



TYPE

3UP1
3UP7*Excellence in Electronics*

The 3UP— is a 3" electrostatic focus and deflection cathode ray tube primarily designed for oscilloscope applications. The small size and rectangular face makes it well adapted for use in small portable equipment.

MECHANICAL DATA

BASE: Small Shell Duodecal 12-Pin No. B12-43

BASE ALIGNMENT: D3-D4 Trace Aligns With Long Axis of Tube Face ± 5 Degrees

Positive Voltage on D3 With Respect To D4 Deflects Beam Approx. Toward Pin #2

Positive Voltage on D1 With Respect To D2 Deflects Beam Approx. Toward Pin #5

TERMINAL CONNECTIONS:

Pin 1 Heater	Pin 7 Deflecting Electrode D1
Pin 2 Grid #1	Pin 8 Deflecting Electrode D2
Pin 3 Anode #1	Pin 9 Anode #2 Grid #2
Pin 4 Deflecting Electrode D3	Pin 11 Cathode
Pin 5 Deflecting Electrode D4	Pin 12 Heater

MOUNTING POSITION: Any

GENERAL DATA

Phosphor
Fluorescence
Phosphorescence
Persistence

Focusing Method
Deflection Method

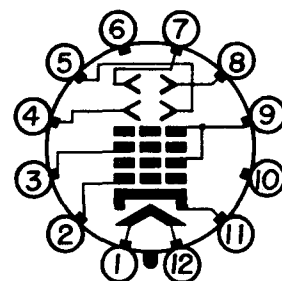
Electrostatic
Electrostatic

3UP1

Green
.....
Medium

3UP7

Blue
Yellow
Long



BOTTOM VIEW

12F

ELECTRICAL DATA**DIRECT INTERELECTRODE CAPACITANCES:** ($\mu\text{fds.}$) (approx.)

Grid #1 to all other electrodes	10.5
Cathode to all other electrodes	2.0
D1 to D2	1.5
D3 to D4	1.0
D1 to all other electrodes except D2	4.5
D2 to all other electrodes except D1	5.5
D3 to all other electrodes except D4	5.0
D4 to all other electrodes except D3	4.5

DESIGN CENTER MAXIMUM RATINGS:

Heater Current	0.6 $\pm$ 10% amps.
Peak Heater-Cathode Voltage, Max. (Note 1)	
Heater Negative with respect to cathode	140 volts
Heater Positive with respect to cathode	140 volts
Anode #2 Voltage	2500 volts DC
Anode #1 Voltage	1000 volts DC
Grid #1 Voltage	
Negative-Bias Value	200 volts DC
Positive-Bias Value	0
Positive-Peak Value	2
Peak Voltage Between Anode #2 and Any Deflecting Electrode	500 volts DC

CHARACTERISTICS AND TYPICAL OPERATION:

Heater Voltage	6.3 volts
Anode #2 Voltage	2000 volts DC
Anode #1 Voltage (Note 2)	470 $\pm$ 150 volts DC
Anode #1 Current	-15 to +10 ma
Deflection Factors	
D1-D2	240 to 310 volts DC/inch
D3-D4	232 to 296 volts DC/inch

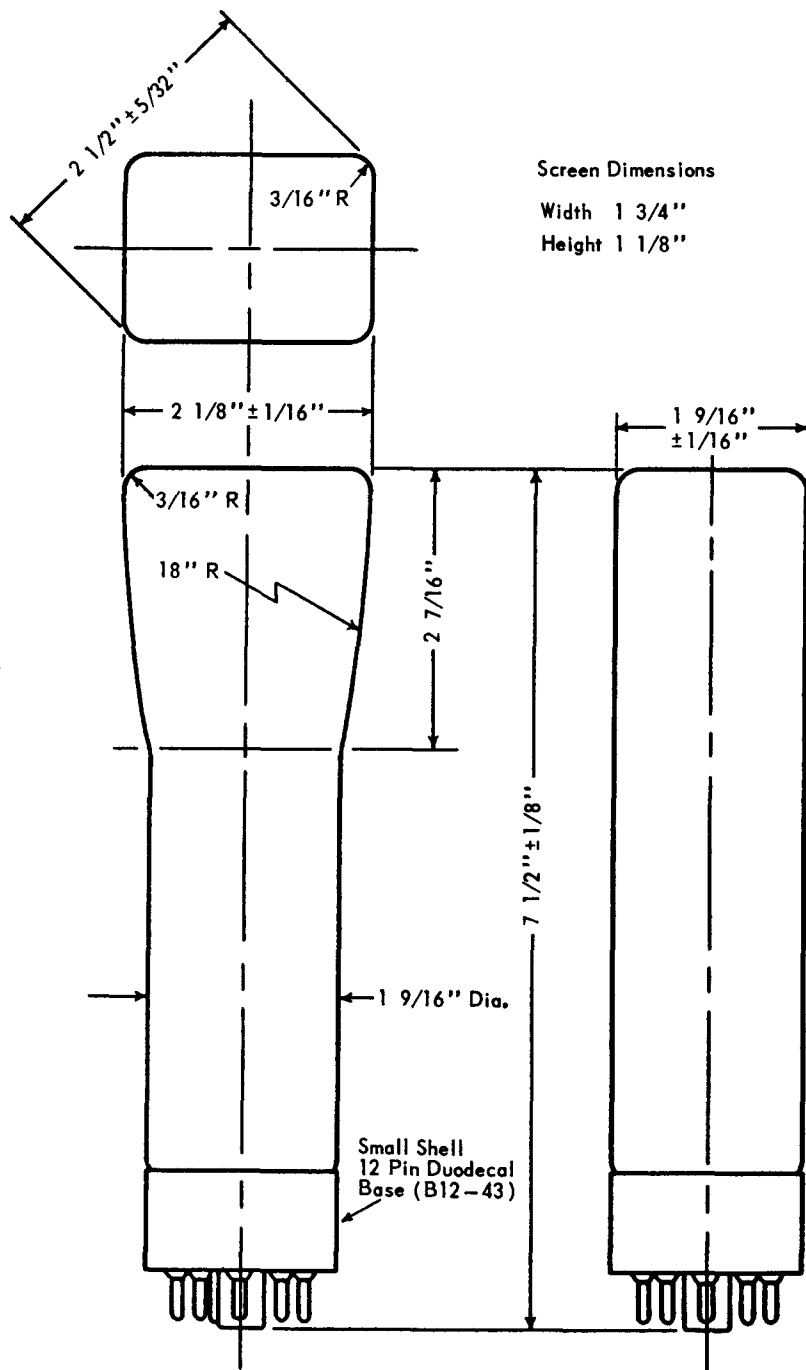
MAXIMUM CIRCUIT VALUES:

Grid #1 Circuit Resistance	1.5 meg.
Resistance in any deflecting electrode current (Note 3)	5.0 meg.



CATHODE RAY TUBE

- Note 1 Cathode should be returned to one side or to the midtap of the heater transformer winding.
 Note 2 Visual extinction of Focused Spot.
 Note 3 It is recommended that the deflecting -electrode -circuit resistances be approximately equal.



RAYTHEON MANUFACTURING COMPANY

RECEIVING TUBE AND SEMICONDUCTOR OPERATIONS