

**MICROPHONE AMPLIFIER**

**DEVELOPMENT SAMPLE DATA**

A monolithic integrated a.f. amplifier intended for use with a piezo-electric ceramic microphone in telephones. It maintains an almost constant voltage gain and d.c. voltage drop even if the supply current is varied between 20 mA and 100 mA. The TAA500 is protected against accidental reversal of the polarity of the supply voltage and requires very few external components.

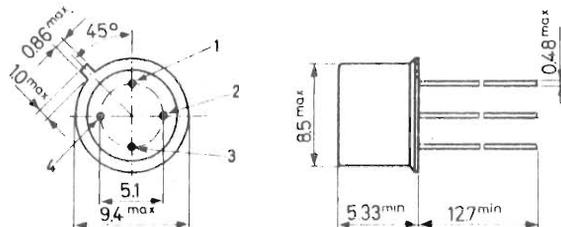
**QUICK REFERENCE DATA**

|                                   |            |              |
|-----------------------------------|------------|--------------|
| Supply current                    | $I_I$      | 20 to 100 mA |
| Voltage drop                      | $V_{I-4}$  | typ. 4.5 V   |
| Voltage gain                      | $G_V$      | typ. 300     |
| Output voltage at $d_{tot} < 5\%$ | $V_o(rms)$ | typ. 1.0 V   |

**PACKAGE OUTLINE**

Dimensions in mm

TO-12 with reduced height



These data, based on the specifications and measured performance of development samples, afford a preliminary indication of the characteristics to be expected of the described product. Distribution of development samples implies no guarantee as to the subsequent availability of the product

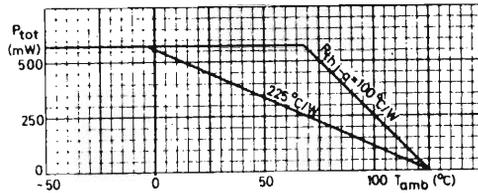
# TAA500 (1510M)

## RATINGS (Limiting values)<sup>1)</sup>

### Currents

|   |          |                      |
|---|----------|----------------------|
| Supply current (d.c.)                         | $I_1$    | -100 to +100 mA      |
| A.C. component of supply current (peak value) | $I_{1m}$ | max. 100 mA          |
| Current at terminal 2                         | $I_2$    | -100 to +100 $\mu$ A |
| Current at terminal 3                         | $I_3$    | -100 to +100 $\mu$ A |

### Total power dissipation (see graph)



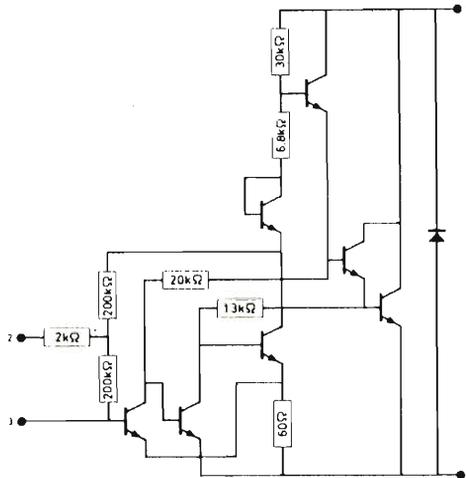
### Temperatures

|                      |           |                          |
|----------------------|-----------|--------------------------|
| Storage temperature  | $T_{stg}$ | -55 to +125 $^{\circ}$ C |
| Junction temperature | $T_j$     | max. 125 $^{\circ}$ C    |

### THERMAL RESISTANCE

|                       |              |                   |
|-----------------------|--------------|-------------------|
| From junction to case | $R_{th j-c}$ | 60 $^{\circ}$ C/W |
|-----------------------|--------------|-------------------|

### CIRCUIT DIAGRAM



<sup>1)</sup> Limiting values according to the Absolute Maximum System as defined in IEC publication 131.

**CHARACTERISTICS**

$T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified

Voltage drop at  $T_{case} = 25\text{ }^{\circ}\text{C}$

|                        |           |              |
|------------------------|-----------|--------------|
| $I_1 = 20\text{ mA}$   | $V_{1-4}$ | 3.8 to 5.3 V |
| $I_1 = 100\text{ mA}$  | $V_{1-4}$ | 4.2 to 5.7 V |
| $-I_1 = 100\text{ mA}$ | $V_{4-1}$ | < 2.2 V      |

For next characteristics see recommended test circuit.

Voltage gain (refer to point A)

|                    |       |            |
|--------------------|-------|------------|
| $f = 2\text{ kHz}$ | $G_V$ | 250 to 350 |
|--------------------|-------|------------|

Gain reduction at  $f = 300\text{ Hz}$

|                                       |              |           |
|---------------------------------------|--------------|-----------|
| (with respect to $f = 2\text{ kHz}$ ) | $\Delta G_V$ | typ. 1 dB |
|                                       |              | < 4 dB    |

Change of voltage gain

|   |              |        |
|---|--------------|--------|
| $T_{amb} = -20\text{ to }+55\text{ }^{\circ}\text{C}$ | $\Delta G_V$ | < 10 % |
|---|--------------|--------|

Output voltage (at point A)

|   |            |         |
|---|------------|---------|
| $I_1 = 50\text{ mA}$ ; $f = 2\text{ kHz}$ ; $d_{tot} = 50\text{ }^{\circ}\text{C}$ ; $T_{amb} = 25\text{ }^{\circ}\text{C}$ | $V_o(rms)$ | > 1 V   |
| $T_{amb} = 55\text{ }^{\circ}\text{C}$  | $V_o(rms)$ | > 0.7 V |

Noise voltage (at point A)

|                                  |       |        |
|----------------------------------|-------|--------|
| $B = 0.3\text{ to }4\text{ kHz}$ | $V_n$ | < 2 mV |
|----------------------------------|-------|--------|

Recommended test circuit:

