

FM CHANNEL AMPLIFIER

The TAA450 is a monolithic integrated circuit containing an i.f. amplifier with limiting characteristics for use up to frequencies of 10 MHz, a ratio detector and an i.f. amplifier with connections brought out for remote volume control.

QUICK REFERENCE DATA

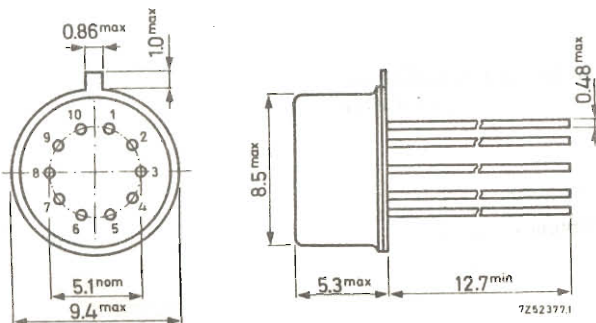
Operating characteristics of i.f. amplifier at $f = 5.5$ MHz
 Supply voltage $V_B = 7.5$ V; $T_{amb} = 25$ °C

Voltage gain	G_V	typ.	69 dB
Start of limiting	V_i	typ.	300 μ V

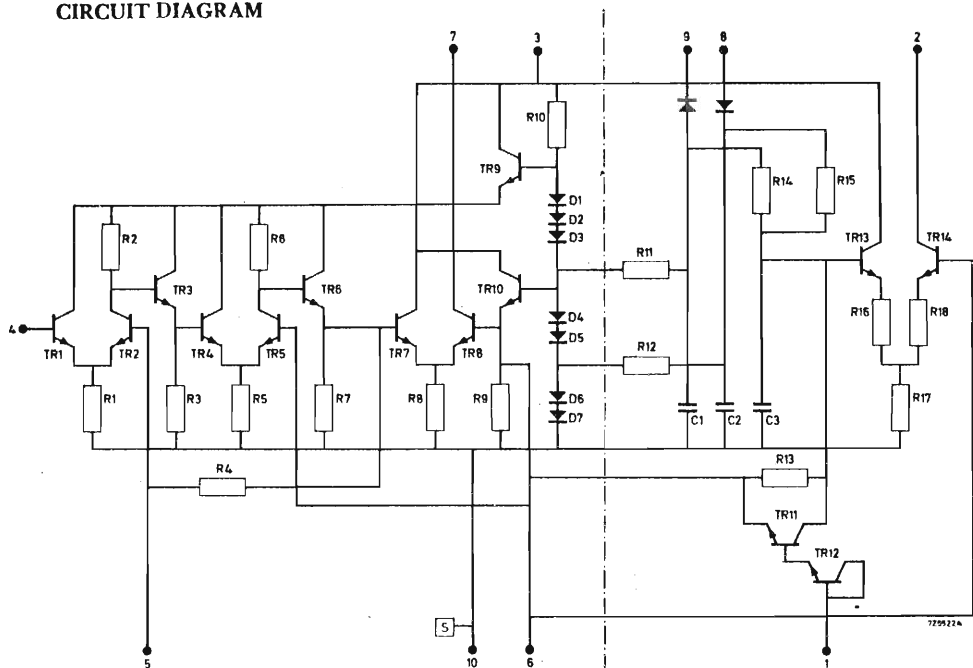
PACKAGE OUTLINE

Dimensions in mm

XA10 (TO-74; reduced height)



CIRCUIT DIAGRAM



RATINGS (Limiting values in accordance with the Absolute Maximum System (IEC 134))

Supply voltage (d.c.) i.f. amplifier
a.f. amplifier

$V_7 = V_3$ max. 12 V
 V_2 max. 18 V¹⁾

Total power dissipation

P_{tot} max. 380 mW

Storage temperature

T_{stg} -20 to +80 °C

Operating ambient temperature

T_{amb} -20 to +60 °C

¹⁾ During warming-up in tube receivers this value may be exceeded up to 30 V.

CHARACTERISTICS for i.f. amplifier part at $V_B = 7.5 \text{ V}$; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$

Voltage gain

$V_i = 100 \text{ } \mu\text{V}$; $f = 1 \text{ MHz}$	G_V	typ. 71 dB
$V_i = 100 \text{ } \mu\text{V}$; $f = 4.5 \text{ MHz}$	G_V	typ. 69 dB
$V_i = 100 \text{ } \mu\text{V}$; $f = 5.5 \text{ MHz}$	G_V	> 66 dB typ. 69 dB

Start of limiting at $f = 5.5 \text{ MHz}$

V_i typ. 300 μV

Output current (peak to peak) at $V_i = 5 \text{ mV}$

$I_{7(\text{p-p})}$ typ. 2.8 mA

Input resistance

R_i > 2.5 k Ω

Input capacitance

C_i typ. 7 pF
< 10 pF

Output resistance

R_o > 10 k Ω

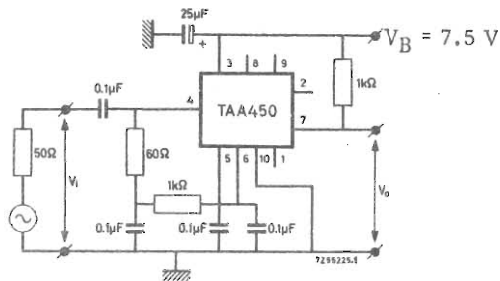
Output capacitance

C_o typ. 4 pF
< 6 pF

Total current

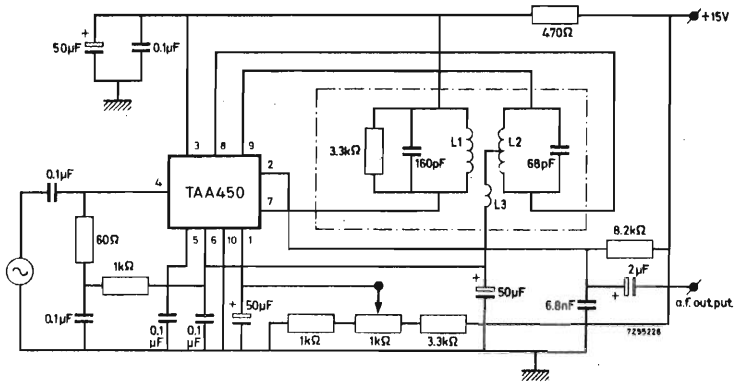
I_B typ. 15 mA
< 22 mA

Test circuit



APPLICATION INFORMATION

Circuit with the TAA450 in an i. f. - i. f. amplifier of a television receiver.



Primary: frame core AP3014/02

Secondary: no frame core

L1 = 19 turns 0.12 mm stranded Cu wire

L2 = 2 x 17 turns 0.12 mm stranded Cu wire; bifilarly wound

L3 = 14 turns 0.12 mm stranded Cu wire; bifilarly wound with L1

Top-top distance of frequency response curve: ≥ 250 kHz

Intermediate frequency $f_0 = 5.5$ MHz

Frequency deviation $\Delta f = \pm 10$ kHz

Modulation frequency $f_m = 400$ Hz

Ambient temperature $T_{amb} = 25$ °C

Start of limiting

I. F. output voltage at pin 7 with $V_i \geq 300$ μ V

L. F. output voltage at $V_i \geq 300$ μ V

A. M. suppression

$f_m = 1$ kHz; $m = 0.3$; $V_i \geq 2$ mV

Volume control range

Distortion at $\Delta f \pm 10$ kHz without volume control

with volume control

$\Delta f \pm 50$ kHz without volume control

with volume control

V_i typ. 300 μ V

V_7 typ. 1.2 V

V_o typ. 400 mV

≥ 40 dB

$\Delta V_o \geq 30$ dB

d typ. 0.01

d typ. 0.015

d typ. 0.025

d typ. 0.05