

KA8501A

SPEECH NETWORK WITH DIALER INTERFACE

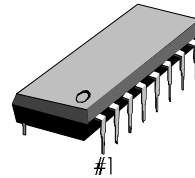
INTRODUCTION

The KA8501A is a telephone speech network integrated circuit which includes transmit amp, receive amp, DTMF amp, voltage regulator, line equalizer, voltage comparator. It handles the voice signal, performing the 2/4 wires interface and changing the gain on both sending and receiving amplifiers to compensate the line current. The KA8501A can work in fixed gain mode.

FEATURES

- Adjusts sending and receiving attenuation length
- Regulated voltage for dialer
- Linear interface for DTMF
- Suitable for ceramic transducers
- Mute function

16-DIP-300A



ORDERING INFORMATION

Device	Package	Operating Temperature
KA8501A	16-DIP-300A	- 45°C ~ + 70°C

PIN CONFIGURATION

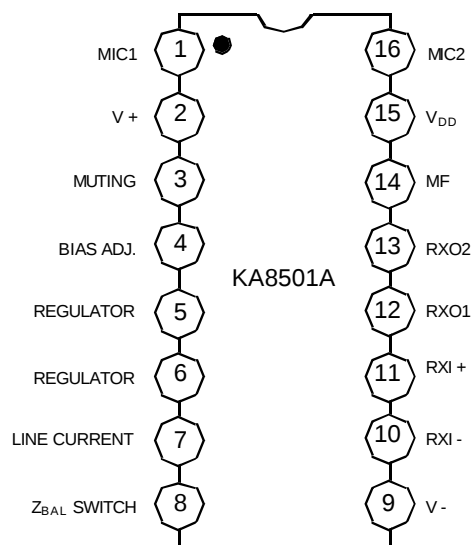


Fig. 1

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Line Voltage (3msec max)	V_L	22	V
Forward Line Current	I_{LF}	150	mA
Reverse Line Current	I_{LR}	-150	mA
Power Dissipation ($T_a = 70^\circ\text{C}$)	P_D	1	W
Operating Temperature	T_{OPR}	- 45 ~ + 70	$^\circ\text{C}$
Storage Temperature	T_{STG}	- 65 ~ + 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Conditions		Min	Typ	Max	Unit
Line Voltage	V _L	T _a = 25°C	I _L = 12mA	3.9	-	4.7	V
			I _L = 20mA	-	-	5.5	
			I _L = 80mA	-	-	12.2	
Common Mode Rejection Ratio	CMRR	f = 1KHz, I _L = 12 ~ 80mA		50	-	-	dB
Line Matching Impedance	Z _L	V _{RI} = 0.3V, I _L = 12 ~ 80mA f = 1KHz		500	600	700	Ω
T _X Gain	G _{V (TX)}	T _a = 25°C f = 1KHz V _{MI} = 2mV	I _L = 25mA	48	49	50	dB
			I _L = 52mA	44	45	46	
		I _L = 25 ~ 52mA		48	49	50	
T _X Gain Flatness	Δ G _{V (TX)}	V _{MI} = 2mV, f _{ref} = 1KHz I _L = 12 ~ 80mA		-	-	± 1	dB
T _X Distortion	THD _{TX}	f = 1KHz I _L = 16 ~ 80mA	V _{SO} = 1V	-	-	2	%
			V _{SO} = 1.3V	-	-	10	
T _X Noise	V _{NO (TX)}	V _{MI} = 0V, I _L = 40mA		-	-	-70	dBmp
Side Tone	G _{V (ST)}	T _a = 25°C, f= 1KHz I _L = 25 ~ 52mA		-	-	36	dB
MIC Input Impedance	Z _{I (MIC)}	V _{MI} = 2mV, I _L = 12 ~ 80mA		40	-	-	KΩ
T _X Loss in MF Operation	G _{V (LOSS)}	V _{MI} = 2mV	I _L = 25mA	- 30	-	-	dB
			I _L = 52mA	- 30	-	-	
R _X Gain	G _{V (RX)}	T _a = 25°C V _{RI} = 0.3V f = 1KHz	I _L = 25mA	7	8	9	dB
			I _L = 52mA	2.5	3.5	4.5	
		I _L = 25 ~ 52mA		7	8	9	

ELECTRICAL CHARACTERISTICS (Continued)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
R _X Gain Flatness	$\Delta G_{V(RX)}$	V _{RI} = 0.3V, f _{ref} = 1KHz I _L = 12 ~ 80mA	-	-	± 1	dB
R _X Distortion	THD _{RX}	f =				%
		I _L = 12mA	V _{RO} = 1.6V	-	-	
			V _{RO} = 1.9V	-	-	
		I _L = 50mA	V _{RO} = 1.8V	-	-	
			V _{RO} = 2.1V	-	-	10
R _X Noise	V _{NO(RX)}	V _{RI} = 0V, I _L = 12 ~ 80mA	-	-	100	μV
R _X Output Impedance	R _{O(RX)}	V _{RO} = 50mV, I _L = 40mA	-	-	100	Ω
MF Supply Voltage	V _{DD(MF)}	I _L = 12 ~ 80mA	2.4	2.5	-	V
MF Supply Current	Stand by	I _L = 12 ~ 80mA	0.5	-	-	mA
	Operation		2	-	-	
MF Amplifier Gain	G _{V(MF)}	I _L = 12 ~ 80mA f _{MF} = 1KHz V _{MF} = 80mV	15	-	17	dB
DC Input Voltage Level (pin 14)	V _{I(MF)}	V _{MF} = 80mV	-	0.3V _{DD}	-	V
Input Impedance (pin 14)	Z _{I(MF)}	V _{MF} = 80mV	40	-	-	KΩ
Distortion	THD _{MF}	V _{MF} = 110mV I _L = 12 ~ 80mA	-	-	2	%
Starting Delay Time	t _{D(ST)}	I _L = 12 ~ 80mA	-	-	5	mS
Muting Threshold Voltage (pin 3)	V _{TH(MUTE)}		-	-	1	V
			1.6	-	-	
Muting Current	Stand by	I _{SB(MUTE)}	I _L = 12 ~ 80mA	-	-	μA
	Operation	I _{DD(MUTE)}	I _L = 12 ~ 80mA	-	-	

APPLICATION CIRCUIT

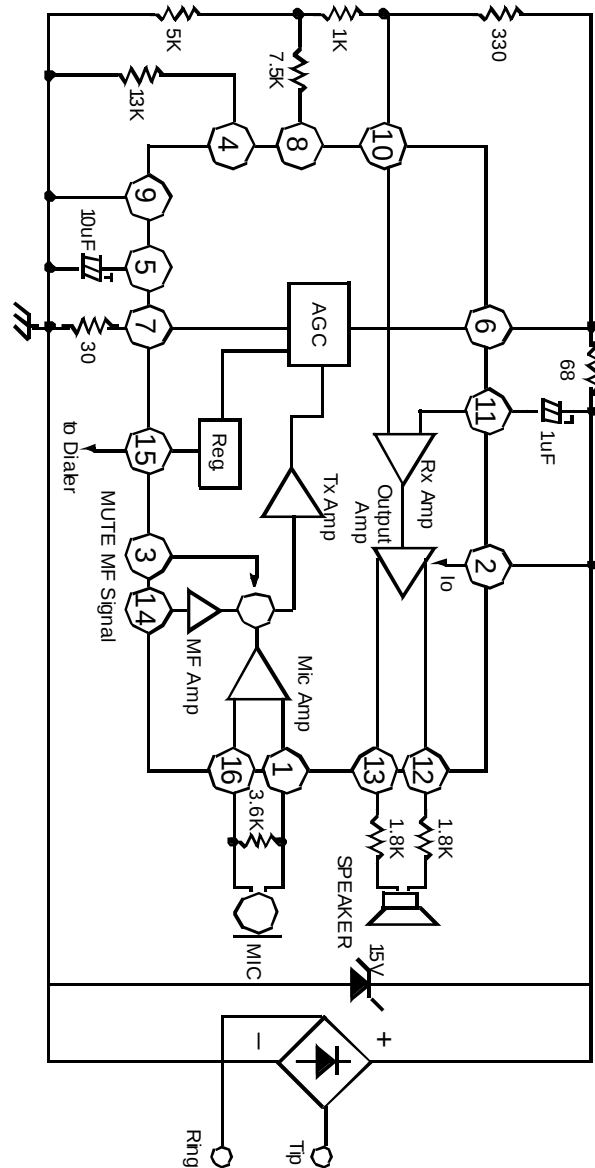


Fig. 2