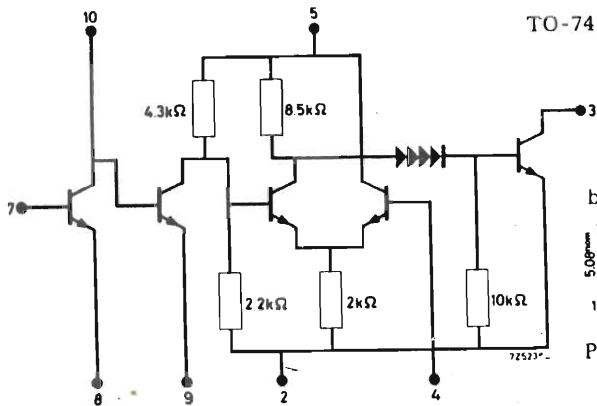


A.F. PREAMPLIFIER

CIRCUIT DIAGRAM

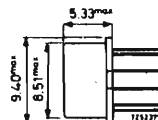
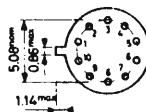


PACKAGE

Dimensions in mm

TO-74 (reduced height)

bottom view



Pins 1 and 6 are not connected

QUICK REFERENCE DATA

Supply voltage	V_B	nom.	+7 V
Voltage gain	G_V	typ.	100 dB
Noise figure	F	\leq	4 dB
Input impedance	z_i	typ.	20 k Ω
Package	TO-74 (reduced height)		

The TAA310 is a monolithic integrated circuit designed for use as an a.f. high-gain preamplifier, with a very low noise figure (< 4 dB) and a high voltage gain of at least 90 dB. Because this gain can be achieved at a low load impedance (1 k Ω) and the input impedance is high, the TAA310 is specially suited for the recording and play-back amplifier in tape recorders.

723 1624

TAA310

RATINGS (Limiting values) 1)

Voltages

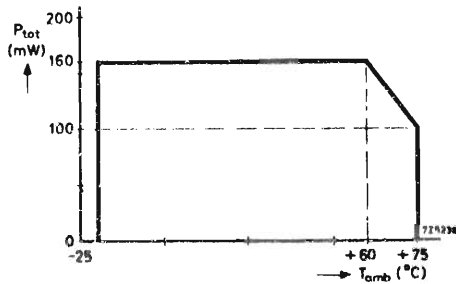
V5-2	max.	9.5 V
V3-2	max.	9.5 V
V10-8	max.	6 V
V8-7	max.	6 V
V9-10	max.	6 V
V4-2	max.	6 V

The pins 3, 4, 5 and 10 must never have a negative potential with respect to pin 2 (substrate).

Currents

I ₃	max.	20 mA
I ₇	max.	3 mA
-I ₈	max.	10 mA
-I ₉	max.	10 mA
I ₁₀	max.	10 mA
I ₄	max.	3 mA

Total power dissipation



Temperatures

Storage temperature	T _{stg}	-20 to +80 °C
Operating ambient temperature	T _{amb}	-20 to +75 °C

1) Limiting values according to the Absolute Maximum System as defined in IEC publication 134.

CHARACTERISTICS at $T_{amb} = 25\text{ }^{\circ}\text{C}$

D.C. current gain

of first transistor
 $I_{I0} = 100\text{ }\mu\text{A}; V_{I0-7} = 0$ $h_{FE} > 40$

Input impedance at $f = 1\text{ kHz}$

$I_{I0} = 100\text{ }\mu\text{A}; V_{I0-7} = 0$ z_i typ. $20\text{ k}\Omega$

Saturation voltage

of output transistor at $I_3 = 7\text{ mA}$ $V_{3-2\text{ sat}} < \begin{matrix} \text{typ. } 0.8\text{ V} \\ 1.2\text{ V} \end{matrix}$

Voltage gain

$G_V > 93\text{ dB}$

Noise figure

$R_S = 2\text{ k}\Omega; B = 30\text{ to }15000\text{ Hz}$ $F < \begin{matrix} \text{typ. } 2.5\text{ dB} \\ 4\text{ dB} \end{matrix}$

Output voltage at $d_{tot} = 10\%$

$V_{O(rms)}$ typ. 2 V

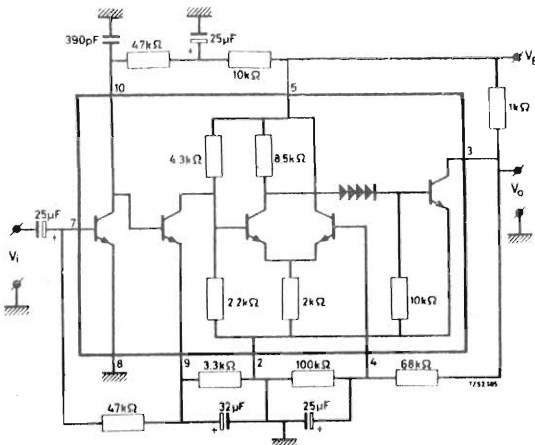
Cut-off frequency (-3 dB)

$f_c \geq 15\text{ kHz}$

D.C. collector voltage

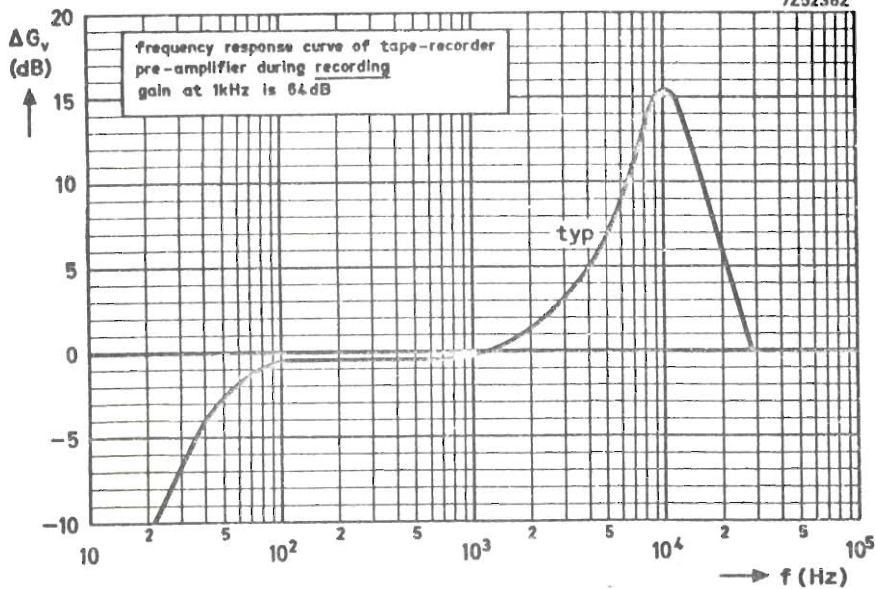
of output transistor at $I_9 = 200\text{ }\mu\text{A}$ $V_{3-2} \begin{matrix} \text{typ. } 3.8\text{ V} \\ 3.4\text{ to }4.2\text{ V} \end{matrix}$

Test circuit for measuring $G_V, F, V_{O(rms)}, f_c$ and V_{3-2} at $V_B = 7\text{ V}$



7Z3 1719

7Z52302



7Z52303

