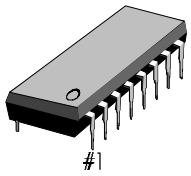
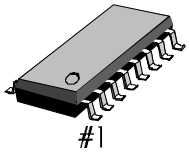
INTRODUCTION

The KA8603 can fulfill the standards of other countries by changing the external component.
Dynamic or piezoelectric type can be used with receiver. Each gain is controlled with AGC in accordance with the line current. The KA8603 can be operated down to D.C line 1.6V.

16-DIP-300A



16-SOP-225



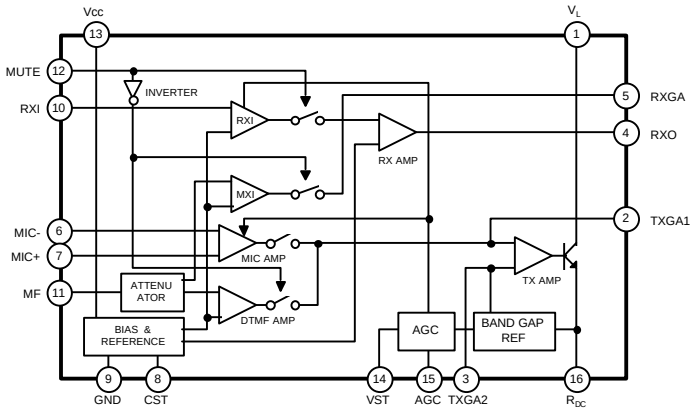
FEATURES

- Independent adjustment of DC resistance and AC impedance.
- ECM or dynamic microphone can be used.
- DTMF signal interface.
- Mute function
- Operates at the low line voltage (1.6V)
- Low or high impedance receiver type can be used.
- Low line current operation. (IL = 4mA)

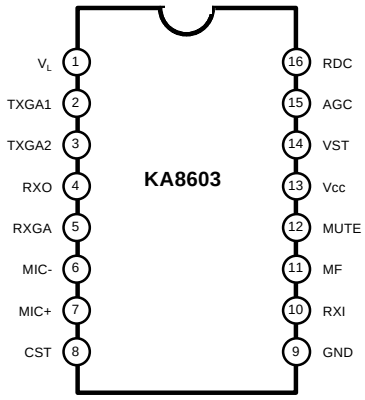
ORDERING INFORMATION

Device	Package	Operating Temperature
KA8603	16-DIP-300A	- 25°C ~ + 75°C
KA8603D	16-SOP-225	

BLOCK DIAGRAM



PIN CONFIGURATION



PIN DESCRIPTION

Pin No	Symbol	Description
1	V_L	Positive power line and TX Amp output
2	TXGA1	TX gain adjustment
3	TXGA2	TX gain adjustment
4	RXO	RX output
5	RXGA	RX gain adjustment
6	MIC-	Mic(-) input
7	MIC+	Mic(+) input
8	CST	Current stabilizer
9	GND	Ground
10	RXI	RX input
11	MF	DTMF Input
12	MUTE	Mute ‘High’ : DTMF mode, Mute ‘Low’ : speech mode
13	V_{CC}	Internal power supply pin
14	VST	Voltage stabilizer
15	AGC	Automatic gain control
16	R_{DC}	DC Resistance control

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Line Voltage	V_L	15	V
Line Current	I_L	150	mA
Surge Line Current	$I_{L(SURGE)}$	200	mA
Power Dissipation	P_D	1.0	W
Operating Temperature	T_{ORP}	- 25 ~ 75	°C
Storage Temperature	T_{STG}	- 55 ~ 150	°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, f = 1KHz, I_L = 15mA, unless otherwise noted)

Characteristic	Symbol	Test Conditions		Min	Typ	Max	Unit
Line Voltage	V_L	I_L = 4mA		-	2.1	-	V
		I_L = 15mA		3.55	3.9	4.25	
		I_L = 50mA		4.1	4.6	5.1	
		I_L = 140mA		-	6.45	7.0	
Line Voltage with R_{UP}	V_{LU}	Between Pin14 & Pin 16 R_{up} = 220KΩ		4.15	4.35	4.55	V
Line Voltage with R_{DOWN}	V_{LD}	Between Pin 14& Pin 1 R_{DOWN} = 330KΩ		3.25	3.45	3.65	V
TX Gain	$G_{V(TX)}$	R_{TX} = 68 KΩ V_I = 3mVrms	I_L = 15mA	49.5	51.5	53.5	dB
			I_L = 50mA	45.5	47.5	49.5	
			I_L = 80mA	43.5	45.5	47.5	
TX Gain frequency response	ΔG_{TXF}	f = 300 to 3400Hz		-	± 0.2	-	dB
TX Dynamic output voltage	$V_{O(TX)}$	THD = 2%		-	1.6	-	Vrms
		THD = 10%		1.7	2.2	-	
MIC Input Impedance	$Z_{I(MIC)}$	-		-	64	-	KΩ
RX Gain	$G_{V(RX)}$	R_{LOAD} = 150Ω+10u	I_L = 15mA	28.5	30.5	32.5	dB
			I_L = 50mA	24.5	26.5	28.5	
			I_L = 80mA	22.5	24.5	26.5	
RX Gain frequency response	ΔG_{RXF}	f = 300 to 3400Hz		-	± 0.2	-	dB
RX Dynamic output voltage	$V_{O(RX)}$	THD = 2% (R_L = 150Ω)		0.22	0.29	-	Vrms
		THD = 10%		0.30	0.40	-	

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, f = 1KHz, I_L = 15mA, unless otherwise noted)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
DTMF GAIN	$G_{V\,(MF)}$	R_{TX} = 68KΩ (MUTE = H)	23.5	25.5	27.5	dB
DTMF Input Impedance	$Z_{I\,(MF)}$	-	-	20.7	-	KΩ
MUTE Input Voltage	$V_{IH\,(MUTE)}$	-	1.5	-	V_{CC}	V
	$V_{IL\,(MUTE)}$	-	-	-	0.8	
TX Gain variation range by AGC	ΔG_{TXA}	R_{AGC} = 180KΩ I_L = 15 ~ 80mA	-	-6	-	dB
RX Gain variation range by AGC	ΔG_{RXA}	R_{AGC} = 180KΩ I_L = 15 ~ 80mA	-	-6	-	dB
TX Noise Output Voltage (Psophometric weighted)	V_{TNO}	-	-	-72	-	dBmp
RX Noise Output Voltage (Psophometric weighted)	V_{RNO}	-	-	50	-	uV

APPLICATION CIRCUIT

