

S.Q. TUBE

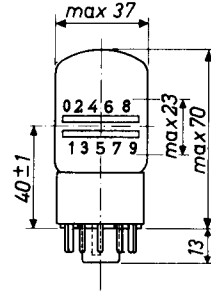
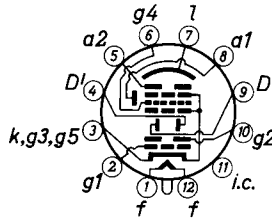
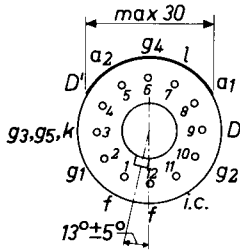
Special quality decade counter tube.

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 $2 \times 10^{-4} \text{ Wb/m}^2$ (= 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_{a2}/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_{a1}/R	4.9 pF
Grid No.1 to all other electrodes	C_{g1}/R	6.8 pF
Grid No.4 to all other electrodes	C_{g4}/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_{bg1}	11.9	± 0.15	V
Grid No.2 supply voltage	V_{bg2}	300		V
Deflection plate supply voltage	V_D	156	± 1.5	V
Luminescent screen voltage	V_l	300		V
Cathode current	I_k	0.95		mA
Grid No.2 current	I_{g2}	0.1		mA
Cathode resistor	R_k	15	$\pm 1\%$	k Ω
Grid No.4 resistor	R_{g4}	47	$\pm 5\%$	k Ω
Anode No.1 resistor	R_{a1}	39	$\pm 10\%$	k Ω
Anode No.2 resistor	R_{a2}	1	$\pm 1\%$	M Ω

OPERATING CHARACTERISTICS (continued)

Note

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

Provided the ratio of the supply voltages V_{b1} and V_D is strictly maintained the supply voltage V_b is allowed to vary within the range of $V_b \text{ nom. } \pm 10\%$.

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 $1.2 \times 10^6 \text{ V/s}$.

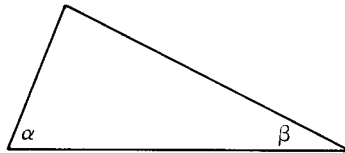
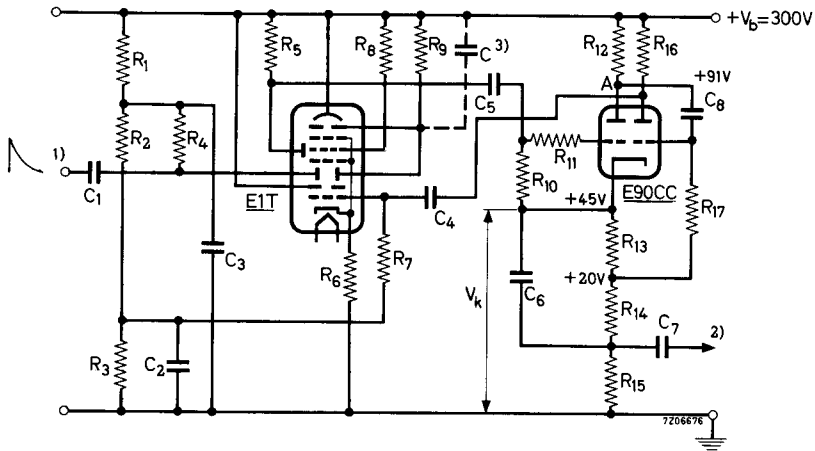


Fig.1

$\tan \alpha > 20 \times 10^6 \text{ V/s}$
 $\tan \beta < 1.2 \times 10.6 \text{ V/s}$



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

1. Connected to the preceeding E90CC pulse shaper (C₁ = 6800 pF ± 10%) or the preceeding E90CC interstage pulse shaper (C₁ = 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_b (See operating characteristics):

V_b = max. 400 V

PHILIPS

Data handbook



Electronic
components
and materials

E1T

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