S.Q. TUBE

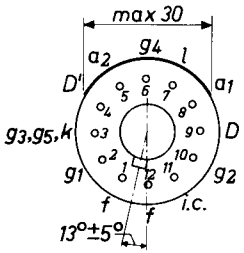
Special quality decade counter tube.

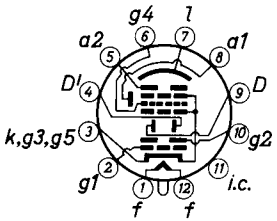
QUICK REFERENCE DATA		
Life test	10 000 hours	
Base	Duodecal (12 pins)	
Heating	Indirect A.C. or D.C.; Series or parallel supply	
Heater voltage	V_f	6.3 V
Heater current	I_f	300 mA

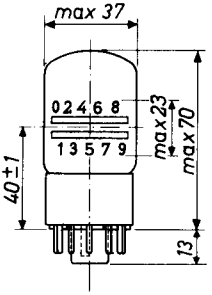
DIMENSIONS AND CONNECTIONS

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 2×10^{-4} Wb/m^2 (= 2 Gauss) in any direction.

APPLICATION DIRECTIONS

Ambient illumination

To obtain a clair 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	± 0.15	V
Grid No.2 supply voltage	V_{bg_2}	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_{g_2}	0.1		mA
Cathode resistor	R_k	15	± 1%	kΩ
Grid No.4 resistor	R_{g_4}	47	± 5%	kΩ
Anode No.1 resistor	R_{a_1}	39	±10%	kΩ
Anode No.2 resistor	R_{a_2}	1	± 1%	MΩ

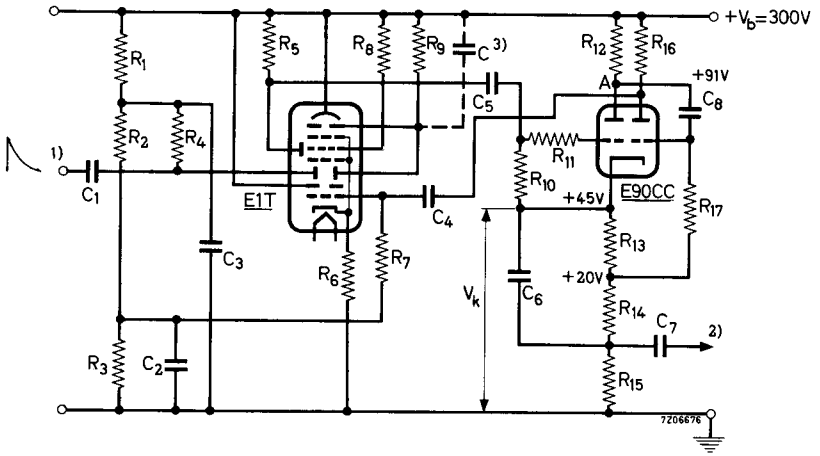
OPERATING CHARACTERISTICS (continued)

Note

The tube should be used in the circuit of fig.2.
Provided the ratio of the supply voltages V_{bg_1} and V_D is strictly maintained the supply voltage V_b is allowed to vary within the range of V_b 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 V $\pm 15\%$. The slope of the leading edge should be at least 20×10^6 V/s. The slope of the trailing edge should not exceed 1.2×10^6 V/s.

Fig.1

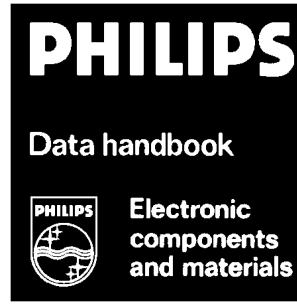
$\tan \alpha > 20 \times 10^6$ V/s
$\tan \beta < 1.2 \times 10.6$ V/s



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 (C_1 = 6800 pF ±10%) or the preceeding E90CC interstage pulse shaper (C_1 = 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



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