

## INSTRUMENT CATHODE-RAY TUBE

## development sample data

The D13-50../01 is a wide-band oscilloscope tube designed for observation and measurement of high frequency phenomena.

This tube has a rectangular 13 cm diagonal flat face with aluminized screen and internal graticule, post-deflection accelerator with mesh, vertical deflection by means of a symmetrical helix system, scan magnification in the vertical direction by means of an electrostatic quadrupole lens and correction coils for trace alignment, vertical shift of the display area and correction of the orthogonality of traces.

## QUICK REFERENCE DATA

Final accelerator voltage	$V_{g12(\ell)}$	15 kV
Display area	100 x 60	$\text{mm}^2$
Deflection factor, horizontal	$M_x$	15 V/cm
vertical	$M_y$	2 V/cm
Bandwidth of the vertical deflection system	B	800 MHz

## SCREEN

	colour	persistence
D13-50GH/01	green	medium short

Useful screen dimensions min. 100 x 60  $\text{mm}^2$

Useful scan at  $V_{g12(\ell)} \sqrt{V_{g2}} = 6$

horizontal min. 100 mm

vertical min. 60 mm

By means of adjusting the current in the correction coils, full coverage of the internal graticule by the scanned area can be obtained for any tube.

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

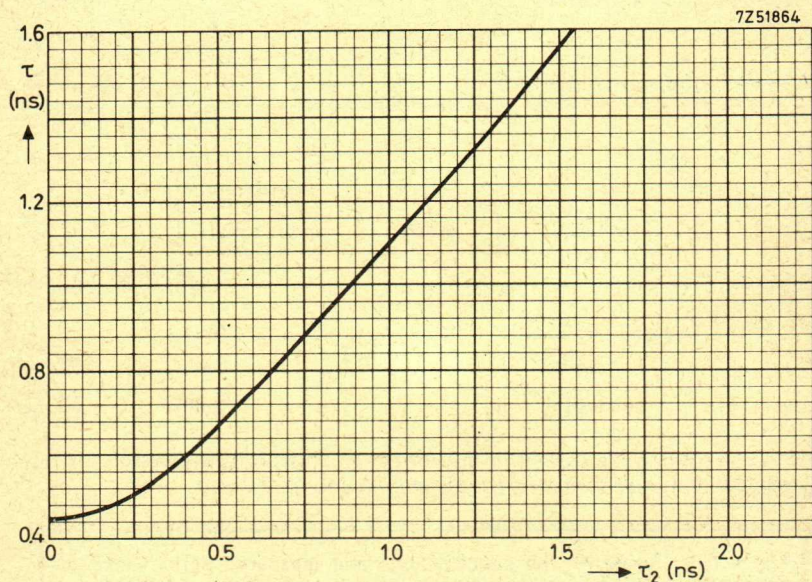
## DESCRIPTION

General

The D13-50../01 has been primarily designed for wide-band high-frequency applications. It combines high brightness, high deflection sensitivity and a large bandwidth of the vertical deflection system.

In order to obtain the high sensitivity, the post-deflection acceleration system embodies a mesh. The sensitivity in the vertical direction has been further increased by means of an electrostatic quadrupole lens that has been inserted between the vertical deflection system and the horizontal deflection plates. The large band-width has been obtained by using, for the vertical deflection, a delay-line system instead of deflection plates. With the typical operating conditions, 2500 V first accelerator voltage and 15000 V final accelerator voltage, the vertical and the horizontal deflection factors are about 2 V/cm and 15 V/cm respectively, with a  $10 \times 6 \text{ cm}^2$  display area.

The bulb has a rectangular face and the screen is aluminized. To eliminate parallax errors, an internal graticule is incorporated. Correction coils have been provided to permit image rotation, correction of the orthogonality of traces and the adjustment of the vertical useful scan with respect to the graticule.



Rise time of the display  $\tau$  as a function of the rise time of the input signal  $\tau_2$   
fig. 1