

LINEAR INTEGRATED CIRCUIT

PRELIMINARY DATA

VERTICAL DEFLECTION CIRCUIT

The TDA 1770 is a monolithic integrated circuit in 20-lead plastic package. It is a full performance and very efficient vertical deflection circuit intended for direct drive of the yoke.

It offers a wide range of applications in portable CTVs, BW TVs, monitors and displays. The functions incorporated are:

- synchronization circuit.
- precision oscillator and ramp generator
- power output amplifier
- flyback generator
- voltage regulator
- precision blanking pulse generator
- thermal shut down protection
- CRT screen protection circuit which blanks the beam current in the event of loss of vertical deflection current.

The TDA 1770 is assembled in a new 20-lead plastic package which has 4 centre pins connected together and used for heatsinking.

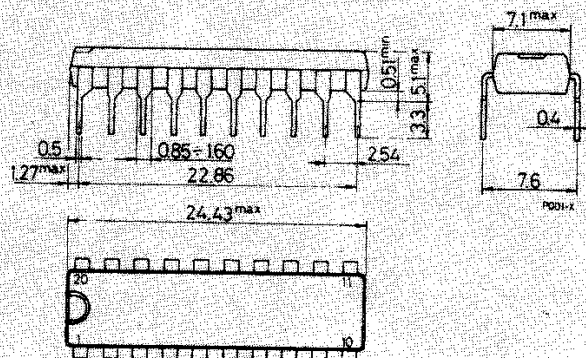
ABSOLUTE MAXIMUM RATINGS

| | | | |
|-----------------------|---|---|------------------|
| V_s | Supply voltage at pin 2 | 35 | V |
| V_7, V_8 | Flyback peak voltage | 60 | V |
| V_{11} | Sync. input voltage | 20 | V |
| V_{19}, V_{20} | Power amplifier input voltage | $\left\{ \begin{array}{l} V_s \\ -10 \end{array} \right.$ | V |
| V_1 | Voltage at pin 1 | | V_s |
| I_o | Output current (non repetitive) at $t = 2$ msec | 2 | A |
| I_o | Output peak current at $f = 50$ Hz $t > 10 \mu\text{sec}$ | 1.2 | A |
| I_o | Output peak current at $f = 50$ Hz $t \leq 10 \mu\text{sec}$ | 2.2 | A |
| I_3 | Pin 3 peak to peak flyback current at $f = 50$ Hz, $t_{\text{fly}} \leq 1.5$ msec | 2 | A |
| I_3 | Pin 3 DC current at $V_7 < V_2$ | 50 | mA |
| P_{tot} | Maximum power dissipation: at $T_{\text{pins}} \leq 90^\circ\text{C}$ at $T_{\text{amb}} = 70^\circ\text{C}$ | 4.3 | W |
| T_{stg}, T_j | Storage and junction temperature | 1 | W |
| | | -40 to 150 | $^\circ\text{C}$ |

ORDERING NUMBER: TDA 1770

MECHANICAL DATA

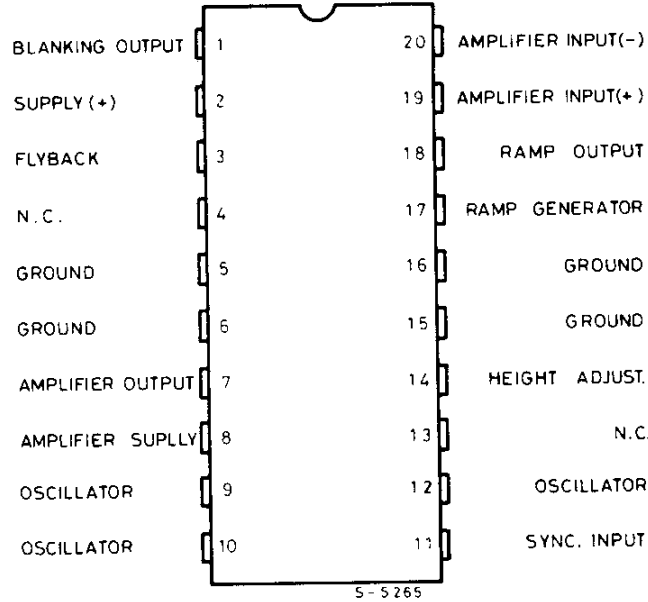
Dimensions in mm



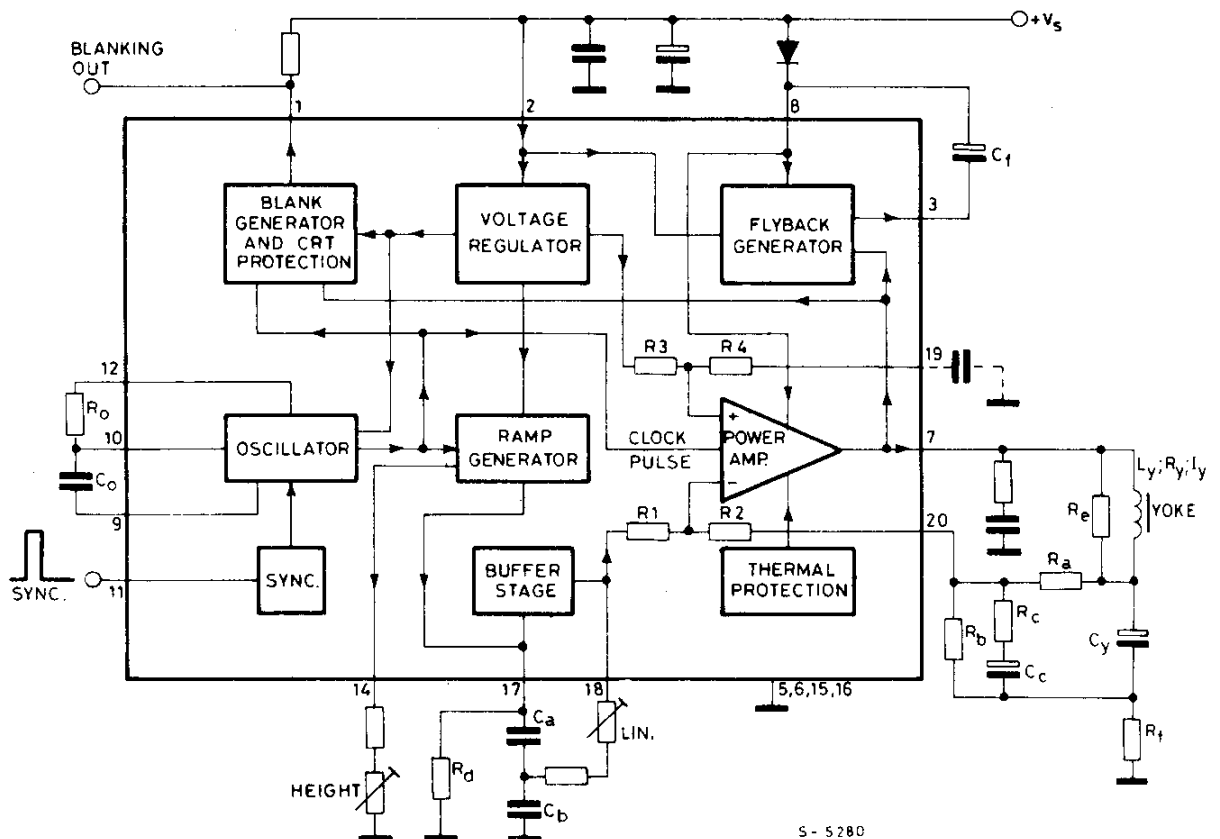


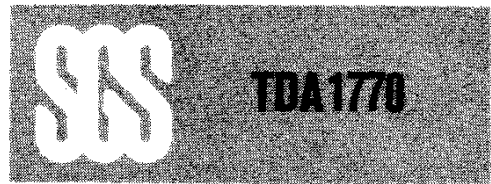
TDA1770

CONNECTION DIAGRAM (top view)



BLOCK DIAGRAM





THERMAL DATA

| | | | | |
|------------------|-------------------------------------|-----|----|------|
| $R_{th\ j-pins}$ | Thermal resistance junction-pins | max | 14 | °C/W |
| $R_{th\ j-amb}$ | Thermal resistance junction-ambient | max | 80 | °C/W |

ELECTRICAL CHARACTERISTICS ($V_s = 35V$, $T_{amb} = 25^\circ C$, unless otherwise specified)

| Parameter | Test conditions | Min. | Typ. | Max. | Unit | Fig. |
|-----------|-----------------|------|------|------|------|------|
|-----------|-----------------|------|------|------|------|------|

DC CHARACTERISTICS

| | | | | | | | |
|---|---|--|------|------|----------------|---------|----|
| I_2 | Pin 2 quiescent current | | 30 | 50 | mA | 1b | |
| I_8 | Pin 8 quiescent current | $I_7 = 0$ | 18 | 30 | mA | 1b | |
| $-I_{17}$ | Ramp generator bias current | $V_{17} = 0$ | 0.02 | 1 | μA | 1a | |
| $-I_{17}$ | Ramp generator current | $V_{17} = 0$; $-I_{14} = 20\ \mu A$ | 18.5 | 20 | 21.5 | μA | 1b |
| $\left \frac{\Delta I_{17}}{I_{17}} \right $ | Ramp generator non linearity | $\Delta V_{17} = 0$ to $15V$ $-I_{14} = 20\ \mu A$ | 0.2 | 1 | % | 1b | |
| V_1 | Blanking output saturation voltage | $I_1 = 10\ mA$ | 0.35 | | V | 1b | |
| V_3 | Pin 3 saturation voltage to ground | $I_3 = 20\ mA$ | 1 | 1.3 | V | 1a | |
| V_7 | Quiescent output voltage | $V_s = 35V$; $R_a = 2.2\ K\Omega$ $R_b = 1\ K\Omega$ | 16.8 | 17.8 | 18.6 | V | 1a |
| | | $V_s = 15V$; $R_a = 390\Omega$ $R_b = 1\ K\Omega$ | 7.1 | 7.5 | 8 | V | |
| V_{7L} | Output saturation voltage to ground | $I_7 = 0.7A$ | 0.7 | 1 | V | 1c | |
| V_{7H} | Output saturation voltage to supply | $-I_7 = 0.7A$ | 1.3 | 1.8 | V | 1d | |
| V_{10} | Oscillator virtual ground | | 0.45 | | V | 1a | |
| V_{14} | Regulated voltage at pin 14 | $-I_{14} = 20\ \mu A$ | 6.3 | 6.6 | 7.1 | V | 1b |
| $\frac{\Delta V_{14}}{\Delta V_s}$ | Regulated voltage drift with supply voltage | $\Delta V_s = 15$ to $35V$ | 1 | | $\frac{mV}{V}$ | 1b | |
| V_{19} | Amplifier input (+) reference voltage | | 4.2 | 4.4 | 4.6 | V | 1b |