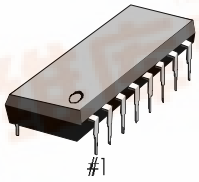
KA8501A SPEECH NETWORK WITH DIALER INTERFACE

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.

16-DIP-300A



FEATURES

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

ORDERING INFORMATION

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

PIN CONFIGURATION

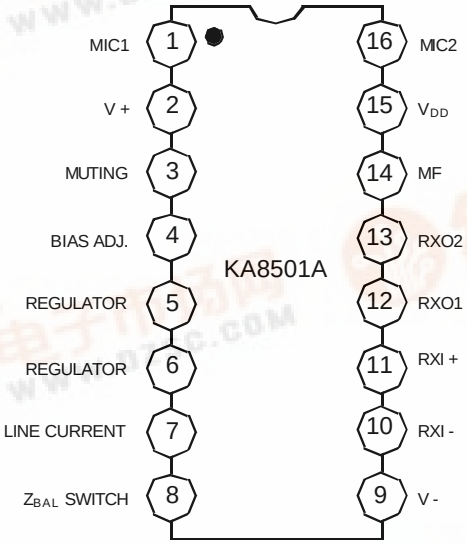


Fig. 1

SAMSUNG ELECTRONICS

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 (Ta = 70°C)	P_D	1	W
Operating Temperature	T_{OPR}	- 45 ~ + 70	°C
Storage Temperature	T_{STG}	- 65 ~ + 150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Characteristic	Symbol	Test Conditions		Min	Typ	Max	Unit
Line Voltage	V_L	Ta = 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	$G_{V(TX)}$	Ta = 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	$\Delta G_{V(TX)}$	V_{MI} = 2mV, f_{ref} = 1KHz I_L = 12 ~ 80mA		-	-	± 1	dB
T_X Distortion	THD $_{TX}$	f = 1KHz	V_{SO} = 1V	-	-	2	%
		I_L = 16 ~ 80mA	V_{SO} = 1.3V	-	-	10	
T_X Noise	$V_{NO(TX)}$	V_{MI} = 0V, I_L = 40mA		-	-	-70	dBmp
Side Tone	$G_{V(ST)}$	Ta = 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	$G_{V(RX)}$	Ta = 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 = 1KHz	I_L = 12mA	V_{RO} = 1.6V	-	-	2	%
					V_{RO} = 1.9V	-	-	10	
				I_L = 50mA	V_{RO} = 1.8V	-	-	2	
					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	$I_{SB(MF)}$	I_L = 12 ~ 80mA			0.5	-	-	mA
	Operation	$I_{DD(MF)}$				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			-	-	-10	μA
	Operation	$I_{DD(MUTE)}$	I_L = 12 ~ 80mA			-	-	+10	

APPLICATION CIRCUIT

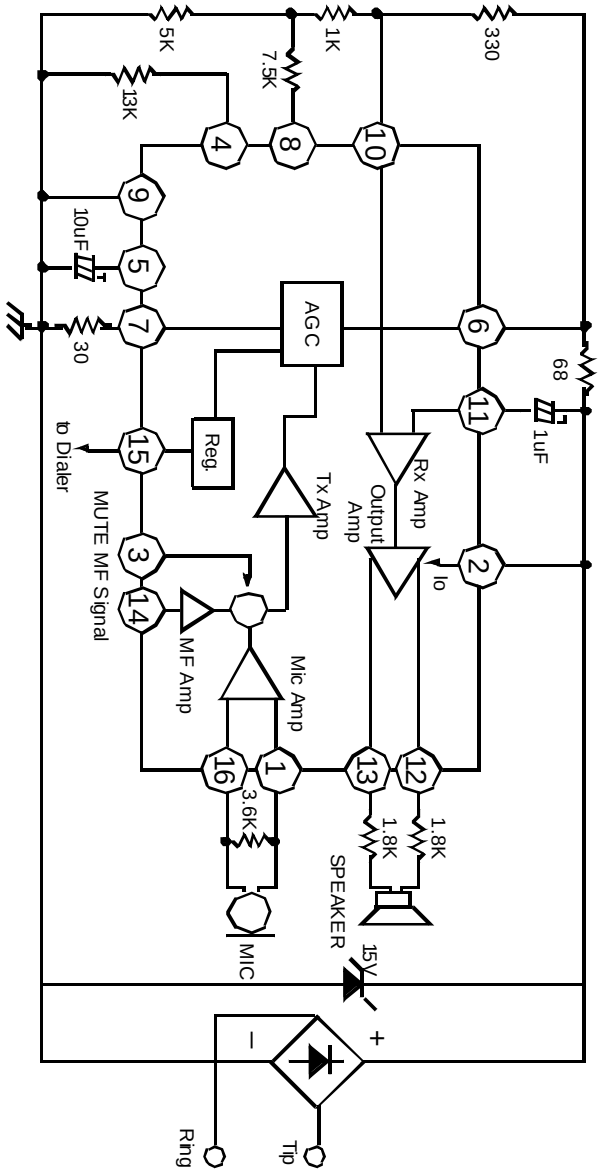


Fig. 2