

# KA8504

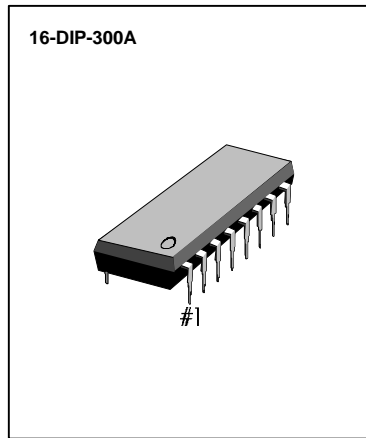
# SPEECH NETWORK WITH DIALER INTERFACE

## INTRODUCTION

The KA8504 is a telephone speech network which includes TX Amp, RX Amp and DTMF Amp. The gain is controlled automatically by sensing the line current. The circuit internally performs electronic switching between dialing and speech by mute signal.

## FEATURES

- Low line current operation
- Mute function
- DTMF signal interface
- Easy gain control



## ORDERING INFORMATION

Device	Package	Operating Temperature
KA8504	16-DIP-300A	- 40°C ~ + 85°C

## BLOCK DIAGRAM

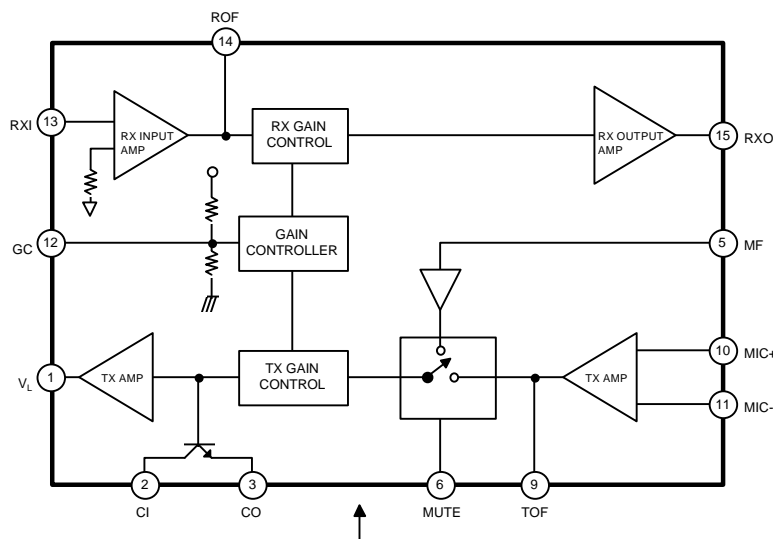


Fig. 1

## PIN CONFIGURATION

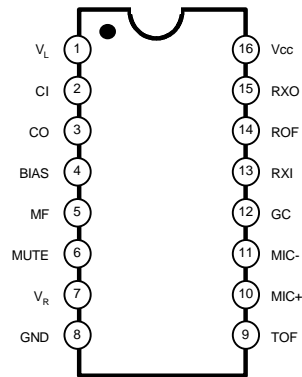


Fig. 2

## PIN DESCRIPTION

Pin No	Symbol	Description
1	$V_L$	Positive power line and TX Amp Output.
2	CI	Current input.
3	CO	Current output. If the line current is large, this pin dissipates excess power (current)
4	BIAS	AC signal reference voltage terminal.
5	MF	DTMF input. When the mute pin is "H" level, this pin become active.
6	MUTE	Mute input. When this pin is 'H' level, speech circuit is muted and the DTMF input is enabled.
7	$V_R$	The voltage of this part becomes reference voltage of internal Amp.
8	GND	Negative power line.
9	TOF	Output of the Mic Amp. Negative feedback to MIC -.
10	MIC +	Non inverting Mic input.
11	MIC -	Inverting Mic input.
12	GC	Gain triggering point regulation.
13	RXI	Receiver input.
14	ROF	RX out and negative feedback to RX input.
15	RXO	Receiver Amp out.
16	$V_{CC}$	Internal power supply pin. Power is supplied from $V_L$ through resistor.

## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Line Voltage	$V_L$	15	V
Line Current	$I_L$	150	mA
Surge Line Current (2 sec)	$I_{L(SURGE)}$	200	mA
Power Dissipation	$P_D$	1.0	W
Operating Temperature	$T_{OPR}$	- 40 ~ 85	°C
Storage Temperature	$T_{STG}$	- 55 ~ 150	°C

## ELECTRICAL CHARACTERISTICS

(Ta = 25°C, f = 1KHz, unless otherwise noted)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Voltage	$V_L$	$I_L = 20\text{mA}$	3.1	3.5	3.9	V
		$I_L = 50\text{mA}$	5.4	6.0	6.4	
		$I_L = 120\text{mA}$	10.5	11.5	12.5	
Internal Operating Voltage	$V_{CC}$	$I_L = 20\text{mA}$	1.7	2.0	2.3	V
		$I_L = 50\text{mA}$	3.3	3.7	4.1	
		$I_L = 120\text{mA}$	7.2	7.6	8.0	
Tx Gain	$G_{V(TX)}$	$I_L = 20\text{mA}$	35.0	37.0	39.0	dB
		$I_L = 120\text{mA}$	32.0	34.0	36.0	
Tx Dynamic Output Voltage	$V_{O(TX)}$	$I_L = 20\text{mA}$ THD = 4.0%	2.5	-	-	Vp-p
		$I_L = 120\text{mA}$ THD = 4.0%	4.0	-	-	
Rx Gain	$G_{V(RX)}$	$I_L = 20\text{mA}$	-7.5	-4.5	-1.5	dB
		$I_L = 120\text{mA}$	-13.5	-1.5	-7.5	
Rx Dynamic Output Voltage	$V_{O(RX)}$	$I_L = 20\text{mA}$ THD = 10%	250	-	-	mVp-p
		$I_L = 120\text{mA}$ THD = 10%	300	-	-	
Rx Output Current	$I_{O(RX)}$	$I_L = 20 \sim 120\text{mA}$	4.0	-	-	mA
DTMF Gain	$G_{V(MF)}$	$I_L = 20\text{mA}$	20.5	22.5	24.5	dB
		$I_L = 120\text{mA}$	17.5	19.5	21.5	
DTMF Input Impedance	$Z_{I(MF)}$	$I_L = 50\text{mA}$	24	-	-	K $\Omega$
Mute Pin High Voltage	$V_{IH(MUTE)}$	$I_L = 20 \sim 120\text{mA}$	1.5	-	$V_{CC}$	V

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## APPLICATION CIRCUIT

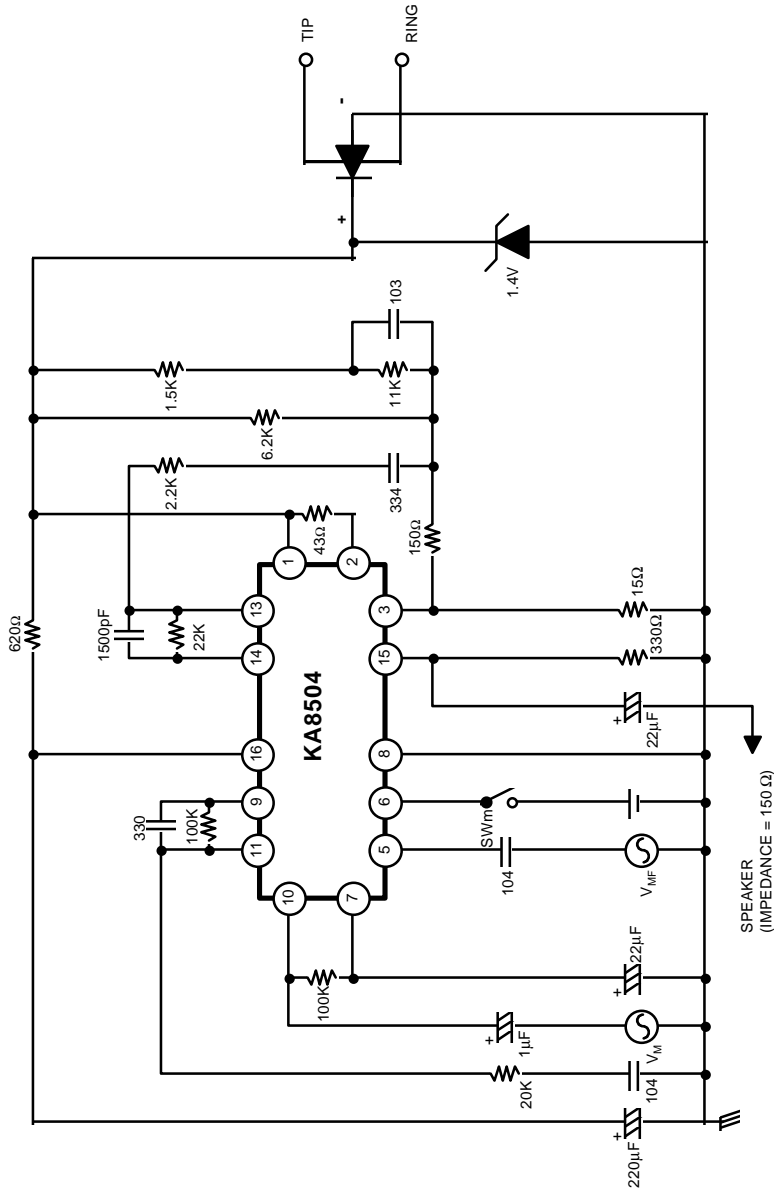


Fig.3