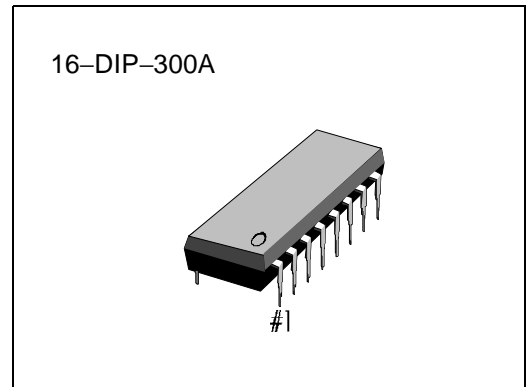


**INTRODUCTION**

The S1A0134A01 is a monolithic integrated circuit designed for use in low voltage and low power applications. It has various functions including those of a dual audio pre-power amplifier, DC volumecontrol and headphone drive circuits. It is suitable for portable tape recorders or headphone cassette recorders.

**FEATURES**

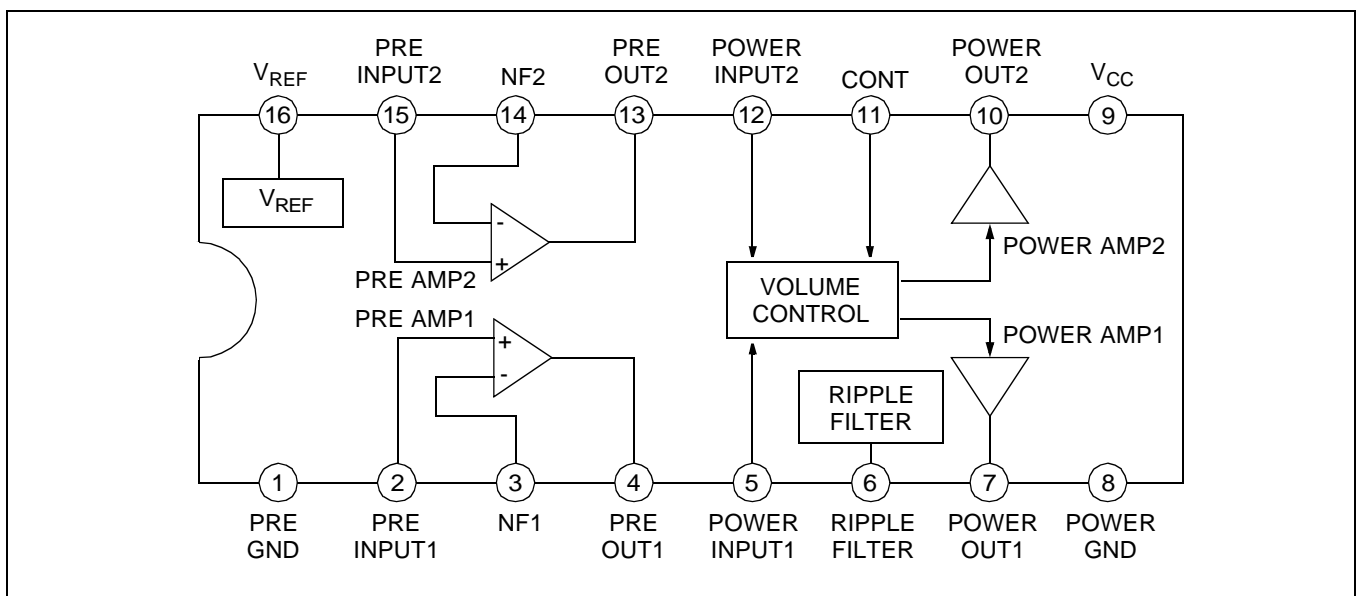
- Built-in DC volume control circuit
- Wide operation supply voltage:  $V_{CC} = 1.8V - 6V$
- Only a few components needed to build headphone cassette tape recorders
- Built-in ripple filter



**ORDERING INFORMATION**

Device	Package	Operating Temperature
S1A0134A01-D0B0	16-DIP-300A	-20°C — +75°C

**BLOCK DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)**

Characteristic	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	7	V
Power Dissipation	$P_D$	750	mW
Operating Temperature	$T_{OPR}$	- 20 — +75	°C
Storage Temperature	$T_{STG}$	- 40 — +125	°C

**ELECTRICAL CHARACTERISTICS**

( $V_{CC} = 3V$ ,  $T_a = 25^\circ C$ ,  $f = 1kHz$ ,  $R_{L1} = 10k\Omega$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Quiescent Circuit Current	$I_{CCQ1}$	$V_I = 0$ , $V_{OL} = MIN$	-	9	13	mA
	$I_{CCQ2}$	$V_I = 0$ , $V_{OL} = MAX$	-	11	-	mA
Cross Talk	CT	$R_G = 2.2k\Omega$ , $V_O = -10dBm$	34	40	-	dB

**PRE-AMPLIFIER SECTION**

( $V_{CC} = 3V$ ,  $T_a = 25^\circ C$ ,  $f = 1kHz$ ,  $R_{L1} = 10k\Omega$ , unless otherwise specified)

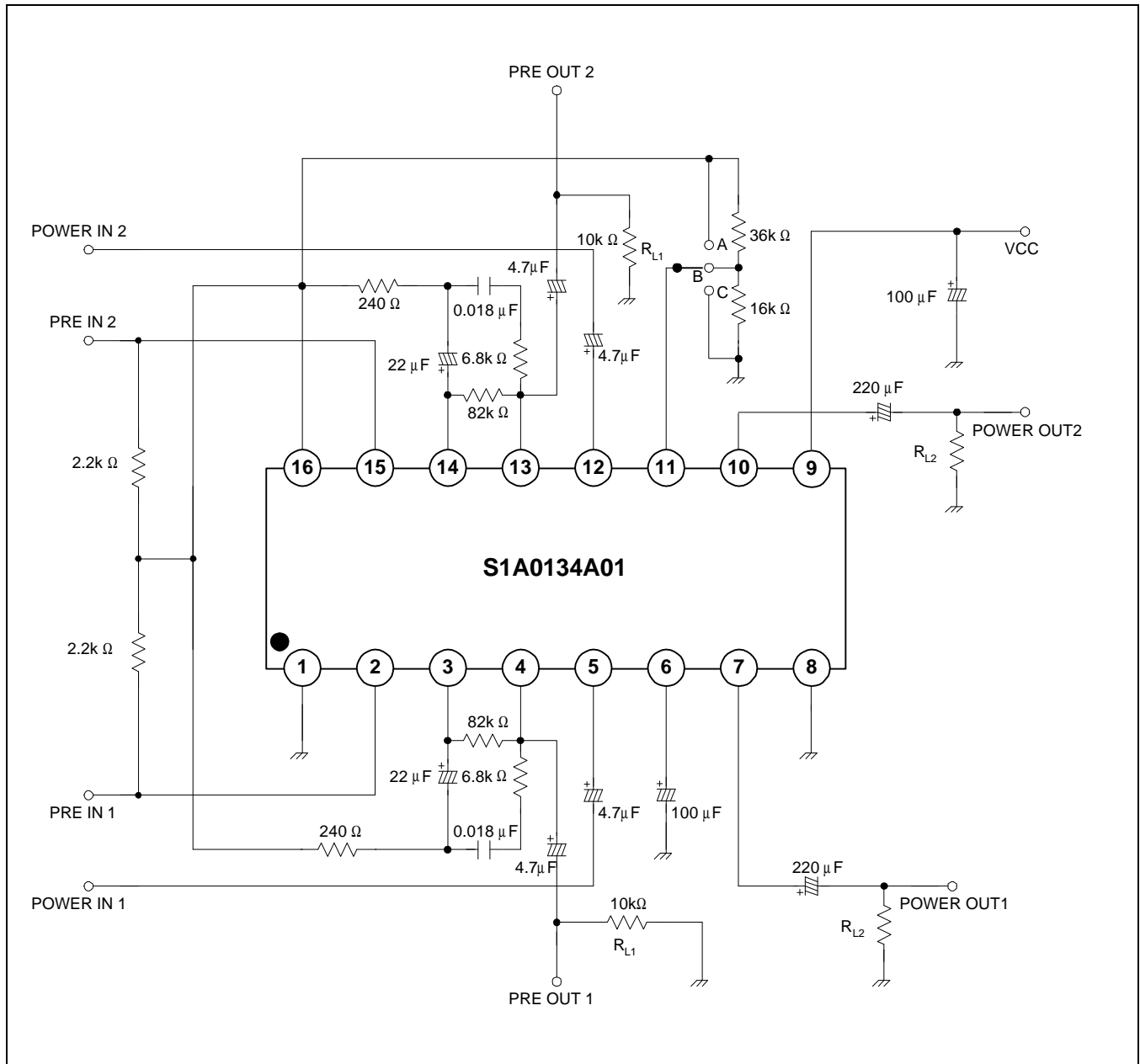
Characteristic	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Open Loop Voltage Gain	$G_{VO}$	$V_I = 0.2mV$	55	62	-	dB
Closed Loop Voltage Gain	$G_{VC1}$	$V_O = -10dBm$ , NAB 1kHz	-	33	-	dB
Output Voltage	$V_O$	THD = 1%	600	720	-	mV
Total Harmonic Distortion	THD <sub>1</sub>	$V_O = -10dBm$	-	0.04	0.1	%
Ripple Rejection Ratio	RR <sub>1</sub>	$R_G = 2.2k\Omega$ $V_R = -20dBm$ , $f_R = 100Hz$	-	46	-	dB
Equivalent Input Noise Voltage	$V_{NI}$	$R_G = 2.2k\Omega$ , BW = 30 – 20kHz Gain for NAB 1kHz	-	1.2	2.0	$\mu V$

## POWER AMPLIFIER SECTION

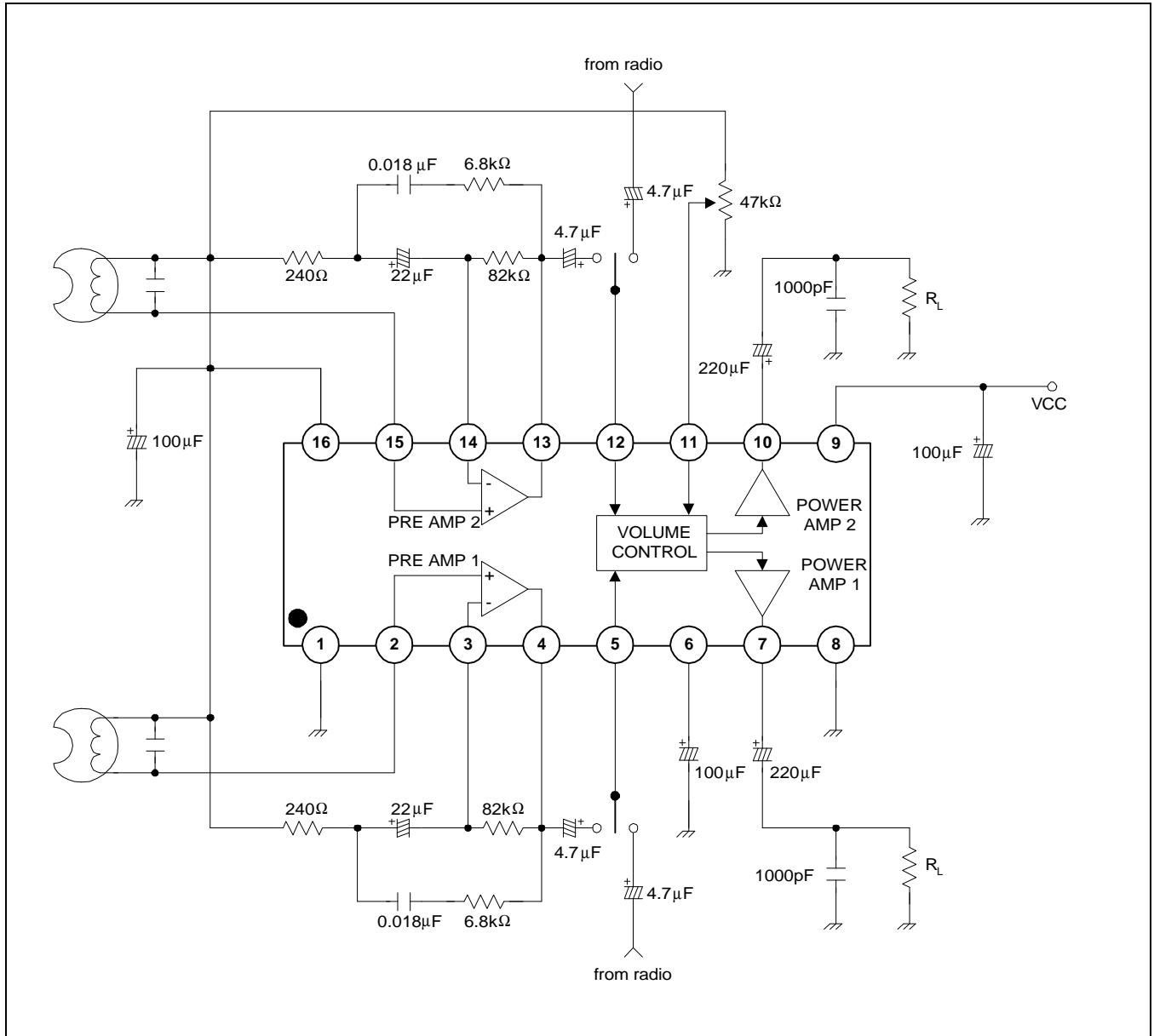
( $V_{CC} = 3V$ ,  $T_a = 25^\circ C$ ,  $f = 1kHz$ ,  $R_{L2} = 32\Omega$ , unless otherwise specified)

Characteristic	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Output Power	$P_{O1}$	THD2 = 10%	20	27	–	mW
	$P_{O2}$	THD2 = 10%, $R_L = 16\Omega$	–	39	–	mW
Total Harmonic Distortion	THD <sub>2</sub>	$P_O = 10mW$ , Volume: 100%	–	0.5	1.2	%
	THD <sub>3</sub>	$P_O = 10mW$ , Volume: 50%	–	0.3	–	%
Closed Loop Voltage Gain	$G_{VC2}$	$V_O = -0dBm$ , Volume: 100%	28	30	32	dB
	$G_{VC3}$	$V_O = -10dBm$ , Volume: 50%	–	15	–	dB
Channel Balance	CB	$V_O = -10dBm$	-1.5	0	1.5	dB
Volume Rejection Ratio	$VOL_{REJ}$	$V_O = -10dBm$ Volume: 100% to 0%	66	72	–	dB
Output Noise Voltage	$V_{NO}$	BW = 30 – 20kHz, $R_G = 600\Omega$	–	250	320	$\mu V$
Ripple Rejection Ratio	RR <sub>2</sub>	$R_G = 600\Omega$ , $f_r = 100Hz$ $V_r = -20dBm$	–	46	–	dB

TEST CIRCUIT



APPLICATION CIRCUIT



NOTES