

# Dieter's Nixie Tube Data Archive

This file is a part of Dieter's Nixie- and display tubes data archive

If you have more datasheets, articles, books, pictures or other information about Nixie tubes or other display devices please let me know.

Thank you!

Document in this file	E1T (6370) - Philips Data Handbook - Dated 1968-12
Display devices in this document	E1T, 6370

## S.Q. TUBE

Special quality decade counter tube.

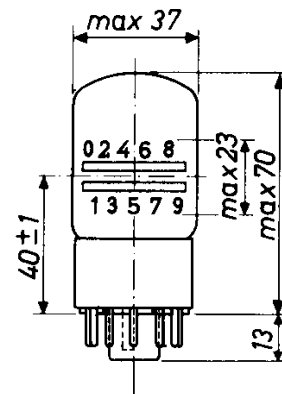
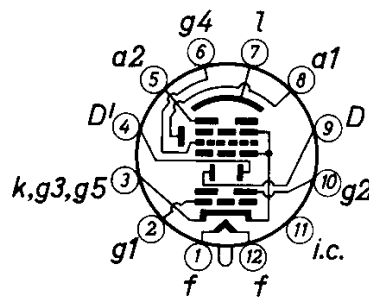
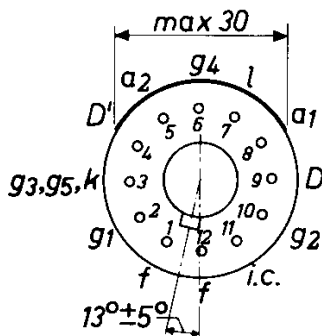


QUICK REFERENCE DATA	
Life test	10 000 hours
Base	Duodecal (12 pins)
Heating	Indirect A.C. or D.C. ; Series or parallel supply
Heater voltage	$V_f$ 6.3 V
Heater current	$I_f$ 300 mA

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Duodecal



### APPLICATION DIRECTIONS

#### Mounting

Any mounting position, except horizontal with screen down, is permitted.

#### Sensitivity to magnetic fields

To prevent interference by magnetic fields the flux density of these fields should not exceed  $2 \times 10^{-4}$  Wb/m<sup>2</sup> (= 2 Gauss) in any direction.

**APPLICATION DIRECTIONS**

Ambient illumination

To obtain a clear reading the ambient illumination should range from 40-400 lux measured with an illumination-meter placed in vertical position. This illumination range incorporates the best compromise between the visibility of the figures of the mask and the luminescent picture.

**CHARACTERISTICS**

Heater voltage	$V_f$	6.3	V
Heater current	$I_f$	300	mA

**CAPACITANCES**

Anode No.2 to all other electrodes	$C_{a_2/R}$	10.5	pF
Deflection plate to all other electrodes	$C_{D/R}$	3.5	pF
Deflection plate to all other electrodes	$C_{D'/R}$	3.8	pF
Anode No.1 to all other electrodes	$C_{a_1/R}$	4.9	pF
Grid No.1 to all other electrodes	$C_{g_1/R}$	6.8	pF
Grid No.4 to all other electrodes	$C_{g_4/R}$	7.7	pF

**OPERATING CHARACTERISTICS**

Column I Nominal value  
 II Permitted values of spread and variation

		I	II	
Supply voltage	$V_b$	300		V
Grid No.1 supply voltage	$V_{bg_1}$	11.9	$\pm 0.15$	V
Grid No.2 supply voltage	$V_{bg_2}$	300		V
Deflection plate supply voltage	$V_D$	156	$\pm 1.5$	V
Luminescent screen voltage	$V_\ell$	300		V
Cathode current	$I_k$	0.95		mA
Grid No.2 current	$I_{g_2}$	0.1		mA
Cathode resistor	$R_k$	15	$\pm 1\%$	$k\Omega$
Grid No.4 resistor	$R_{g_4}$	47	$\pm 5\%$	$k\Omega$
Anode No.1 resistor	$R_{a_1}$	39	$\pm 10\%$	$k\Omega$
Anode No.2 resistor	$R_{a_2}$	1	$\pm 1\%$	$M\Omega$

**OPERATING CHARACTERISTICS (continued)**

Note

The tube should be used in the circuit of fig.2.

Provided the ratio of the supply voltages  $V_{bg1}$  and  $V_D$  is strictly maintained the supply voltage  $V_D$  is allowed to vary within the range of  $V_D \text{ nom. } \pm 10\%$ .

This condition can be realised by using a voltage divider  $R_1, R_2, R_3$  with 1% precision resistors as indicated in the diagram fig.2.

A max. counting speed of 30 000 count/s can be obtained with this circuit.

The input pulse at D should have a positive value of  $13.6 \text{ V } \pm 15\%$ . The slope of the leading edge should be at least  $20 \times 10^6 \text{ V/s}$ . The slope of the trailing edge should not exceed  $1.2 \times 10^6 \text{ V/s}$ .

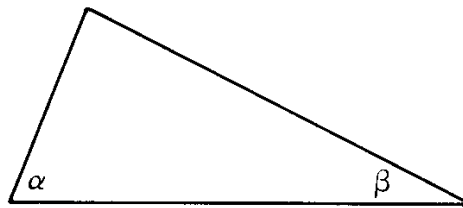
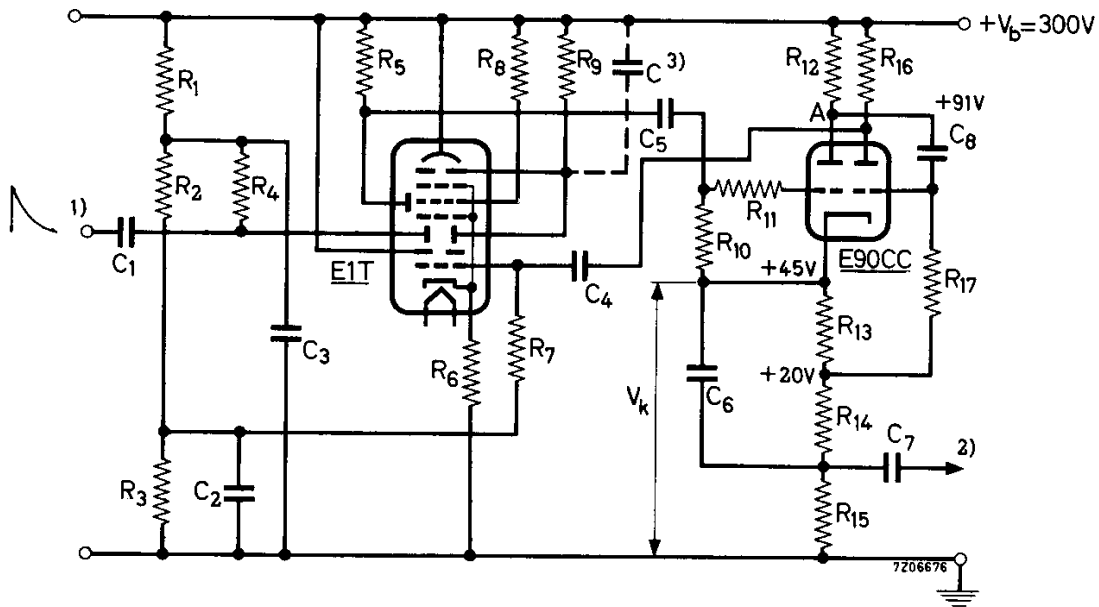


Fig.1

$$\tan \alpha > 20 \times 10^6 \text{ V/s}$$

$$\tan \beta < 1.2 \times 10.6 \text{ V/s}$$



R <sub>1</sub>	68 kΩ ± 1%	R <sub>10</sub>	0.56 MΩ ± 10%	C <sub>1</sub>	1)
R <sub>2</sub>	68 kΩ ± 1%	R <sub>11</sub>	5.6 kΩ ± 10%	C <sub>2</sub>	0.39 μF ± 20%
R <sub>3</sub>	5.6 kΩ ± 1%	R <sub>12</sub>	39 kΩ ± 2%	C <sub>3</sub>	0.15 μF ± 20%
R <sub>4</sub>	15 kΩ ± 2%	R <sub>13</sub>	4.7 kΩ ± 2%	C <sub>4</sub>	6800 pF ± 10%
R <sub>5</sub>	39 kΩ ± 10%	R <sub>14</sub>	2.7 kΩ ± 2%	C <sub>5</sub>	220 pF ± 10%
R <sub>6</sub>	15 kΩ ± 1%	R <sub>15</sub>	1 kΩ ± 1%	C <sub>6</sub>	68 pF ± 2%
R <sub>7</sub>	0.33 MΩ ± 10%	R <sub>16</sub>	3.3 kΩ ± 2%	C <sub>7</sub>	680 pF ± 5%
R <sub>8</sub>	47 kΩ ± 5%	R <sub>17</sub>	0.15 MΩ ± 2%	C <sub>8</sub>	68 pF ± 2%
R <sub>9</sub>	1 MΩ ± 1%				

1. Connected to the preceding E90CC pulse shaper (C<sub>1</sub> = 6800 pF ± 10%) or the preceding E90CC interstage pulse shaper (C<sub>1</sub> = 680 pF ± 5%).
2. Connected to deflection plate D of next counter tube.
3. This parasitic capacitance should be reduced to the minimum by keeping the wiring as short as possible.

**LIMITING VALUE** of supply voltage V<sub>b</sub> (See operating characteristics):

$$V_b = \text{max. } 400 \text{ V}$$

# PHILIPS

## Data handbook



**Electronic  
components  
and materials**

### E1T

<b>page</b>	<b>sheet</b>	<b>date</b>
1	1	1968.12
2	2	1968.12
3	3	1968.12
4	4	1968.12
5	FP	2000.11.10