

LOW POWER AUDIO AMPLIFIER—YD34119

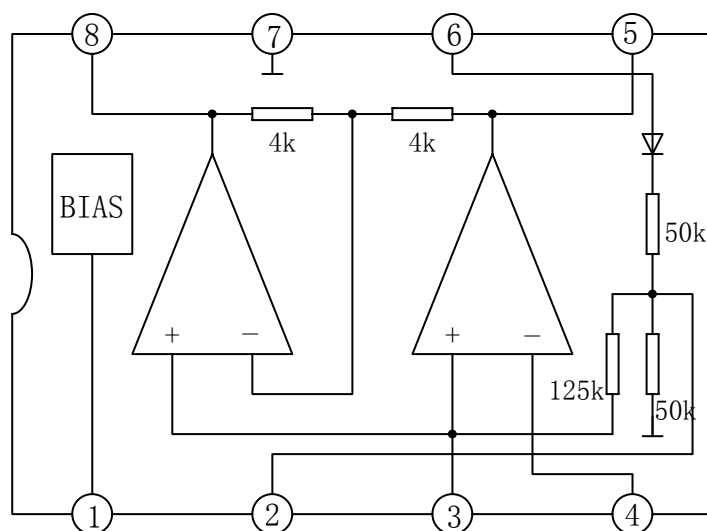
DESCRIPTION

The YD34119 is a low power audio amplifier integrated circuit intended (primarily) for the telephone applications, such as in speakerphones.

FEATURES

- *Wide operating supply voltage: $V_{CC}=2\sim 16V$;
- *Low quiescent supply current ($I_{CC}=2.7mA$, typ.);
- *Medium output power
 $P_o=250mW$ at $V_{CC}=6V$, $R_L=32\Omega$, THD=10%;
- *Load impedance range (8Ω to 100Ω);
- *Low distortion;
- *Mute function ($I_{CC}=65\mu A$, typ.);
- *Minimum number of external parts required.

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS ($T_{amb}=25^{\circ}\text{C}$)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	V _{cc}	18	V
Peak Output Current	I _{op}	± 250	mA
Maximum Input/Output Voltage	V _i /V _{out}	-1.0~V _{cc} +1.0	V
Junction Temperature	T _j	-55~+140	$^{\circ}\text{C}$

RECOMMENDED OPERATION CONDITIONS ($T_{amb}=25^{\circ}\text{C}$)

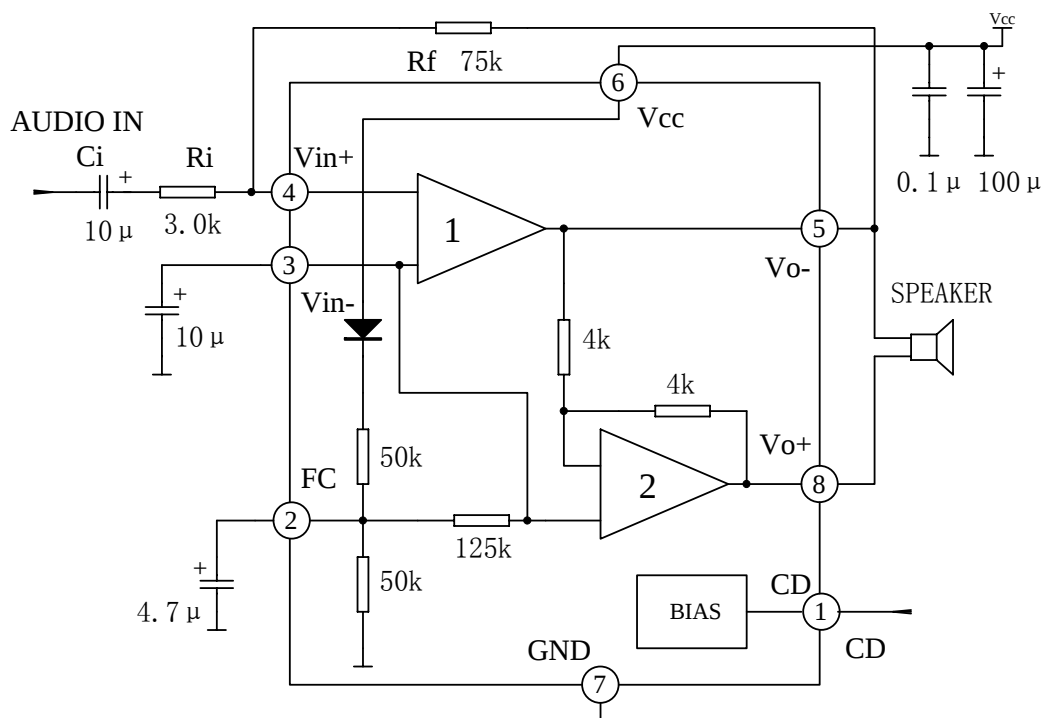
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V _{cc}	2.0	4.2	16	V
Load Impedance	R _L	8	32	100	Ω
Peak Load Current	I _{op}		100	200	mA
Differential Gain(5kHz Bandwidth)	G _v	0	30	46	dB
Voltage at Mute	V _i (mute)	0		V _{cc}	V
Ambient Temperature	T _{amb}	-20		+70	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$, V_{cc}=6V, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Current	I _{ccq}	V _{cc} =3.0V, Mute=0.8V, R _L = ∞		2.7	4.0	mA
		V _{cc} =16.0, Mute=0.8V, R _L = ∞		3.3	5.0	mA
		V _{cc} =3.0V, Mute=2.0V, R _L = ∞		65	100	μA
Output DC Voltage	V _o	V _{cc} =3.0V, R _L =16 Ω , R _f =75k Ω ,	1.0	1.15	1.25	V
		V _{cc} =6.0V, R _L =16 Ω , R _f =75k Ω ,		2.65		
		V _{cc} =12.0V, R _L =16 Ω , R _f =75k Ω ,		5.65		
Output Offset Voltage	ΔV_o	V _{cc} =6.0V, R _f =75k Ω , R _L =32 Ω	-30	0	+30	mV
Output High Level	V _{OH}	2.0V<V _{cc} <16V, I _{out} =-75mA		V _{cc} -1.0		V
Output Low Level	V _{OL}	2.0V<V _{cc} <16V, I _{out} =75mA		0.16		V
Input Bias Current	I _{IB}			-100	-200	nA
AC Input Resistance	Z _i	@V _{in}		>30		M Ω
Equivalent Resistance	R _i	Pin4	100	150	220	k Ω
	R _F	Pin2	18	25	40	k Ω
	R ₁	Pin1	50		175	k Ω
Chip Disable (Pin1)Input Voltage	V _{1L}	Low			0.8	V
	V _{1H}	High	2.0			V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Open Loop Gain of Amp 1	G _{vo}		80			dB
Close Loop Gain of Amp 2	G _v	V _{cc} =6.0V,f=1.0kHz,R _L =32 Ω	-0.35	0	0.35	dB
Output Power	P _o	V _{cc} =3.0V, R _L =16 Ω , THD≤10%	55			mW
		V _{cc} =6.0V, R _L =32 Ω , THD≤10%	250			
		V _{cc} =12.0V, R _L =100 Ω , THD≤10%	400			
Total Harmonic Distortion	THD	V _{cc} =6.0V, R _L =32 Ω , P _o =125mW		0.5	1.0	%
		V _{cc} ≥3.0V, R _L =8 Ω , P _o =20mW		0.5		
		V _{cc} ≥12V, R _L =32 Ω , P _o =200mW		0.6		
Gain Bandwidth	BW			1.5		MHz
Power Supply rejection	RR (V _{cc} =6.0V, Δ =3.0V)	C1=∞,C2=0.01 μ F	50			dB
		C1=0.1 μ F,C2=0,f=1.0kHz		12		
		C1=1.0 μ F,C2=0.01 μ F,f=1.0kHz		52		
Muting	G _{MUT}	Mute=2.0V, V _{cc} =6.0V, 1.0kHz<f<20kHz,	70			dB

APPLICATION CIRCUIT



OUTLINE DRAWING

SOP-8

unit:mm

