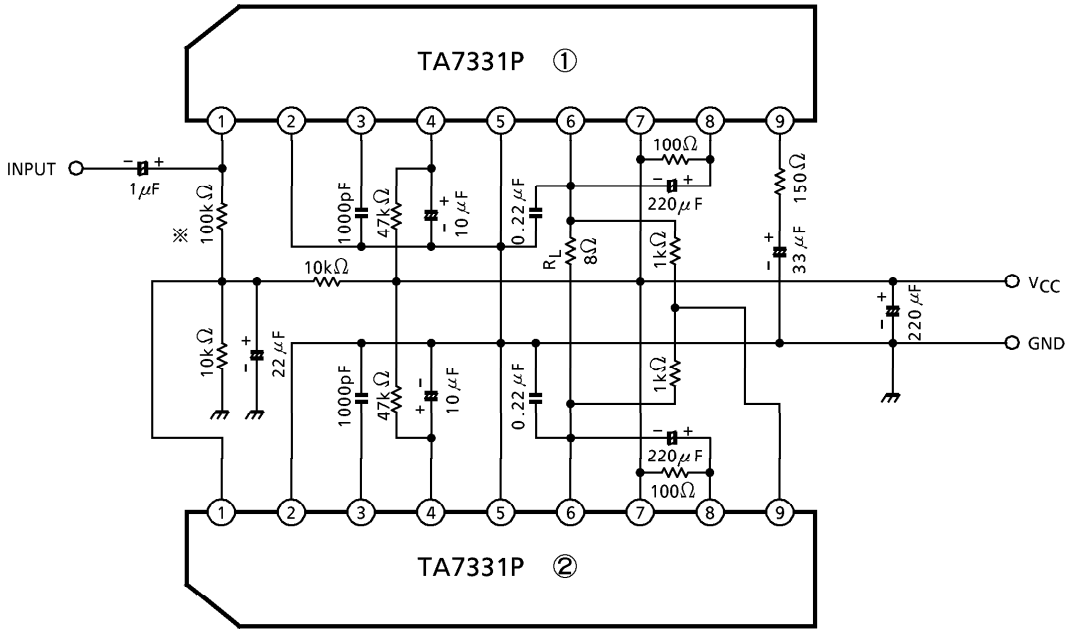
TA7331F

Unless otherwise specified, V_{CC} = 3V, f = 1kHz, R_L = 4Ω, Ta = 25°C

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ} (1)	—		—	3	5	mA
Voltage Gain	G_V (1)	—	R_{NF} = 0Ω, C_{NF} = 33μF	47	50	53	dB
	G_V (2)	—	R_{NF} = 82Ω, C_{NF} = 33μF	—	40	—	
Output Power	P_O (1)	—	THD = 10%	170	200	—	mW
Total Harmonic Distortion	THD (1)	—	P_O = 100mW, R_{NF} = 0Ω	—	1.0	5	%
	THD (2)	—	P_O = 50mW, R_{NF} = 0Ω, R_L = 8Ω	—	0.8	—	
Output Noise Voltage	V_{no}	—	R_g = 1kΩ, BPF≒50Hz~20kHz	—	0.2	0.4	mV_{rms}

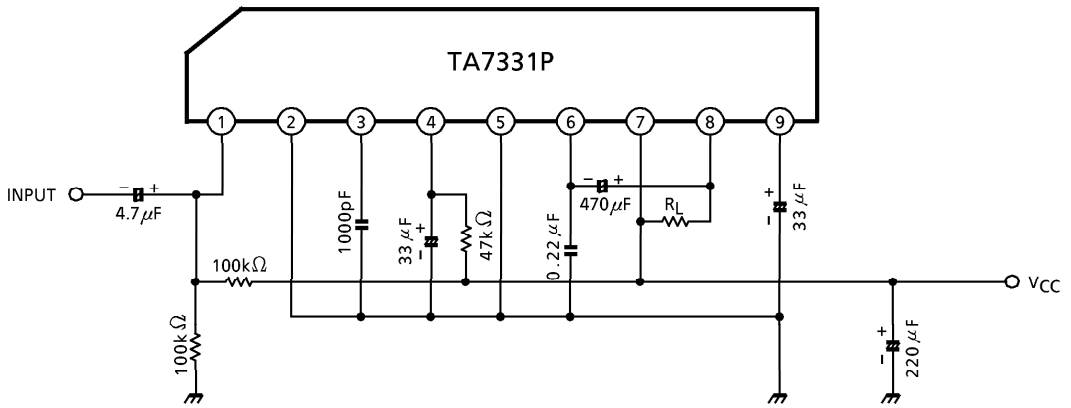
TA7331P

APPLICATION 1 (BTL CONNECTION)

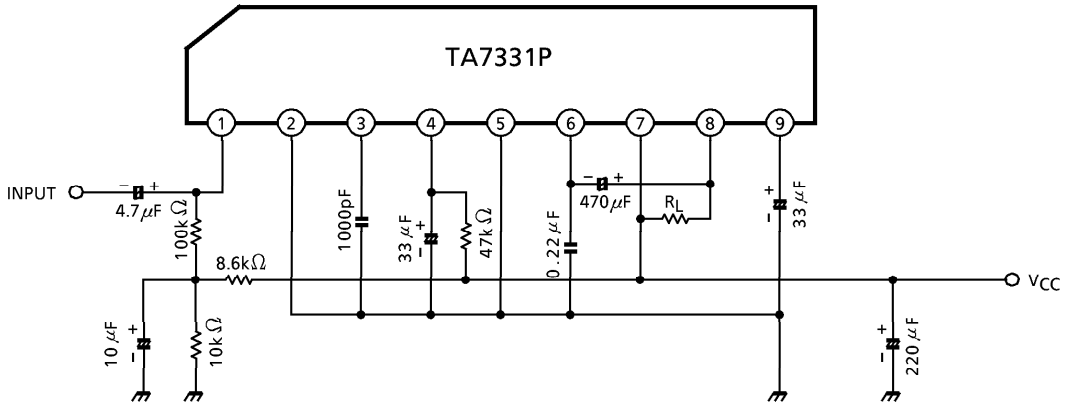


※ It is necessary to adjust to I_{CCQ}.

APPLICATION 2 (FEW EXTERNAL PARTS)

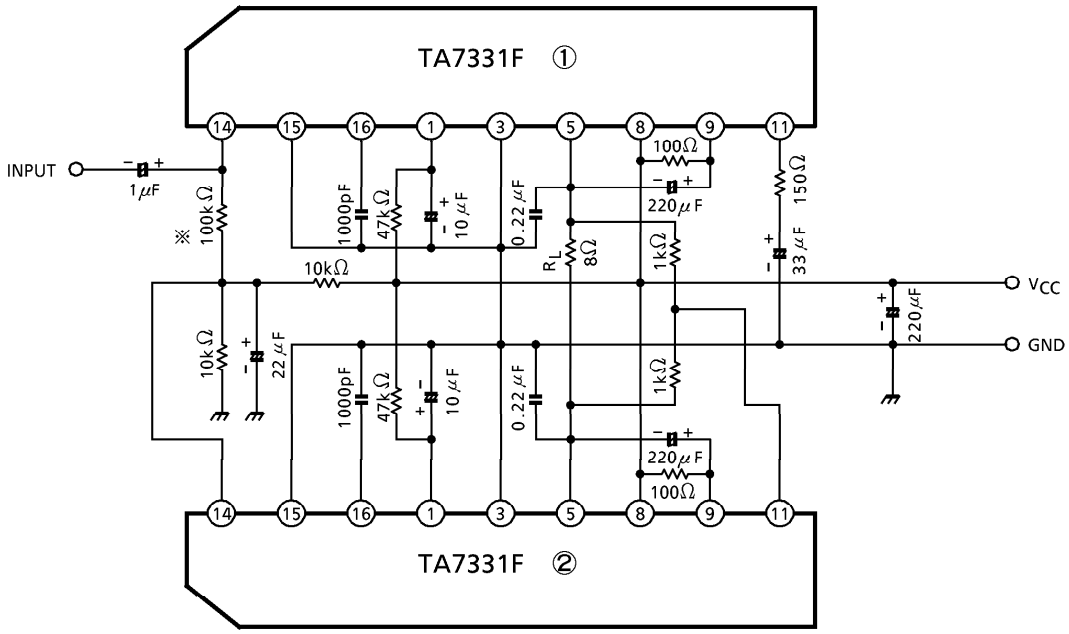


APPLICATION 3



TA7331F

APPLICATION 1 (BTL CONNECTION)



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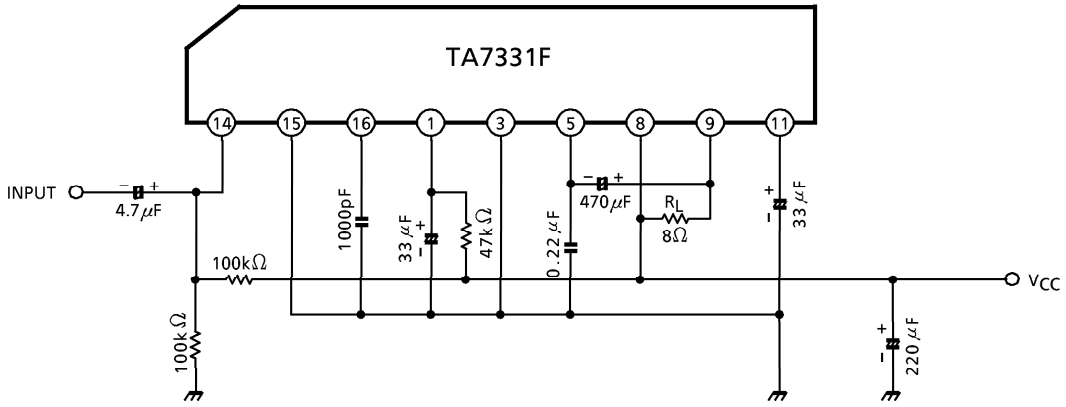

APPLICATION 3