

YOU DA INTEGRATED CIRCUIT

YD34119

LOW POWER AUDIO AMPLIFIER—YD34119

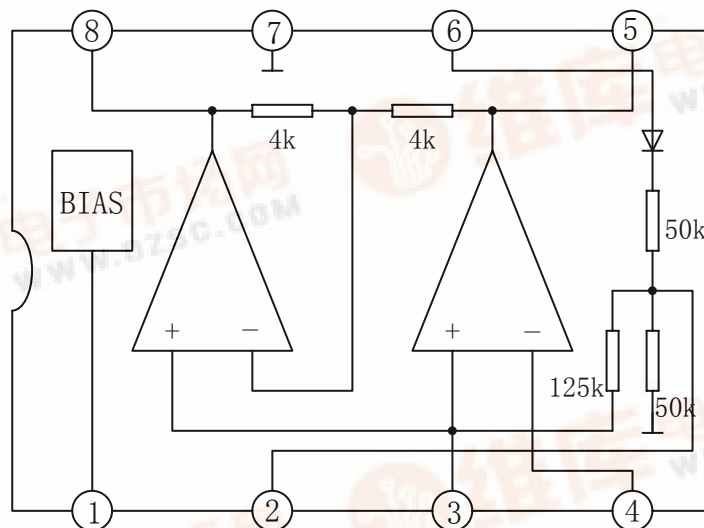
DESCRIPTION

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 ( $8\Omega$  to  $100\Omega$ );
- \*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** (Tamb=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	18	V
Peak Output Current	Iop	±250	mA
Maximum Input/Output Voltage	Vi/Vout	-1.0~Vcc+1.0	V
Junction Temperature	Tj	-55~+140	°C

**RECOMMENDED OPERATION CONDITIONS** (Tamb=25°C)

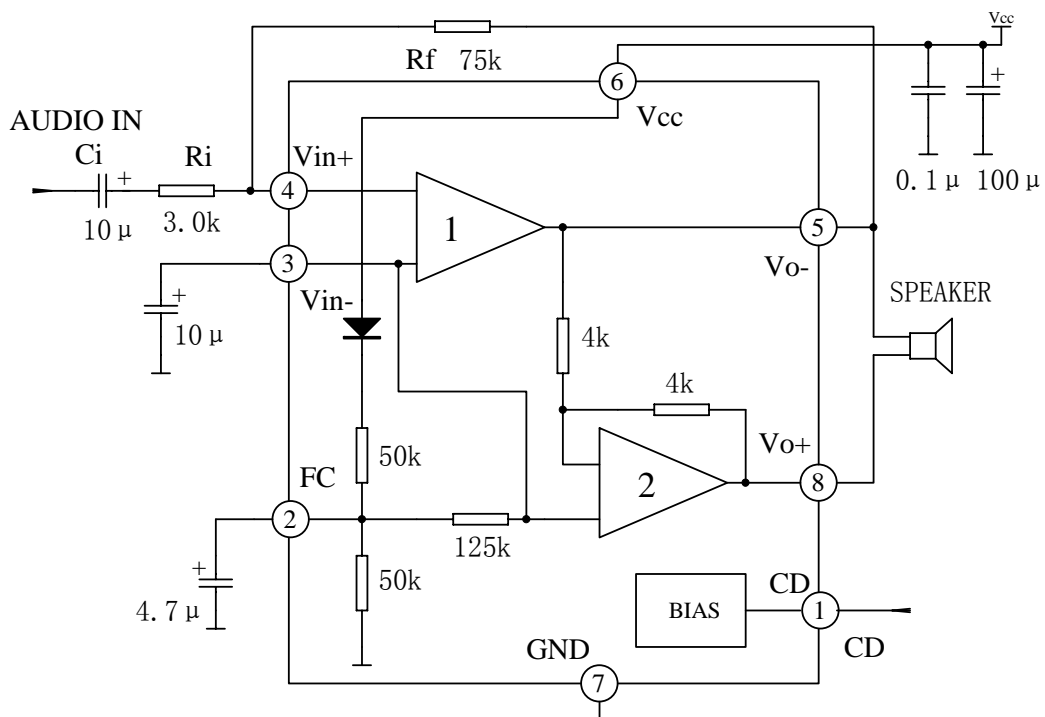
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	Vcc	2.0	4.2	16	V
Load Impedance	RL	8	32	100	Ω
Peak Load Current	Iop		100	200	mA
Differential Gain(5kHz Bandwidth)	Gv	0	30	46	dB
Voltage at Mute	Vi(mute)	0		Vcc	V
Ambient Temperature	Tamb	-20		+70	°C

**ELECTRICAL CHARACTERISTICS** (Tamb=25°C, Vcc=6V, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Current	Iccq	Vcc=3.0V, Mute=0.8V, RL=∞		2.7	4.0	mA
		Vcc=16.0, Mute=0.8V, RL=∞		3.3	5.0	mA
		Vcc=3.0V, Mute=2.0V, RL=∞		65	100	μA
Output DC Voltage	Vo	Vcc=3.0V, RL=16Ω, Rf=75kΩ,	1.0	1.15	1.25	V
		Vcc=6.0V, RL=16Ω, Rf=75kΩ,		2.65		
		Vcc=12.0V, RL=16Ω, Rf=75kΩ,		5.65		
Output Offset Voltage	ΔVo	Vcc=6.0V, Rf=75kΩ, RL=32Ω	-30	0	+30	mV
Output High Level	VOH	2.0V < Vcc < 16V, Iout=-75mA		Vcc -1.0		V
Output Low Level	VOL	2.0V < Vcc < 16V, Iout=75mA		0.16		V
Input Bias Current	IIB			-100	-200	nA
AC Input Resistance	Zi	@ Vin		>30		MΩ
Equivalent Resistance	Ri	Pin4	100	150	220	kΩ
	RF	Pin2	18	25	40	kΩ
	R1	Pin1	50		175	kΩ
Chip Disable (Pin1)Input Voltage	VI <sub>L</sub>	Low			0.8	V
	VI <sub>H</sub>	High	2.0			V

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Open Loop Gain of Amp 1	G <sub>vo</sub>		80			dB
Close Loop Gain of Amp 2	G <sub>v</sub>	V <sub>cc</sub> =6.0V, f=1.0kHz, R <sub>L</sub> =32 Ω	-0.35	0	0.35	dB
Output Power	P <sub>o</sub>	V <sub>cc</sub> =3.0V, R <sub>L</sub> =16 Ω, THD ≤ 10%	55			mW
		V <sub>cc</sub> =6.0V, R <sub>L</sub> =32 Ω, THD ≤ 10%	250			
		V <sub>cc</sub> =12.0V, R <sub>L</sub> =100 Ω, THD ≤ 10%	400			
Total Harmonic Distortion	THD	V <sub>cc</sub> =6.0V, R <sub>L</sub> =32 Ω, P <sub>o</sub> =125mW		0.5	1.0	%
		V <sub>cc</sub> ≥ 3.0V, R <sub>L</sub> =8 Ω, P <sub>o</sub> =20mW		0.5		
		V <sub>cc</sub> ≥ 12V, R <sub>L</sub> =32 Ω, P <sub>o</sub> =200mW		0.6		
Gain Bandwidth	BW			1.5		MHz
Power Supply rejection	RR (V <sub>cc</sub> =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 <sub>MUT</sub>	Mute=2.0V, V <sub>cc</sub> =6.0V, 1.0kHz < f < 20kHz,	70			dB

APPLICATION CIRCUIT



OUTLINE DRAWING

SOP-8

unit:mm

