



## TBA820M

### LINEAR INTEGRATED CIRCUIT

## 1.2W AUDIO POWER AMPLIFIER

### DESCRIPTION

The UTC **TBA820M** is a monolithic integrated audio amplifier. It is designed for audio frequency class b amplifier.

### FEATURES

\*Wide operating supply voltage:  $V_{CC}=3\sim 14V$

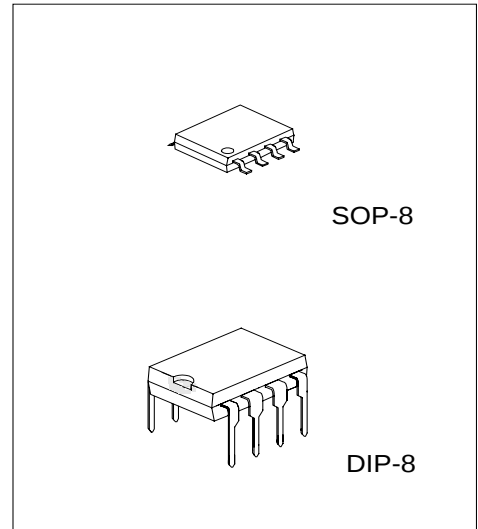
\*Medium output power

$P_{OUT}=1.2W$  at  $V_{CC}=9V, R_L=8\Omega, THD=10\%$

\*Low quiescent circuit current:  $I_Q=4mA$ (type)

\*Good ripple rejection.

\*Minimum number of external parts required.

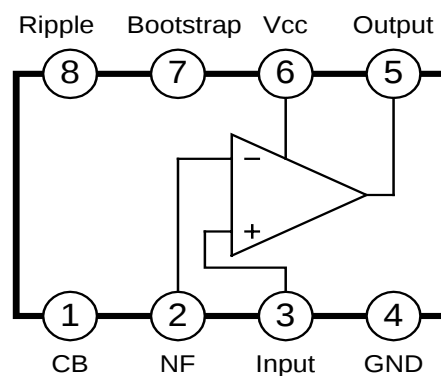


\*Pb-free plating product number: TBA820ML

### ORDERING INFORMATION

| Order Number  |                   | Package | Packing   |
|---------------|-------------------|---------|-----------|
| Normal        | Lead Free Plating |         |           |
| TBA820M-S08-R | TBA820ML-S08-R    | SOP-8   | Tape Reel |
| TBA820M-S08-T | TBA820ML-S08-T    | SOP-8   | Tube      |
| TBA820M-D08-T | TBA820ML-D08-T    | DIP-8   | Tube      |

### BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ )

| PARAMETER             | SYMBOL               | RATINGS         | UNIT               |
|-----------------------|----------------------|-----------------|--------------------|
| Supply Voltage        | $V_{CC}$             | 16              | V                  |
| Output Peak Current   | $I_{O(\text{peak})}$ | 1.5             | A                  |
| Power Dissipation     | $P_D$                | 1.25            | W                  |
| Operating Temperature | $T_{OPR}$            | $0 \sim +70$    | $^{\circ}\text{C}$ |
| Storage Temperature   | $T_{STG}$            | $-40 \sim +150$ | $^{\circ}\text{C}$ |

Note:1. Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.

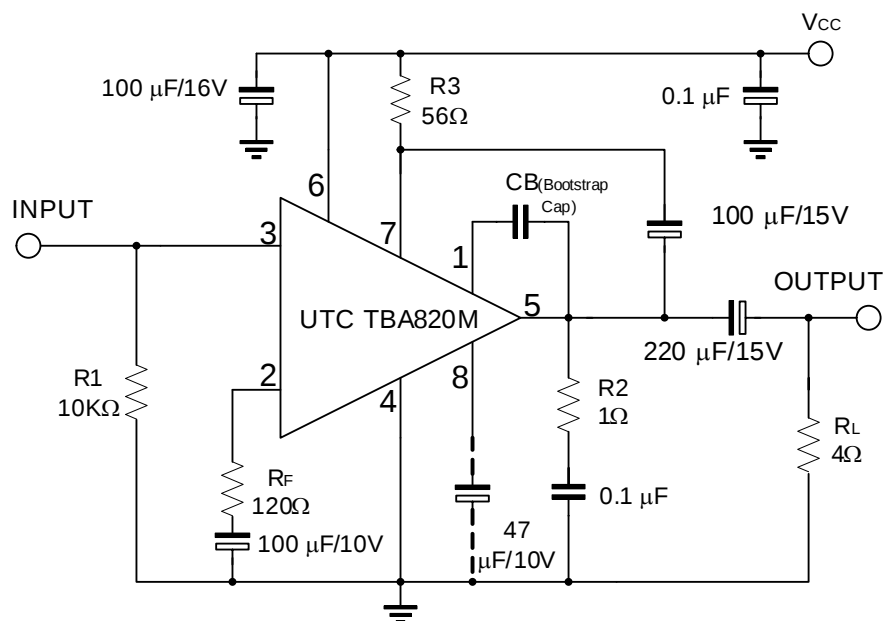
2. The device is guaranteed to meet performance specifications within  $0^{\circ}\text{C} \sim 70^{\circ}\text{C}$  operating temperature range and assured by design from  $-20^{\circ}\text{C} \sim 85^{\circ}\text{C}$ .

■ ELECTRICAL CHARACTERISTICS

( $T_a=25^{\circ}\text{C}$ ,  $V_{CC}=9\text{V}$ ,  $F=1\text{KHZ}$ ,  $R_G=600\Omega$ ,  $R_F=120\Omega$ ,  $R_L=8\Omega$ , unless otherwise specified.)

| PARAMETER                 | SYMBOL    | TEST CONDITIONS                                                        | MIN | TYP  | MAX | UNIT             |
|---------------------------|-----------|------------------------------------------------------------------------|-----|------|-----|------------------|
| Quiescent Current         | $I_Q$     | $V_{IN}=0$                                                             |     | 4    | 12  | mA               |
| Output Power              | $P_{OUT}$ | $V_{CC}=9\text{V}, R_L=4\Omega, \text{THD}=10\%$                       |     | 1.6  |     | W                |
|                           |           | $V_{CC}=9\text{V}, R_L=8\Omega, \text{THD}=10\%$                       | 0.9 | 1.2  |     |                  |
|                           |           | $V_{CC}=6\text{V}, R_L=4\Omega, \text{THD}=10\%$                       |     | 0.75 |     |                  |
|                           |           | $V_{CC}=6\text{V}, R_L=8\Omega, \text{THD}=10\%$                       | 0.4 | 0.5  |     |                  |
|                           |           | $V_{CC}=12\text{V}, R_L=8\Omega, \text{THD}=10\%$                      |     | 2    |     |                  |
| Total Harmonic Distortion | THD       | $P_{OUT}=500\text{mW}$                                                 |     | 0.3  | 1   | %                |
| Open Loop Voltage Gain    | $G_{VO}$  | $R_F=0$                                                                |     | 75   |     | dB               |
| Closed Loop Voltage Gain  | $G_{VC}$  | $R_F=120\Omega$                                                        | 33  | 36   | 39  | dB               |
| Input Resistance          | $R_{IN}$  |                                                                        |     | 5    |     | $\text{M}\Omega$ |
| Output Noise Voltage      | eN        | $R_G=10\text{k}\Omega$ , $\text{BW}(-3\text{dB})=50 \sim 20\text{kHz}$ |     | 0.3  | 1   | mV               |

### ■ TEST CIRCUIT



### ■ TYPICAL CHARACTERISTICS

Fig 1 Quiescent circuit current vs Supply Voltage

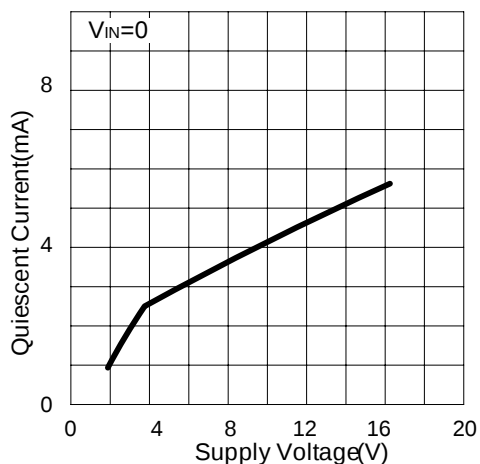


Fig 2 Output power vs Supply Voltage

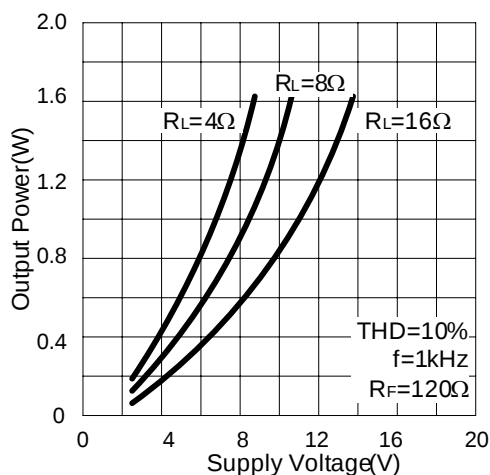


Fig 3 Total harmonic Distortion vs Output power

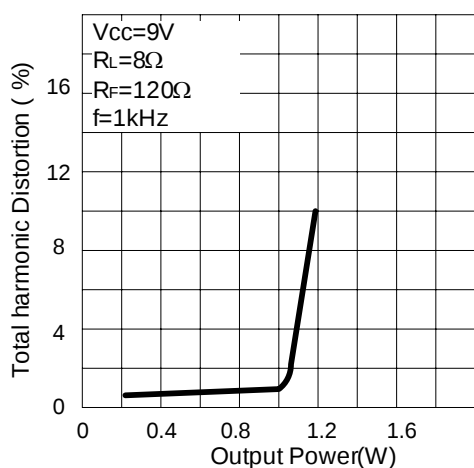


Fig 4 Voltage Gain vs Feedback resistance

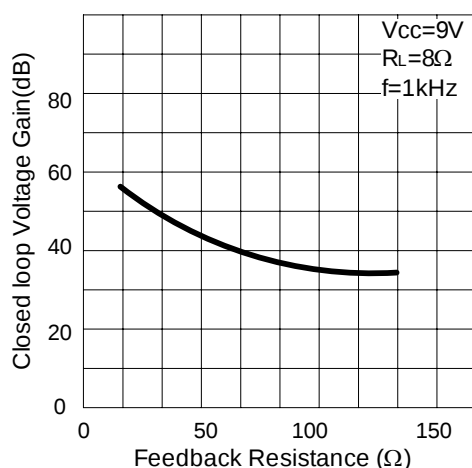


Fig 5 Power Dissipation vs Output power

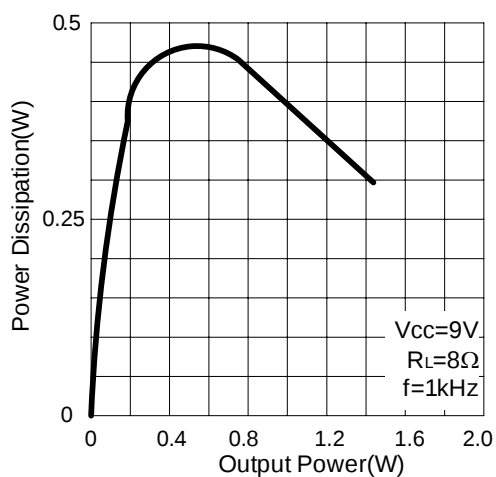
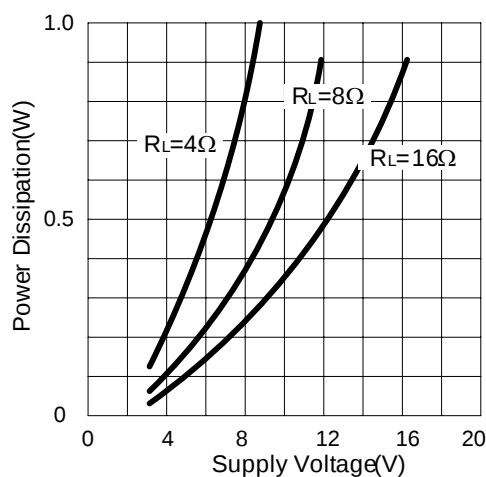


Fig 6 Power Dissipation vs Supply Voltage



### ■ TYPICAL CHARACTERISTICS(CONT.)

Fig 7 Frequency response

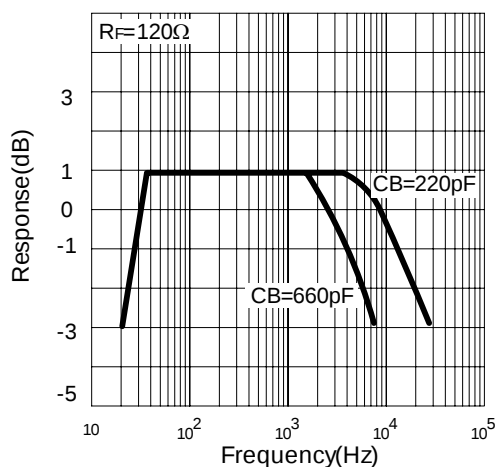
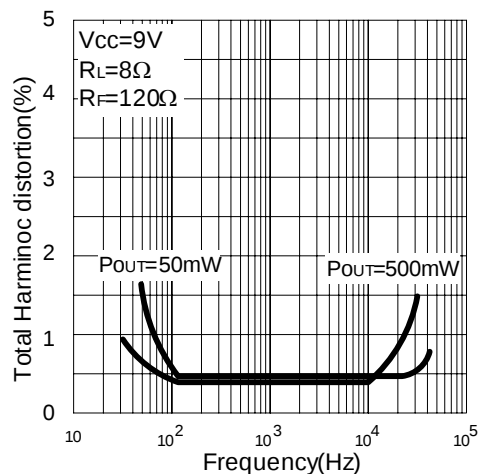


Fig 8 Total Harmonic distortion vs frequency



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