3RP-A CATHODE-RAY TUBES

The Type 3RP-A is a short, flat-face, 3" cathode-ray tube. High brilliance and definition at relatively low Anode No. 2 voltages, and negligible focusing electrode current, make the Type 3RP-A ideally suited for low- and medium-voltage oscillographic applications.

The Type 3RP-A features high deflection sensitivity with a maximum Anode No. 2 rating of 2500 volts. Special construction of deflection plates D1-D2 minimizes pin-cushion distortion, usually found in flat-face tubes of such short overall length.

Each deflection plate of the Type 3RP-A is connected to a separate pin of a 12-pin duo-decal base, permitting the use of balanced deflection voltages. This greatly reduces astigmatic distortion of both the spot and the pattern it describes.

The flat surface of its tube-face and new production techniques greatly improve the optical qualities of the Type 3RP-A.

GENERAL CHARACTERISTICS

Electrical

Heater Voltage	6.3 Volts
Heater Current	0.6 ± 10% Ampere
Focusing Method	Electrostatic
Deflecting Method	Electrostatic
Phosphor	P1
Fluorescence	Green
Persistence	Medium

Direct Interelectrode Capacitances, Approx.

Cathode to all other electrodes	6 μμf.
Grid No. 1 to all other electrodes	8 μμf.
D1 to D2	2 μμf.
D3 to D4	2 μμf.
D1 to all other electrodes except D2	13 μμf.
D2 to all other electrodes except D1	10 μμf.
D3 to all other electrodes except D4	9 μμf.
D4 to all other electrodes except D3	10 μμf.

Mechanical

Overall Length	9⅛ ± ¼ Inches
Greatest Diameter of Bulb	3 ± 1/16 Inches
Minimum Useful Screen Diameter	2¾ Inches
Base (Small Shell 12-Pin Duodecal)	B12-43
Basing	12E

Base Alignment

D3D4 trace aligns with Pin No. 1 and tube axis	±10 Degrees

Positive voltage on D1 deflects beam approximately toward Pin No. 4

Positive voltage on D3 deflects beam approximately toward Pin No. 1

Angle between D3D4 and D1D2 traces	90 ± 3 Degrees

MAXIMUM RATINGS—(Design Center Values)

Anode No. 2 Voltage[1,2] ..... 2,500 Max. Volts D-C
Anode No. 1 Voltage ..... 1,000 Max. Volts D-C

Grid No. 1 Voltage
- Negative Bias Value ..... 200 Max. Volts D-C
- Positive Bias Value ..... 0 Max. Volts D-C
- Positive Peak Value ..... 2 Max. Volts

Peak Heater-Cathode Voltage
- Heater Negative with respect to Cathode ..... 125 Max. Volts D-C
- Heater Positive with respect to Cathode ..... 125 Max. Volts D-C

Peak Voltage between Anode No. 2 and any Deflection Electrode ..... 500 Max. Volts

TYPICAL OPERATING CONDITIONS

For Anode No. 2 Voltage of	1,000	2,000	Volts
Anode No. 1 Voltage for focus	165 to 310	330 to 620	Volts
Grid No. 1 Voltage[3]	−22.5 to −67.5	−45 to −135	Volts
Deflection Factors:			
D1D2	73 to 99	146 to 198	Volts D-C per Inch
D3D4	52 to 70	104 to 140	Volts D-C per Inch

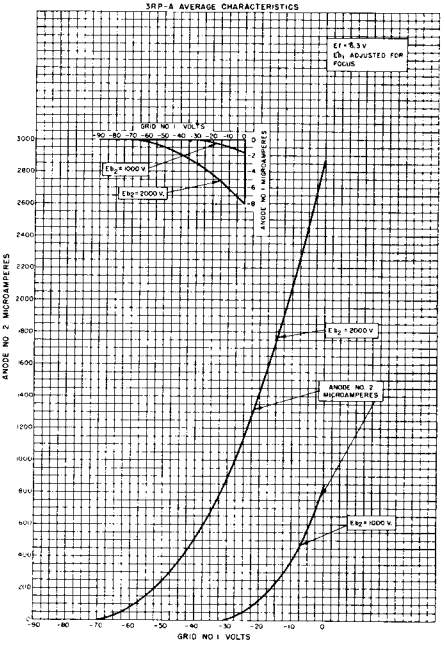
Anode No. 1 Voltage for focus ..... 16.5% to 31% of Eb2 Volts
Grid No. 1 Voltage[3] ..... 2.25% to 6.75% of Eb2 Volts
Anode No. 1 Current for any operating condition ..... −15 to +10 Microamperes
Spot Position (Undeflected)[4] ..... Within a 7½ millimeter radius circle

MAXIMUM CIRCUIT VALUES

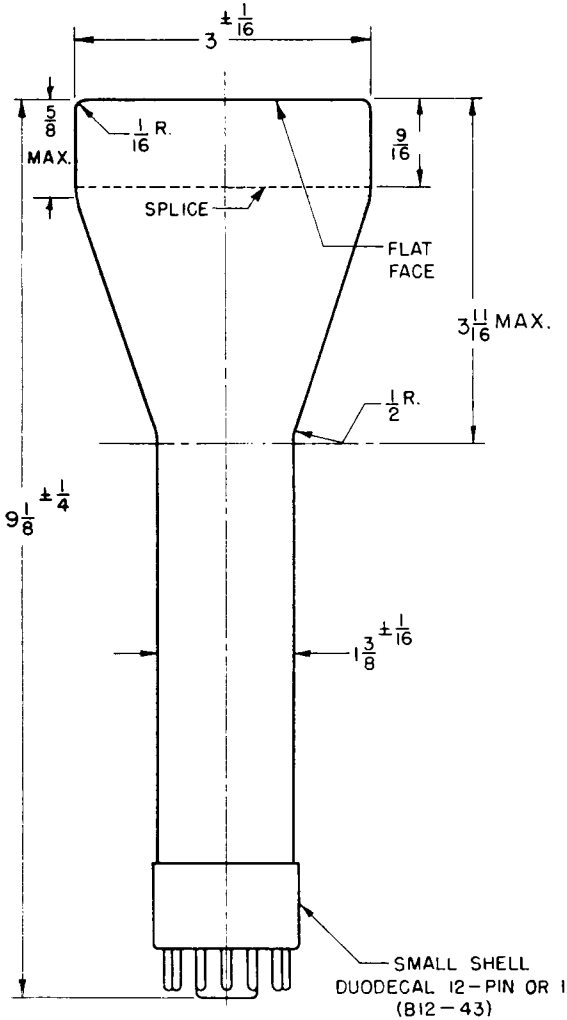
Grid No. 1 Circuit Resistance ..... 1.5 Max. Megohms
Resistance in any Deflecting-Electrode Circuit[5] ..... 5 Max. Megohms

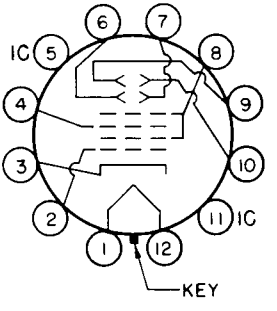
NOTES

1. Anode No. 2 and Grid No. 2, which are connected together within the tube, are referred to herein as Anode No. 2.
2. The product of Anode No. 2 voltage and average Anode No. 2 current should be limited to 6 watts.
3. Visual extinction of undeflected focused spot.
4. Centered with respect to the tube face with the tube shielded.
5. It is recommended that the deflecting electrode circuit resistances be approximately equal.
6. For optimum focus the average potentials of the deflection plates and second anode should be the same.



TYPE 3RP-A





12E

BOTTOM VIEW OF BASE

PIN NO.	ELEMENT
1	HEATER
2	GRID NO 1
3	CATHODE
4	FOCUSING ELECTRODE
5	INTERNAL CONNECTION *
6	DEFLECTING ELECTRODE D_3
7	DEFLECTING ELECTRODE D_4
8	ACCELERATOR
9	DEFLECTING ELECTRODE D_2
10	DEFLECTING ELECTRODE D_1
11	INTERNAL CONNECTION *
12	HEATER

* — 12-PIN BASE ONLY