

Cathode-Ray Tube Type 21CXP4

The 21CXP4 is a 21" 90° rectangular, electrostatic focus and magnetic deflection direct-view picture tube specifically intended for cathode drive television applications. It has a maximum spot cut-off of 50 volts and a minimum cathode current of 1000 microamperes when operated in cathode drive at a Grid No.2 voltage of 50 volts. Other features of this tube are a short overall length, spherical gray filter glass faceplate, metal-backed screen, a construction which does not require an external ion trap magnet, and an external conductive coating which serves as a filter capacitor when grounded and has a minimum of 3 additional contact areas for the suppression of radiation.

GENERAL DATA

|                               |                   |
|-------------------------------|-------------------|
| Focusing Method               | Electrostatic     |
| Deflection Method             | Magnetic          |
| Deflection Angles (approx.)   |                   |
| Horizontal                    | 85 Degrees        |
| Diagonal                      | 90 Degrees        |
| Phosphor                      | Aluminized P4     |
| Fluorescence                  | White             |
| Persistence                   | Medium            |
| Faceplate                     | Gray Filter Glass |
| Light Transmittance (approx.) | 74 Percent        |

ELECTRICAL DATA

|   |                                |
|---|--------------------------------|
| Heater Voltage                                    | 6.3 Volts                      |
| Heater Current                                    | 0.6 ± 10% Amperes              |
| Direct Interelectrode Capacitances (approx.)      |                                |
| Cathode to All Other Electrodes                   | 5 uuf                          |
| Grid No.1 to All Other Electrodes                 | 6 uuf                          |
| External Conductive Coating to Anode <sup>1</sup> | 2500 uuf Max.<br>2000 uuf Min. |

MECHANICAL DATA

|  |                          |
|--|--------------------------|
| Overall Length   | 18 ± 3/8 Inches          |
| Greatest Bulb Dimensions   |                          |
| Diagonal   | 21 3/8 ± 1/8 Inches      |
| Width  | 20 1/4 ± 1/8 Inches      |
| Height   | 16 3/8 ± 1/8 Inches      |
| Neck Length  | 5 1/2 ± 3/16 Inches      |
| Minimum Useful Screen Dimensions (Maximum Assured)                                   | 19 1/16 x 15 1/16 Inches |
| Minimum Useful Screen Area   | 262 Sq. Inches           |
| Bulb Contact - Recessed Small Cavity Cap   | J1-21                    |
| Base - Small Shell Duodecal 6-pin  | B6-63                    |
| Basing   | 12L                      |
| Bulb Contact Alignment - J1-21 Contact Aligns with<br>Pin Position No.6 ± 30 Degrees |                          |

MAXIMUM RATINGS (Absolute Maximum Values)

|   |                          |
|---|--------------------------|
| Final Anode Voltage <sup>2</sup>                    | 22,000 Volts dc          |
| Grid No.4 Voltage (Focusing Electrode) <sup>3</sup> | -550 to ± 1,100 Volts dc |
| Grid No.2 to Grid No.1 Voltage                      | 70 Volts dc              |

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MAXIMUM RATINGS (Absolute Maximum Values)

|  |           |
|--|-----------|
| Cathode to Grid No.1 Voltage                   |           |
| Positive Bias Value                            | 150 Volts |
| Negative Peak Value                            | 0 Volts   |
| Peak Heater-Cathode Voltage                    |           |
| During Warm-up Period not to Exceed 15 Seconds | 450 Volts |
| After Equipment Warm-Up Period                 | 200 Volts |
| Heater Positive with Respect to Cathode        | 200 Volts |

TYPICAL OPERATING CONDITIONS

|   |                   |
|---|-------------------|
| Anode Voltage   | 18,000 Volts dc   |
| Grid No.4 to Grid No.1 Voltage for Focus<br>at 100 ua Cathode Current | 0 to 350 Volts dc |
| Grid No.2 to Grid No.1 Voltage  | 50 Volts dc       |
| Cathode to Grid No.1 Voltage for cut-off <sup>4</sup>                 | 35 to 50 Volts dc |

CIRCUIT VALUES

|                              |                 |
|------------------------------|-----------------|
| Grid No.1 Circuit Resistance | 1.5 Max.Megohms |
|------------------------------|-----------------|

NOTES

1. External conductive coating must be grounded.
2. Grid No.3, Grid No.5 and the Collector are connected internally and are referred to herein as "Final Anode".
3. The focus electrode may be modulated to improve overall focus.
4. For visual extinction of the undeflected focused spot. The cut-off voltage will change by approx. 2% with 1 KV change of anode voltage.



# TYPICAL DRIVE CHARACTERISTICS CURVES

