



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 ± 5 mm.

Overall diameter: 90 ± 2 mm.

Base Connectors (B14A Base) Medium shell diheptal.

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

Side contact CT8 a<sub>4</sub>

Heater

V <sub>h</sub>	6.3	V
I <sub>h</sub>	0.5	A

The heater is suitable for parallel operation only.

Maximum Ratings

V <sub>a4</sub>	8	kV
	2 min.	kV
V <sub>a3</sub>	4	kV
	1 min.	kV
V <sub>a2</sub>	2	kV
V <sub>a1</sub>	2.5	kV
	1 min.	kV
-V <sub>g</sub> (cathode hot)	0 min.	V
	200	V
V <sub>g</sub> (cathode cold)	200	V
V <sub>h-k</sub>	150	V
V <sub>x1-x2</sub>	1	kV
R <sub>x-a3</sub>	5	Mohms.

Cont'd.

ISSUE NO.

OSRAM VALVE AND ELECTRONICS DEPARTMENT.

THE GENERAL ELECTRIC CO. LTD OF ENGLAND.  
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Maximum Ratings (Cont'd).

* S <sub>x</sub>	$\frac{800}{V_{a3}}$	mm/V.
* S <sub>y</sub>	$\frac{520}{V_{a3}}$	mm/V.
∅ S <sub>x</sub>	$\frac{620}{V_{a3}}$	mm/V.
∅ S <sub>y</sub>	$\frac{400}{V_{a3}}$	mm/V.
* V <sub>a3</sub> = V <sub>a4</sub>		
∅ V <sub>a4</sub> = 2V <sub>a3</sub>		
R <sub>y-a3</sub>	5	Mohms
R <sub>g-k</sub>	2	Mohms

The maximum ratio between V<sub>a4</sub> and V<sub>a3</sub> is two.

Typical Operation.

V <sub>a4</sub>	4.0	kV
V <sub>a3</sub>	2.0	kV
V <sub>a2</sub>	333	V
V <sub>a1</sub>	2.0	kV
V <sub>g</sub> (for cut-off)	-67	V
I <sub>a3</sub>	1	microamp.
I <sub>screen</sub>	5	microamps.
* S <sub>x</sub>	0.32	mm/V.
* S <sub>y</sub>	0.2	mm/V.
line width	0.3	mm/V.

Capacitance

C <sub>k-all</sub>	8	pF
C <sub>g-all</sub>	17	pF
C <sub>x1-x2</sub>	2.5 approx.	pF
C <sub>y1-y2</sub>	3 approx.	pF
C <sub>x1-all</sub> } C <sub>x2-all</sub> }	8 approx.	pF
C <sub>y1-all</sub> } C <sub>y2-all</sub> }	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.

