

LINE OSCILLATOR CIRCUIT

This circuit has been designed for use as line-oscillator and reactance stage in colour and monochrome t.v. receivers.

The circuit consists of a Miller-integrator-oscillator followed by a pulse shaping circuit, which delivers a positive pulse of 8 V and adjustable width. The available output current is in excess of 60 mA. Finally a supply voltage take-over switch for starting purposes is built in. The TBA720A can co-operate with the TBA890.

QUICK REFERENCE DATA

Supply voltage	V_{11-16} typ.	12 V
Starting voltage	V_{9-16}	8 to 12 V

Required input signals

D.C. control voltage at pin 1	V_{1-16}	2.4 to 5.3 V
at pin 3	V_{3-16}	2.4 to 5.3 V

Delivered output signals

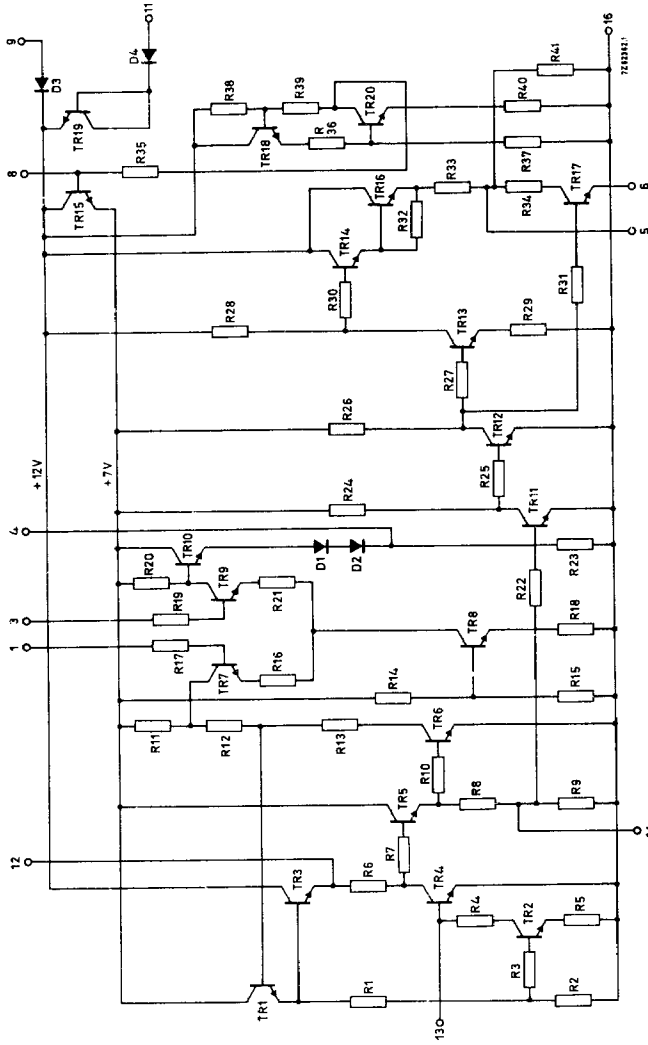
Output voltage at pin 5 no load: peak-to-peak value	$V_{5-16(p-p)}$ typ.	8 V
Output current at pin 5	I_5	< 60 mA

PACKAGE OUTLINES

TBA720A : 16-lead DIL; plastic (SOT-38).

TBA720AQ: 16-lead QIL; plastic (SOT-58).

CIRCUIT DIAGRAM



RATINGS Limiting values in accordance with the Absolute Maximum System (IEC134).

Voltages

Supply voltage V_{11-16} max. 16 V

Starting voltage V_{9-16} max. 15 V

Currents

Output current I_5 max. 60 mA

Power dissipation

Total power dissipation
when mounted on a printed-wiring board P_{tot} max. 280 mW

Temperatures

Storage temperature T_{stg} -55 to +125 °C

Operating ambient temperature T_{amb} 0 to +60 °C

CHARACTERISTICS Measured in the test set-up on page 4

Supply voltage V_{11-16} typ. 12 V
10 to 13 V

Starting voltage V_{9-16} > 8 V 1)

CHARACTERISTICS at $T_{amb} = 25$ °C; $V_{11-16} = 12$ V

Supply current 2) I_{11} typ. 10,5 mA
7,5 to 13,5 mA

Required input signals

D.C. control voltage for nominal frequency
at pin No. 1 and pin No. 3 $V_{1-16} = V_{3-16}$ 2,4 to 5,3 V

Sensitivity of reactance stage V_{1-3} typ. 2 kHz/V

Duty cycle regulation at pin No. 14 I_{14} typ. 0 μ A
+400 to -400 μ A

Delivered output signals

Output voltage at pin No. 5
no load; peak-to-peak value $V_{5-16(p-p)}$ typ. 8 V

Output current I_5 < 60 mA

Duty cycle; without regulation δ { typ. 40 %
35 to 45 %

with regulation δ 20 to 60 %

Rise time at pin No. 5
leading edge of output pulse t_r typ. 200 ns

1) Maximum starting voltage should not exceed the value of the supply voltage minus 1 volt.

2) No load connected to the output. When the output is loaded, the extra current is: $\delta \times I$,
in which δ = duty cycle of output pulse and I = current flowing during output pulse.

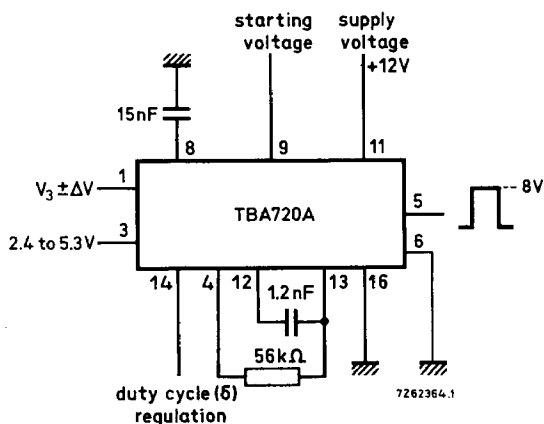
CHARACTERISTICS (continued)

Relative frequency deviation for $\Delta V_{11} = 1 \text{ V}$ 2 ‰

Relative frequency deviation for change of
ambient temperature 25 to 55 °C 3 ‰

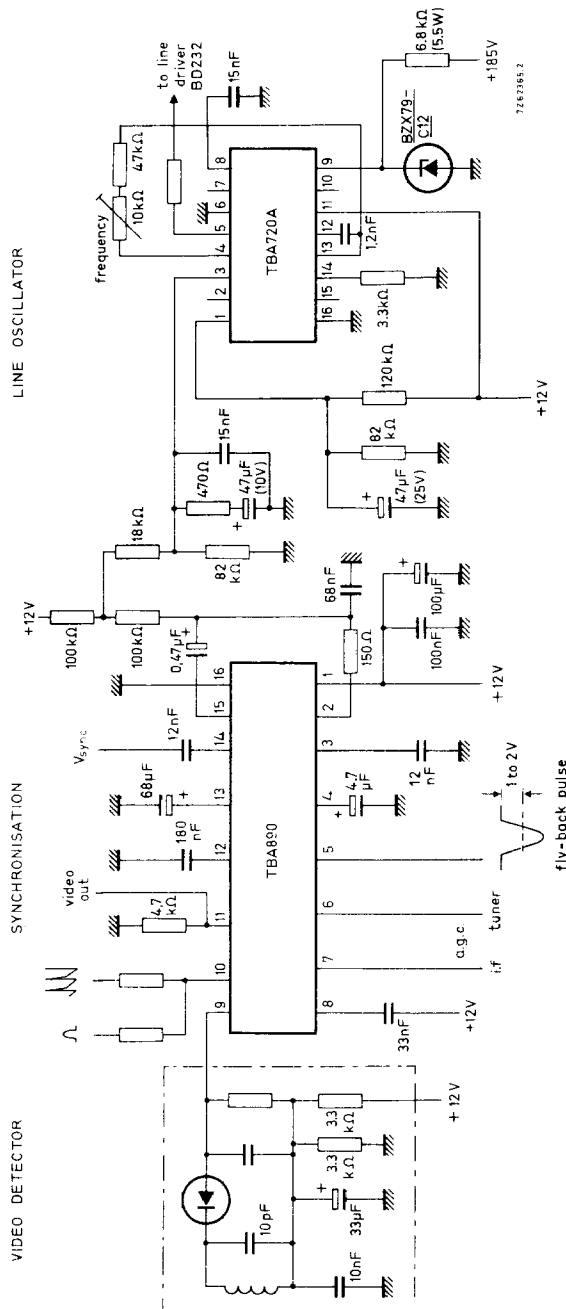
Allowable hum-ripple on supply line
(peak-to-peak value) $\Delta V_{11-16(p-p)}$ typ. 100 mV

Test set-up



APPLICATION INFORMATION

The TBA720A with the TBA890 in a receiver with transistorized line deflection.



APPLICATION INFORMATION (continued)

Notes

1. The TBA720A is intended to drive a line deflection circuit equipped with transistors.
2. The duty cycle δ can be adjusted by connecting a resistor between pin 14 and ground or the supply.
3. The oscillation frequency can be set between 10 kHz and 25 kHz by connecting a resistor between pins 4 and 13, and a capacitor between pins 12 and 13.
4. At a nominal oscillation frequency of 15,625 kHz, the frequency deviation is limited to $\pm 1,3$ kHz to safeguard the line timebase output circuits.
5. Besides the oscillator, the TBA720A incorporates a reactance stage and a supply voltage take-over switch for starting purposes (pin 9). The latter can be used to advantage if the 12 V supply is derived from the line flyback pulse.
6. Pins 2, 7, 10 and 15 should not be connected.