



VALVES

TECHNICAL SERVICE



ELECTRONICS

PROVISIONAL DATA.

from JETEC release
#1702, July 30, 1956

4GP1 and 4GP11.

9 cm. electrostatic focus and deflection instrument cathode ray tube having a flat screen and one stage of post deflection acceleration suitable for use in high precision instruments.

Dimensions.

Overall length: 355 $\pm$ 5 mm.

Overall diameter: 90 $\pm$ 2 mm.

Base Connections (B14A Base) Medium shell diheptal.

1 h	2 k	3 g	4 a ₁	5 a ₂	6 N.P.	7 Y1
8 Y2	9 a ₃	10 X2	11 X1	12 N.C.	13 N.P.	14 h

Side contact CT8 a₄

Heater

V _h	6.3	V
I _h	0.5	A

The heater is suitable for parallel operation only.

Maximum Ratings

V _{a4}	8	kV
	2 min.	kV
V _{a3}	4	kV
	1 min.	kV
V _{a2}	2	kV
V _{a1}	2.5	kV
	1 min.	kV
-V _g (cathode hot)	0 min.	V
	200	V
V _g (cathode cold)	200	V
V _{h-k}	150	V
V _{x1-x2}	1	kV
R _{x-a3}	5	Mohms.

Cont'd.

ISSUE NO.

OSRAM VALVE AND ELECTRONICS DEPARTMENT.

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Maximum Ratings (Cont'd).

* S _x	$\frac{800}{V_{a3}}$	mm/V.
* S _y	$\frac{520}{V_{a3}}$	mm/V.
φ S _x	$\frac{620}{V_{a3}}$	mm/V.
φ S _y	$\frac{400}{V_{a3}}$	mm/V.
* V _{a3} = V _{a4}		
φ V _{a4} = 2V _{a3}		
R _{y-a3}	5	Mohms
R _{g-k}	2	Mohms

The maximum ratio between V_{a4} and V_{a3} is two.

Typical Operation.

V _{a4}	4.0	kV
V _{a3}	2.0	kV
V _{a2}	333	V
V _{a1}	2.0	kV
V _g (for cut-off)	-67	V
I _{a3}	1	microamp.
I _{screen}	5	microamps.
* S _x	0.32	mm/V.
* S _y	0.2	mm/V.
line width	0.3	mm/V.

Capacitance

C _{k-all}	8	pF
C _{g-all}	17	pF
C _{x1-x2}	2.5 approx.	pF
C _{y1-y2}	3 approx.	pF
C _{x1-all} } C _{x2-all} }	8 approx.	pF
C _{y1-all} } C _{y2-all} }	7.5 approx.	pF.

Cont'd.

Capacitance (Cont'd).

C_{y1-x1} or $x2$	0.1 approx.	pF
C_{y2-x1} or $x2$	0.2 approx.	pF

Screen Phosphor.

The 4GP1 has a green screen having an afterglow of 100 milliseconds.

The 4GP11 has a photographic blue screen having an afterglow of 1 millisecond.

Spot Centring.

The undeflected spot will fall within a radius of 5 mms. concentric with the tube face.

Screen Area.

The minimum useful screen area is a circle radius 3.7 cms from the centre of the screen.

General.

The plate sensitivity for a deflection of less than 75% of the useful scan will not differ from the plate sensitivity for a deflection of 25% of the useful scan by more than 2%.

Orthogonality of deflection axis $\pm 1^\circ$.

Viewed from the screen end with the spigot upwards and a positive voltage on deflector plate X_1 the spot will move to the left. Viewed from the screen end with the spigot up a positive voltage on the deflector plate Y_1 the spot will move upwards.

