

**KA8603 ANSWER & QUESTION**

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**ANALOG**  
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**1. IS THERE 2-4 LINE CONVERSION FUNCTION IN KA8603 ?**

— Yes, it is. Speech network, itself, is hybrid circuit and consists of RX and TX. Additionally DTMF interface and AGC function are supported.

**2. IN CASE OF TX AMP, CAN I USE IT AS ‘LINE DRIVER’**

— I don’t understand what “line Driver” means, but if that means just “Tx signal amplifier”, Tx gain can be set using TX feedback resistor. For various microphone sensitivities, the gain can be set between 44dB and 52dB by means of R1; This takes values between 25K and 68.1k $\Omega$ .

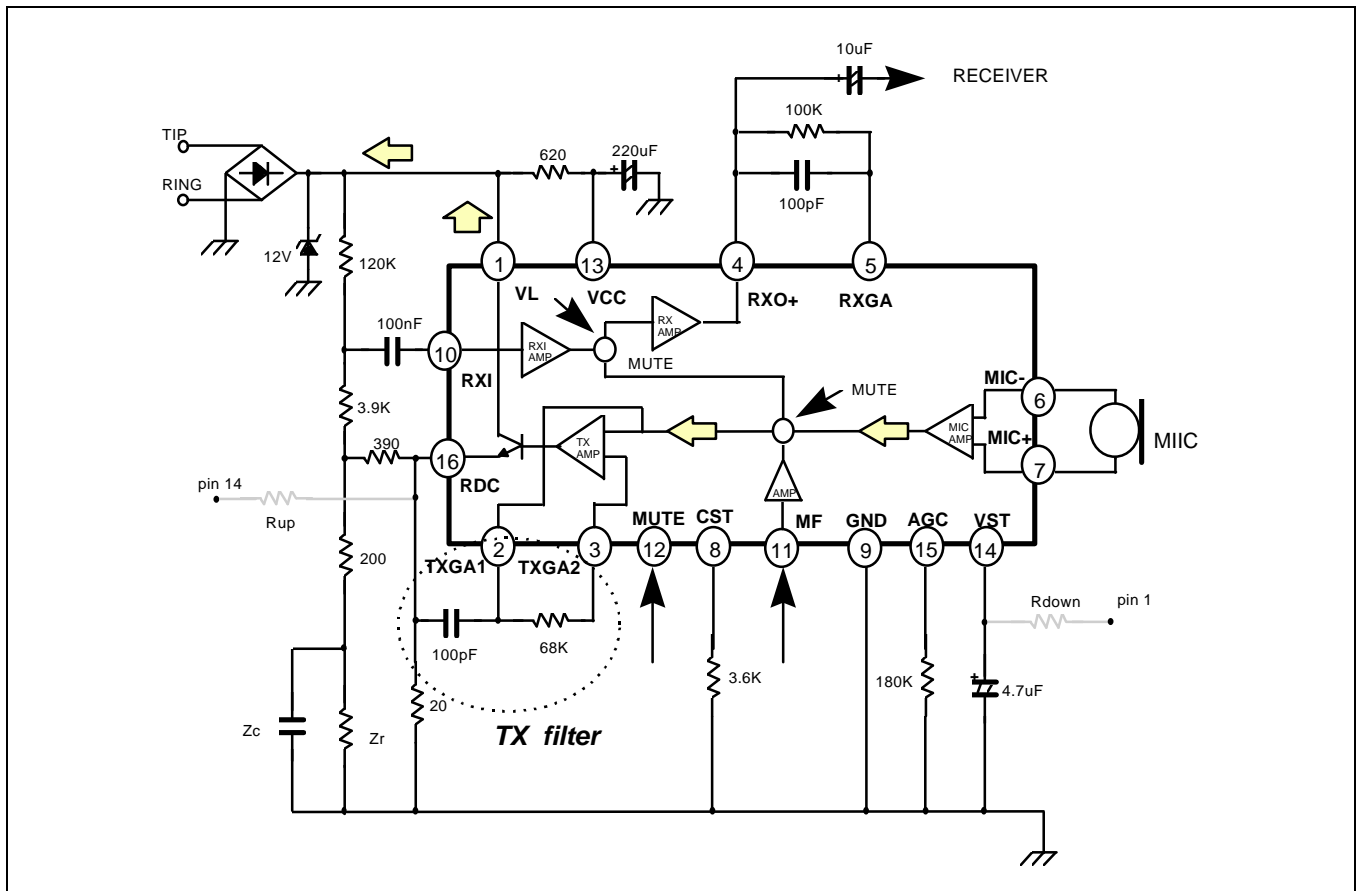


Figure 1.

**3. APPLICATION METHOD OF PIN 15 (AGC)**

— When the AGC resistor (Pin15) is connected to GND, Mic and RX amp are controlled by the AGC, but DTMF amp is not affected. The AGC starting point can be changed by the AGC resistor value. The AGC control range is 6dB. If automatic control is not required, AGC may be left open, and then gives maximum amplification.

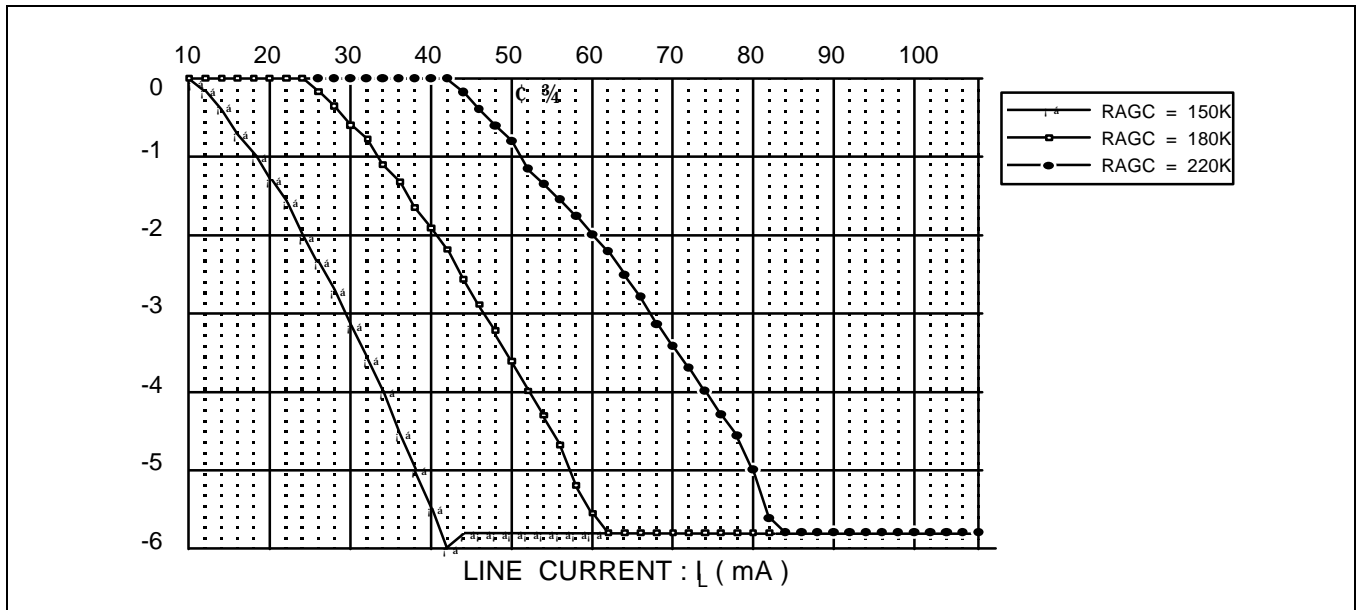


Figure 2.

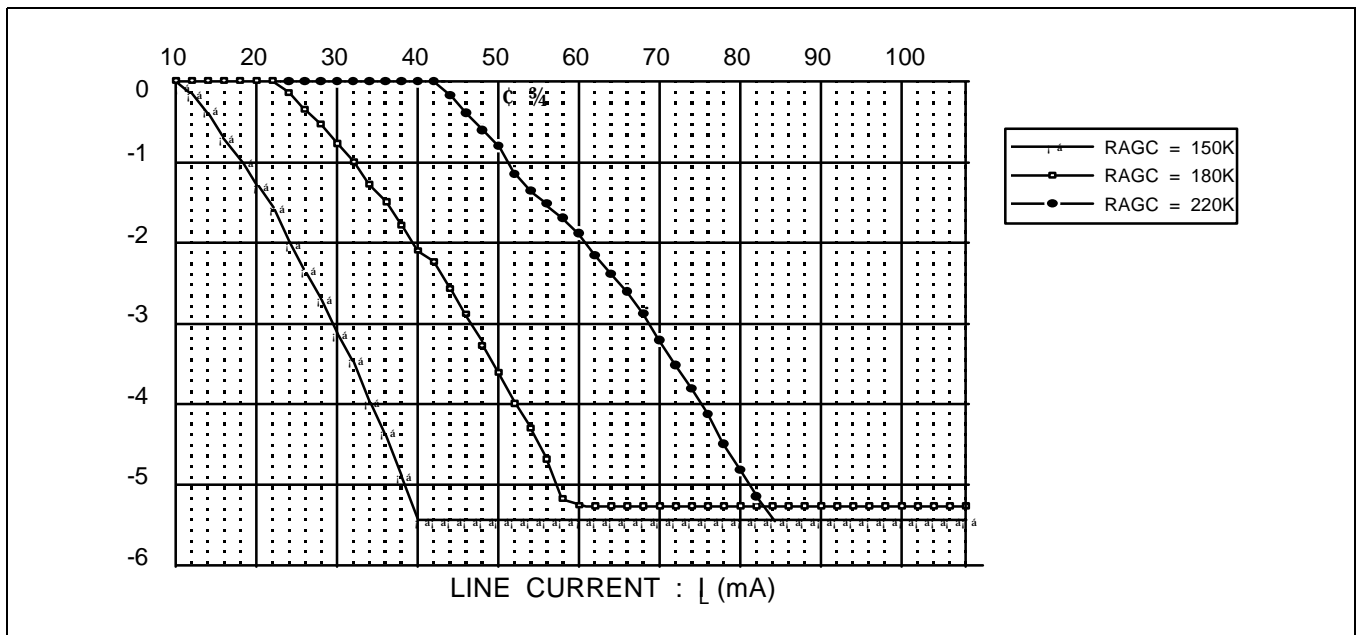


Figure 3.

4. MIC AMP GAIN CONTROL

— KA8603 has symmetrical very high impedance microphone input. the input impedance is typically  $64k\Omega$  ( $2 \times 32k\Omega$ ) with maximum tolerance of  $\pm 20\%$ . With this high input impedance it is possible to determine the matching of several microphone types very accurately by means of external components. The circuit is suitable for dynamic, magnetic or piezoelectric microphones with symmetrical drive.

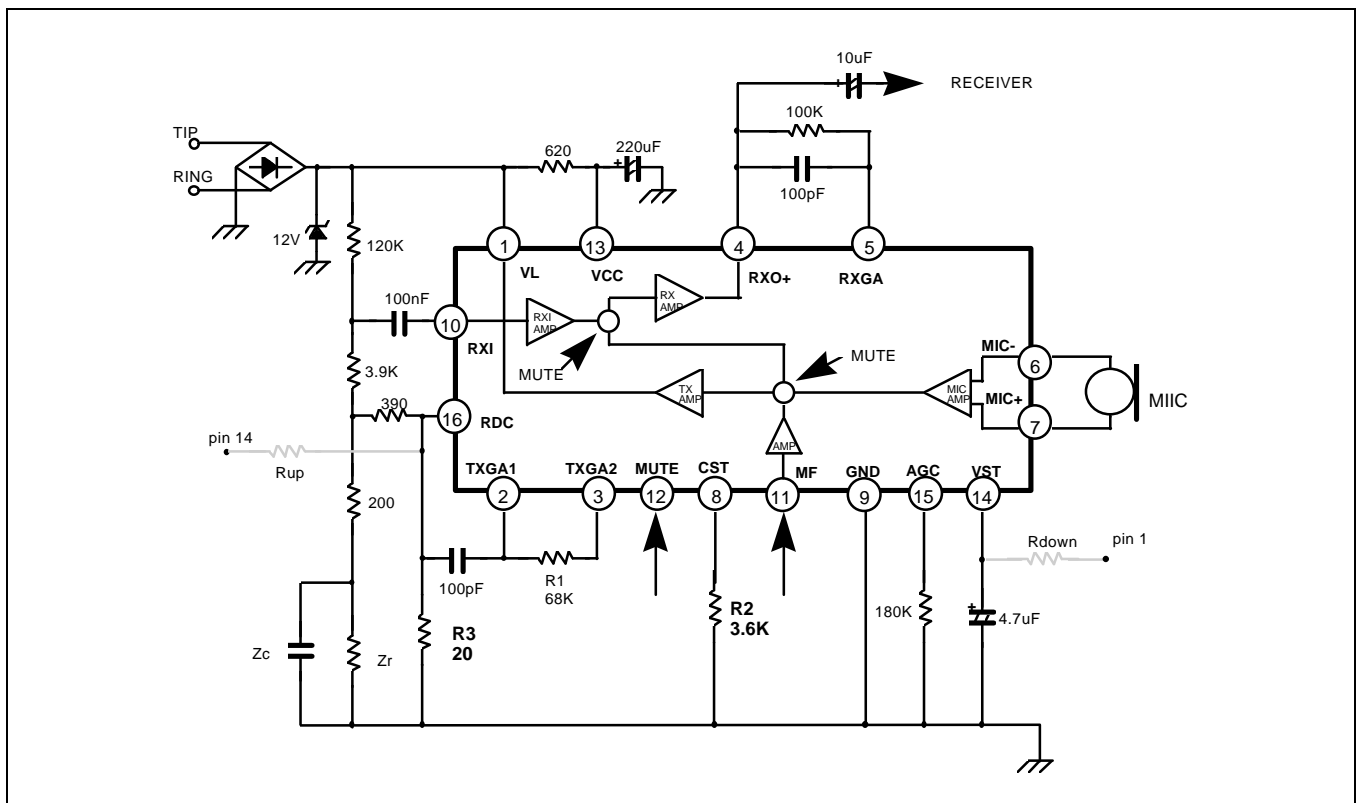
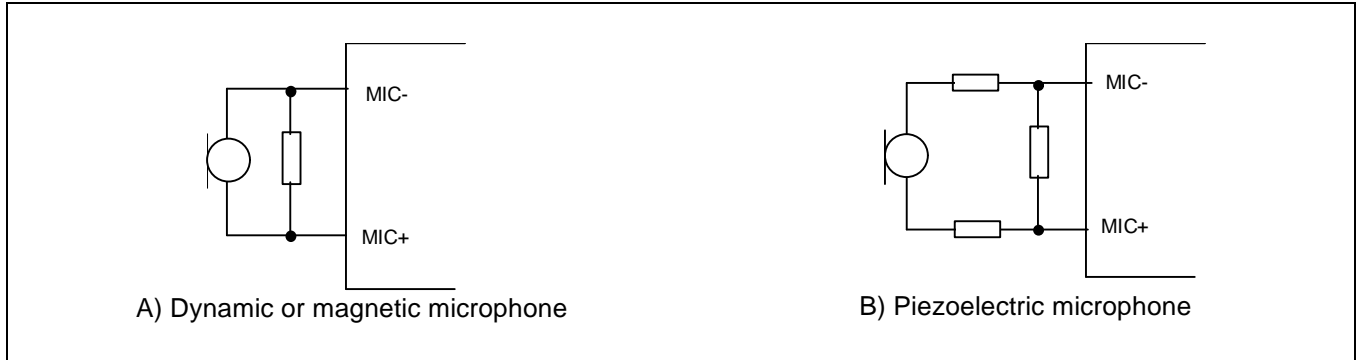


Figure 4.

The gain of the microphone amplifier ( between the MIC inputs and the line output VL) is given by the following equation ( see above fig. )

$$A_m = 1.356 \times R_L \times (( R_1 + r_d ) / R_2 \times R_3 )$$

Where,

RL = Load resistance at VL during the measurement : Normally 600Ω

rd = Dynamic resistance of the internal circuitry ( 3.47kΩ )

R5 = 3.6kΩ : Fixed external resistor determining the current of an internal current stabilizer.

#### 4. RX AMP GAIN CONTROL

- The input of the receiving amplifier is pin 10 (RXI). Input impedance is approximately 20kΩ .  
The gain of the receiving amplifier can be adjusted by means of R4 ( See above application circuits) between 20dB and 39dB with single ended dirve.  
This takes values of R4 between 28K and 250kΩ .