

## 3W MONO BRIDGE AMPLIFIER

PRODUCT PREVIEW

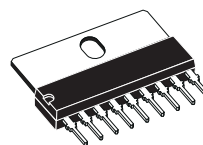
- NO EXTERNAL COMPONENTS
- NO POP AT TURN-ON/OFF
- LOW POWER CONSUMPTION
- SHORT CIRCUIT PROOF

### DESCRIPTION

The STA7056 is a mono Bridge Amplifier assembled in single in line 9 pins package.

The STA7056 is specially designed for battery fed portable recorders, radios and TV receivers.

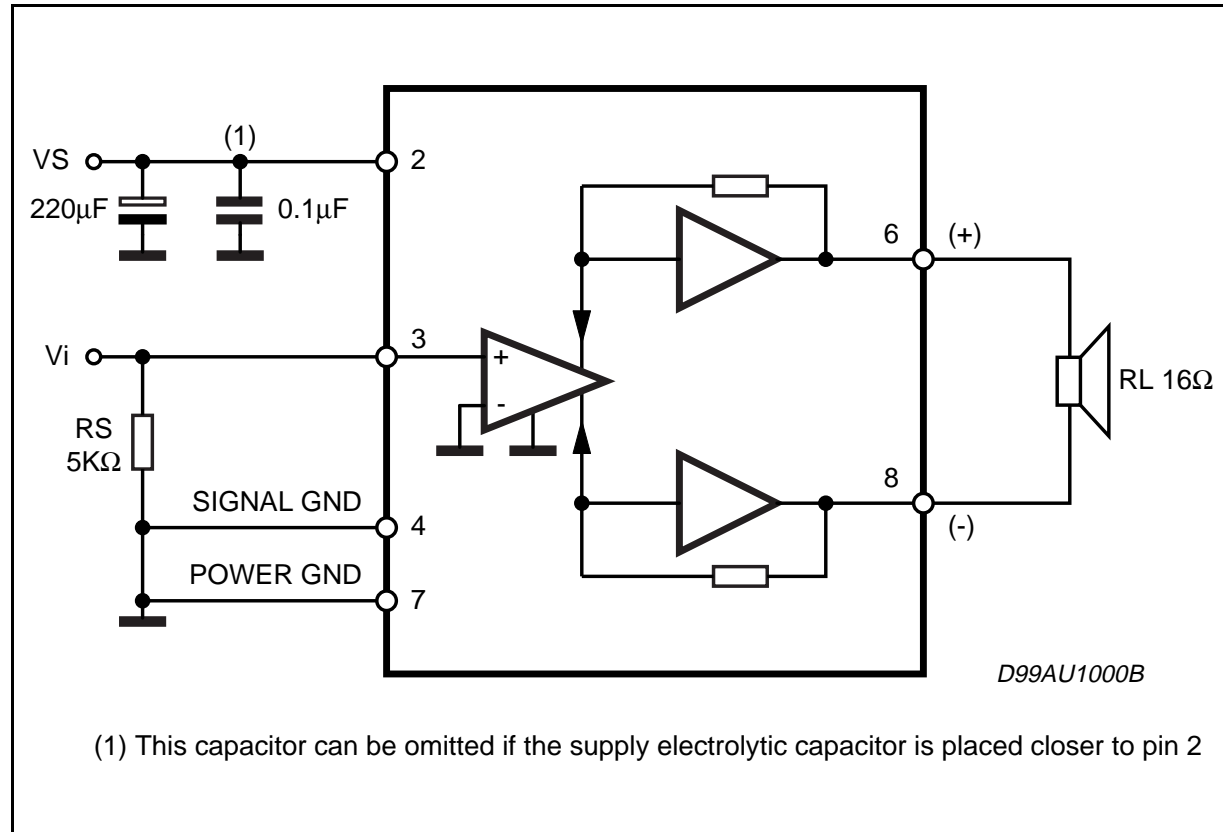
### BI20II TECHNOLOGY



SIP9

ORDERING NUMBER: STA7056

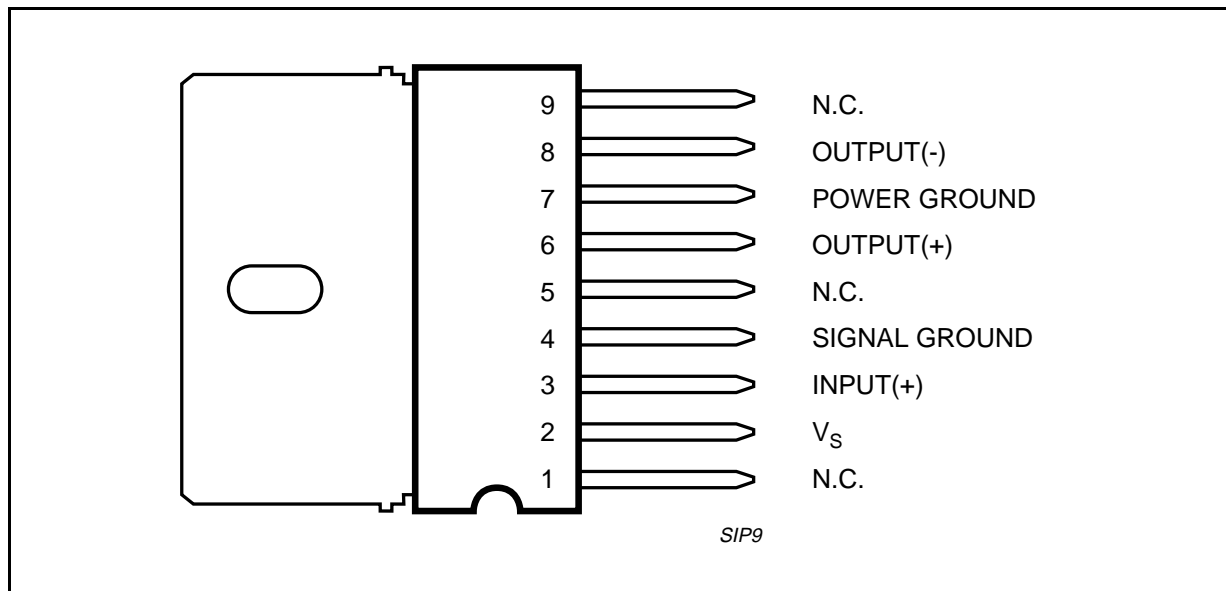
### BLOCK DIAGRAM



**ABSOLUTE MAXIMUM RATINGS**

| Symbol                            | Parameter   | Value      | Unit |
|-----------------------------------|---|------------|------|
| V <sub>s</sub>                    | Supply Voltage  | 20         | V    |
| I <sub>o</sub>                    | Output Peak current (repetitive f ≥ 20Hz)                                       | 1          | A    |
| I <sub>o</sub>                    | Output Peak current (non repetitive t = 100μs)                                  | 1.5        | A    |
| P <sub>tot</sub>                  | Total Power Dissipation (T <sub>case</sub> <70°C)                               | 10         | W    |
| T <sub>j</sub> , T <sub>stg</sub> | Storage and Function Temperature  | -40 to 150 | °C   |
| T <sub>sc</sub>                   | Short Circuit Time<br>(the load can be short circuited to all input conditions) | 1          | hr   |

**PIN CONNECTION**



**THERMAL DATA**

| Symbol                 | Parameter                           | Value | Unit |
|------------------------|-------------------------------------|-------|------|
| R <sub>th j-case</sub> | Thermal Resistance Junction-case    | 8     | °C/W |
| R <sub>th j-amb</sub>  | Thermal Resistance Junction-ambient | 50    | °C/W |

**Power Dissipation**

Assume: V<sub>s</sub> = 11V; R<sub>L</sub> = 16Ω

The minimum sine-wave dissipation is  $P_d \max = \frac{V_s^2}{\pi^2 \cdot R_{L/2}} = 1.52W$

The R<sub>th j - amb</sub> of the package is 50°C/W.

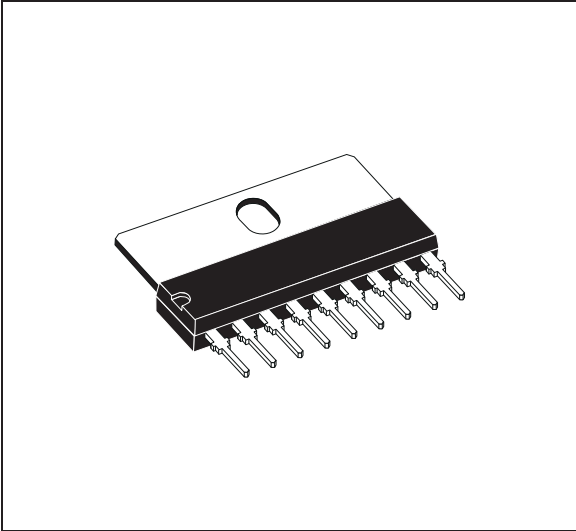
T<sub>amb</sub> (max) = 150 - 50 x 1.52 = 74°C

**ELECTRICAL CHARACTERISTICS** (Refer to the test circuit,  $V_s = 12V$ ;  $R_L = 16\Omega$ ;  $R_s = 50\Omega$ ;  $f = 1KHz$ ,  $T_{amb} = 25^\circ C$  unless otherwise specified.)

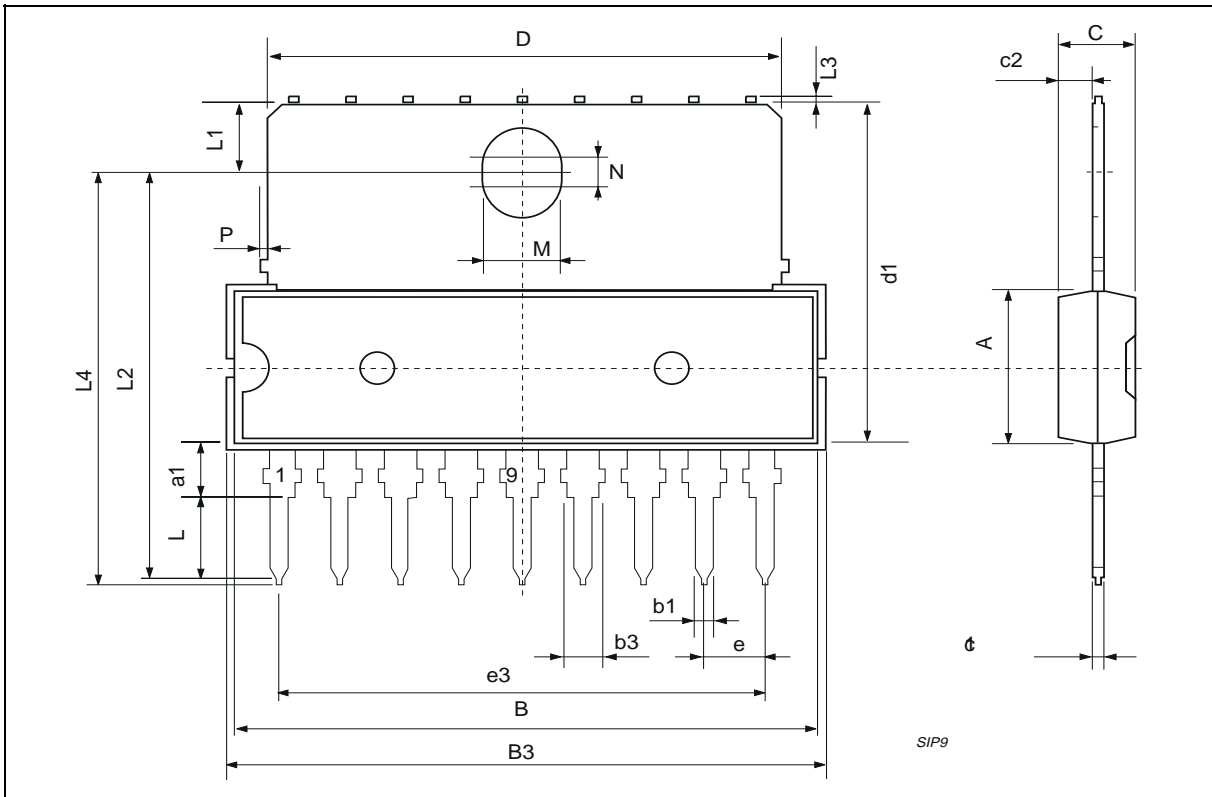
| Symbol       | Parameter                      | Test Condition  | Min. | Typ. | Max. | Unit      |
|--------------|--------------------------------|---|------|------|------|-----------|
| $V_s$        | Supply Voltage                 |   | 3    |      | 18   | V         |
| $I_q$        | Total Quiescent Current        | $R_L = \infty$  |      | 6    | 8    | mA        |
|              |                                | $R_L = 16\Omega$  |      | 10   | 20   | mA        |
| $I_o$        | Repetitive Peak Output Current |   |      |      | 0.9  | A         |
| $P_o$        | Output Power                   | THD = 10%; $R_L = 16\Omega$                                 | 2.8  | 3.3  |      | W         |
|              |                                | THD = 10%; $R_L = 8\Omega$                                  |      | 4.5  |      | W         |
| THD          | Total Harmonic Distortion      | $P_o = 0.5W$  |      | 0.25 | 1    | %         |
| $G_v$        | Voltage Gain                   |   | 39   | 40.5 | 42   | dB        |
| $ Z_{in} $   | Input Impedance                |   |      | 100  |      | $K\Omega$ |
| $I_i$        | Input Bias Current             |   |      | 100  | 300  | nA        |
| $\Delta V_o$ | DC Output Offset Voltage       | $R_s = 5K\Omega$  |      |      | 250  | mV        |
| SVR          | Supply Voltage Rejection       | $R_s = 0\Omega$ ; $f = 100Hz$ to $10 KHz$ ;<br>$V_r = 0.2V$ | 36   | 50   |      | dB        |
| $V_{no}$     | Noise Output Voltage           | $R_s = 5K\Omega$ ; $f = 20Hz$ to $20 KHz$ ;                 |      | 180  | 300  | $\mu V$   |

| DIM. | mm   |       |       | inch  |       |       |
|------|------|-------|-------|-------|-------|-------|
|      | MIN. | TYP.  | MAX.  | MIN.  | TYP.  | MAX.  |
| A    |      |       | 7.1   |       |       | 0.280 |
| a1   | 2.7  |       | 3     | 0.106 |       | 0.118 |
| B    |      |       | 23    |       |       | 0.90  |
| B3   |      |       | 24.8  |       |       | 0.976 |
| b1   |      | 0.5   |       |       | 0.020 |       |
| b3   | 0.85 |       | 1.6   | 0.033 |       | 0.063 |
| C    |      | 3.3   |       |       | 0.130 |       |
| c1   |      | 0.43  |       |       | 0.017 |       |
| c2   |      | 1.32  |       |       | 0.052 |       |
| D    |      |       | 21.2  |       |       | 0.835 |
| d1   |      | 14.5  |       |       | 0.571 |       |
| e    |      | 2.54  |       |       | 0.100 |       |
| e3   |      | 20.32 |       |       | 0.800 |       |
| L    | 3.1  |       |       | 0.122 |       |       |
| L1   |      | 3     |       |       | 0.118 |       |
| L2   |      | 17.6  |       |       | 0.693 |       |
| L3   |      |       | 0.25  |       |       | 0.010 |
| L4   | 17.4 |       | 17.85 | 0.685 |       | 0.702 |
| M    |      | 3.2   |       |       | 0.126 |       |
| N    |      | 1     |       |       | 0.039 |       |
| P    |      |       | 0.15  |       |       | 0.006 |

**OUTLINE AND MECHANICAL DATA**



**SIP9**



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