

## 1.2W AUDIO POWER AMPLIFIER—YD820

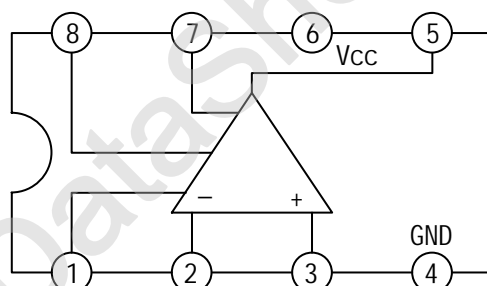
### DESCRIPTION

The YD820 is a monolithic integrated circuit audio amplifier. It is designed audio frequency class B amplifiers.

### FEATURES

- \*Wide operating supply voltage:  $V_{CC}=3\sim 14V$ .
- \*Low quiescent supply current ( $I_{CC}=4mA$ , typical).
- \*Medium output power  
 $P_o=1.2W$  at  $V_{CC}=9V$ ,  $R_L=8\Omega$ ,  $THD=10\%$ .
- \*Good ripple rejection
- \*Minimum number of external parts required.

### BLOCK DIAGRAM



### ABSOLUTE MAXIMUM RATINGS (Tamb=25 )

| PARAMETER                    | SYMBOL    | VALUE     | UNIT |
|------------------------------|-----------|-----------|------|
| Supply Voltage               | $V_{CC}$  | 16        | V    |
| Output Peak Current          | $I_{op}$  | 1.5       | A    |
| Power Dissipation (Tamb=25 ) | $P_D$     | 1.25      | W    |
| Operating Temperature        | $T_{opr}$ | -20~ +70  |      |
| Storage Temperature          | $T_{stg}$ | -55~ +150 |      |

### WuXi YouDa Electronics Co., Ltd

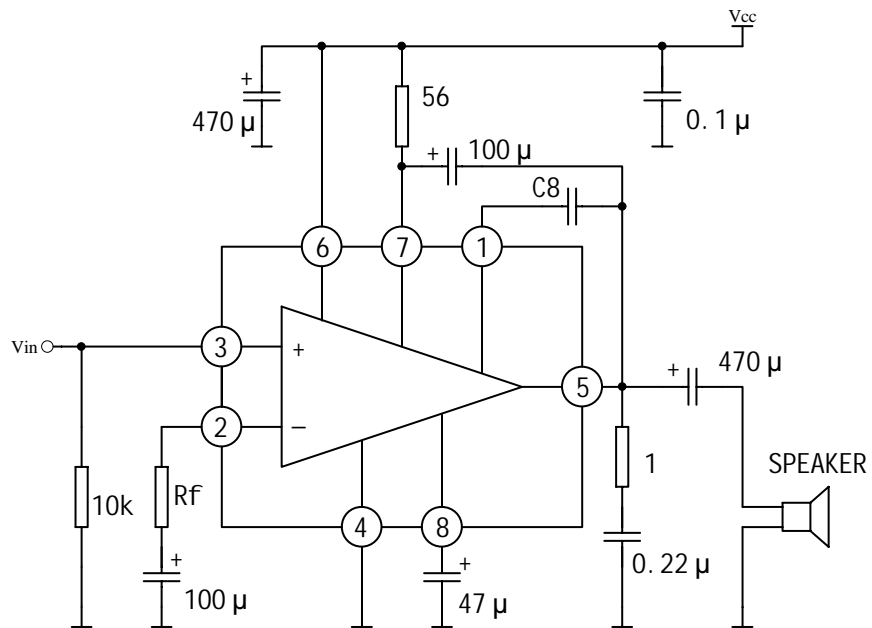
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**ELECTRICAL CHARACTERISTICS**

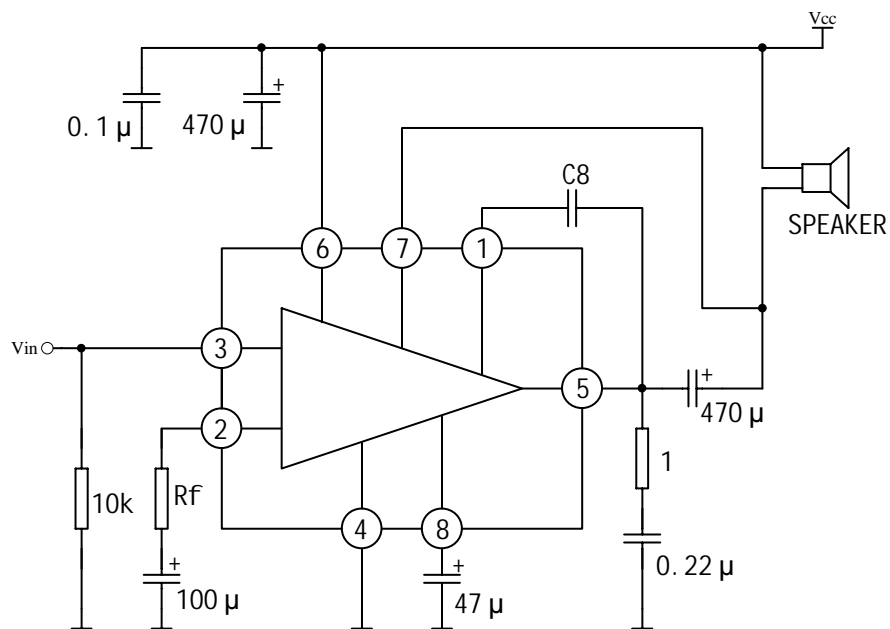
(Unless otherwise specified,  $V_{CC}=9V$ ,  $R_L=8\ \Omega$ ,  $R_g=600\ \Omega$ ,  $f=1kHz$ ,  $T_{amb}=25\ ^\circ C$ )

| PARAMETER                 | SYMBOL      | TEST CONDITIONS                             |                       | MIN        | TYP  | MAX | UNIT    |
|---------------------------|-------------|---|-----------------------|------------|------|-----|---------|
| Supply Voltage            | $V_{CC}$    |   |                       | 3          |      | 16  | V       |
| Output DC Voltage         | $V_{O(DC)}$ |   |                       | 4          | 4.5  | 5   | V       |
| Quiescent Circuit Current | $I_{ccq}$   |   |                       |            | 4    | 12  | mA      |
| Input Bias Current        | $I_B$       |   |                       |            | 0.1  |     | $\mu A$ |
| Output Power              | $P_o$       | THD =10%<br>Rf =120                         | $V_{CC} =12V, R_L=8$  |            | 2    |     | W       |
|                           |             |   | $V_{CC} =9V, R_L=4$   |            | 1.6  |     |         |
|                           |             |   | $V_{CC} =9V, R_L=8$   | 0.9        | 1.2  |     |         |
|                           |             |   | $V_{CC} =6V, R_L=4$   |            | 0.75 |     |         |
|                           |             |   | $V_{CC} =3.5V, R_L=4$ |            | 0.25 |     |         |
| Input Sensitivity         | $V_{in}$    | $P_o=1.2W$                                  | Rf=33                 |            | 16   |     | mV      |
|                           |             |   | Rf =120               |            | 60   |     |         |
|                           |             | $P_o=50mW$                                  | Rf=33                 |            | 3.5  |     |         |
|                           |             |   | Rf =120               |            | 12   |     |         |
| Input Resistance          | $Z_i$       | f=1kHz                                      |                       |            | 5    |     | M       |
| Gain Bandwidth            | BW          | $C_5=1000\ \mu F, C_8=680pF$                |                       | 25 ~ 7000  |      |     | Hz      |
|                           |             | $C_5=1000\ \mu F, C_8=220pF$                |                       | 25 ~ 20000 |      |     |         |
| Total Harmonic Distortion | THD         | $P_o=50mW, R_f=33$                          |                       |            | 0.8  |     | %       |
|                           |             | $P_o=50mW, R_f=120$                         |                       |            | 0.4  |     |         |
| Open Loop Voltage Gain    | $G_{vo}$    |   |                       |            | 75   |     | dB      |
| Closed Loop Voltage Gain  | $G_v$       | Rf =33                                      |                       |            | 45   |     | dB      |
|                           |             | Rf =120                                     |                       |            | 34   |     |         |
| Input Noise Voltage       | $V_{NI}$    | BPF=20Hz ~ 20kHz                            |                       |            | 3    |     | $\mu V$ |
| Input Noise Current       | $I_{NI}$    | 20Hz ~ 20kHz                                |                       |            | 0.4  |     | nA      |
| Signal Noise Ratio        | S/N         | $P_o=1.2W, G_v=34\ dB,$<br>BPF=20Hz ~ 20kHz | Rg=10k                |            | 80   |     | dB      |
|                           |             |   | Rg=50k                |            | 70   |     |         |
| Ripple Rejection Ratio    | RR          | fr=100kHz, $C_6=47\ \mu F, R_f=120$         |                       |            | 42   |     | dB      |

**APPLICATION CIRCUIT 1**



**APPLICATION CIRCUIT 2**



OUTLINE DRAWING

**DIP-8**

unit:mm

