



5AUP24

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COLOR FLYING-SPOT CATHODE-RAY TUBE

HIGH-RESOLUTION CAPABILITY
ELECTROSTATIC FOCUSALUMINIZED SCREEN
MAGNETIC DEFLECTION

For use as flying-spot scanner in color video-signal generators

DATA

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts
Current. $0.6 \pm 10\%$ amp

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes. 8 μf Cathode to all other electrodes. 5 μf

External conductive neck

coating to ultor $\left\{ \begin{array}{l} 500 \text{ max. } \mu\text{f} \\ 100 \text{ min. } \mu\text{f} \end{array} \right.$

Faceplate, Flat. Clear Glass

Phosphor P24

Aluminized

Fluorescence Green

Phosphorescence. Green

Persistence. Short

Focusing Method. Electrostatic

Deflection Method. Magnetic

Deflection Angle (Approx.) 40° Overall Length $12\text{--}1\frac{1}{2}" \pm \frac{3}{8}"$ Greatest Diameter. $5" \pm \frac{1}{8}"$ Minimum Useful Screen Diameter $4\text{--}1\frac{1}{4}"$

Operating Position Any

Weight (Approx.) 1.4 lbs

Cap. Recessed Small Cavity (JETEC No. J1-21)

Socket See Operating Considerations

Base . . Small-Shell Duodecal 7-Pin (JETEC Group 4, No. B7-51)

Basing Designation for BOTTOM VIEW 12C

Pin 1-Heater

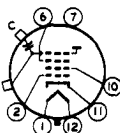
Pin 2-Grid No.1

Pin 6-Grid No.3

Pin 7-Internal

Connection—
Do Not Use

Pin 10-Grid No.2



Pin 11-Cathode

Pin 12-Heater

Cap-Ultor

(Grid No.4,
Collector)C- External
Conductive
Neck Coating

Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE. 27000 max. volts

GRID-No.3 VOLTAGE. 6000 max. volts

GRID-No.2 VOLTAGE. 350 max. volts

GRID-No.1 VOLTAGE:

Negative-bias value. 150 max. volts

Positive-bias value. 0 max. volts

Positive-peak value. 2 max. volts

← Indicates a change.



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PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode:

During equipment warm-up period

not exceeding 15 seconds 410 max. volts

After equipment warm-up period 150 max. volts

Heater positive with respect to cathode. 150 max. volts

Characteristics Range Values for Equipment Design:

For any ultor voltage (E_{c4}) between 20000* and 27000 volts

Grid-No.3 Voltage for focus
with ultor current of 200 μ a 17% to 21.5% of E_{c4} volts

Grid-No.2 Voltage when circuit
design utilizes fixed grid-
No.1 voltage (E_{c1}) for visual
extinction of undeflected fo-
cused spot 2 to 5 times E_{c1} volts

Grid-No.1 Voltage for visual
extinction of undeflected fo-
cused spot when circuit design
utilizes grid-No.2 voltage
(E_{c2}) at fixed value 20% to 50% of E_{c2} volts

Maximum Grid-No.3 Current for
ultor current of 200 μ a. 170 μ a

Grid-No.2 Current. -15 to +15 μ a

Examples of Use of Design Ranges:

For ultor voltage of 27000 volts

Grid-No.3 Voltage for focus
with ultor current of 200 μ a 4600 to 5800 volts

Grid-No.2 Voltage when circuit
design utilizes fixed grid-
No.1 voltage of -70 volts for
visual extinction of undeflec-
ted focused spot 140 to 350 volts

Grid-No.1 Voltage for visual
extinction of undeflected fo-
cused spot when circuit design
utilizes grid-No.2 voltage of
200 volts. -40 to -100 volts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance 1.5 max. megohms

* Brilliance and definition decrease with decreasing ultor voltage. In general, the ultor voltage should not be less than 20,000 volts.

OPERATING CONSIDERATIONS

X-Ray Warning. X-ray radiation is produced at the face of the 5AUP24 when it is operated at its normal ultor voltage. These rays can constitute a health hazard unless the tube is

→ Indicates a change.



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adequately shielded for X-ray radiation. Although relatively simple shielding should prove adequate, make sure that it provides the required protection against personal injury.

The base pins of the 5AUP24 fit the Duodecal 12-contact socket. The socket contacts corresponding to the vacant pin positions should be omitted in order to provide the maximum insulation for the high-voltage pins 6 and 7. The socket should be made of high-grade, arc-resistant, insulating material and should preferably be designed with baffles.

Heater Protection. Although maximum values of peak heater-cathode voltage are specified in the tabulated data, it is recommended that the mid-tap or one side of the heater transformer winding be connected directly to the cathode to minimize the possibility of heater burnout. This connection will also minimize the possibility of damage due to heater-cathode shorts produced by arcing between heater and cathode when a possible momentary arc causes the voltage between heater and cathode to exceed the maximum heater-cathode ratings.

When in some circuit designs, the heater is not connected directly to the cathode, precautions must be taken to hold the peak heater-cathode voltage to the maximum values shown in the tabulated data. It is also recommended that a series limiting resistance of 50,000 ohms be placed in both the ultor and grid-No. 3 leads between the tube and any filter capacitors.

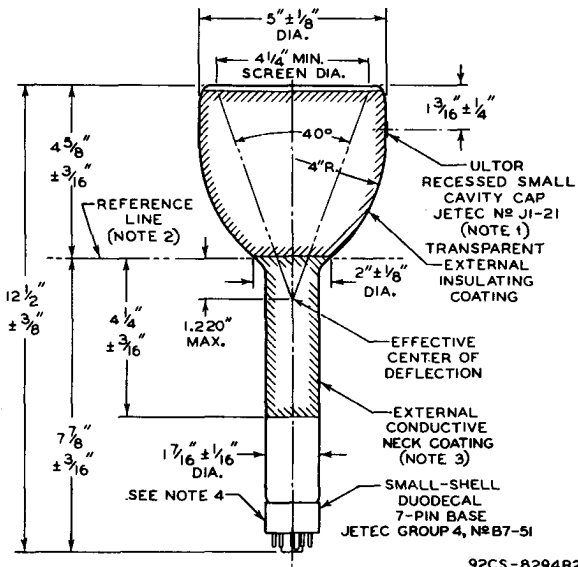
Resolution of better than 800 lines at the center of the reproduced picture can be produced by the 5AUP24 when it is operated with 27,000 volts on the ultor. At lower ultor voltages, the resolution capability decreases. To obtain high resolution in the horizontal direction, it is necessary to use a video amplifier having a bandwidth of about 20 megacycles.

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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND VACANT PIN POSITION 3 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY AN ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 10^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS VACANT PIN POSITION 3.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No.G-110 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY INTERSECTION OF PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 3: EXTERNAL CONDUCTIVE NECK COATING MUST BE GROUNDED.

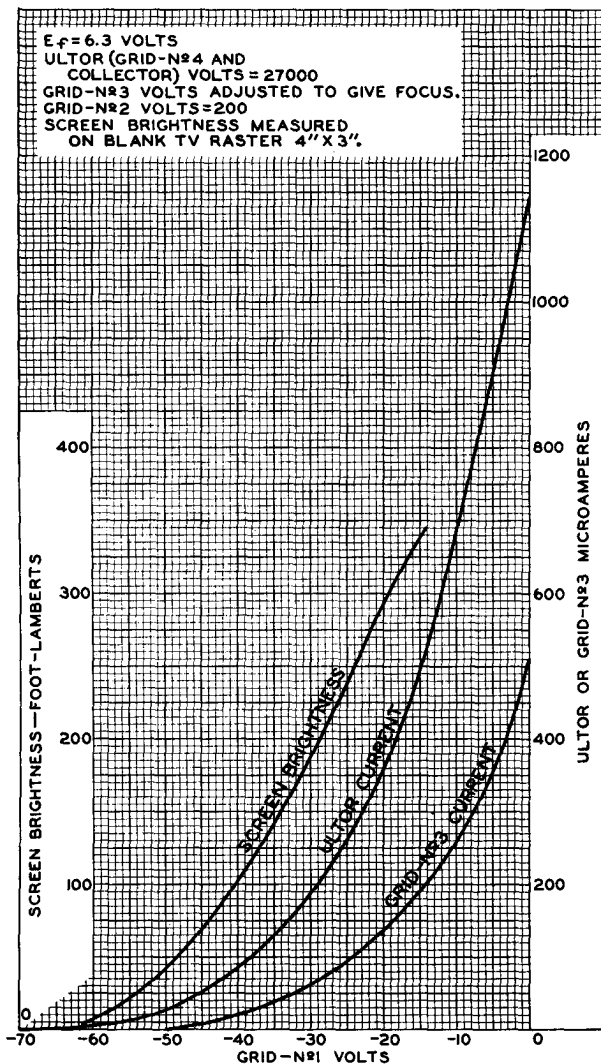
NOTE 4: ϕ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF THE BOTTOM OF THE BASE.



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AVERAGE CHARACTERISTICS



ELECTRON TUBE DIVISION

92CM-8343RI

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY