TUNG-SOL ELECTRIC INC.

X2110A

TENTATIVE DATA

21DUP4

CATHODE RAY TUBE

Tung-Sol X2110A is a 21 inch 110° deflection, aluminized all glass picture tube. It features electrostatic focus in a short-necked construction requiring no ion trap and 1 7/16" neck diameter.

ELECTRICAL DATA

Focusing Method		Electrostatic
Deflecting Method		Magnetic
Deflection Angle (Approx.)		
Diagonal	110	Degrees
Horizontal	105	Degrees
Vertical	87	Degrees
Direct Interlectrode Capacitances (Approx.)		
Cathode to all other Electrodes	5	uuf
Grid #1 to all other Electrodes	6	uuf
External Conductive Coating to Anode		
Maximum	2000	uuf
Minimum	2500	uuf

OPTICAL DATA

Phosphor Number	Sulfide Type	P-4
Fluorescent Color		White
Phosphorescent Color		White
Persistence		Short
Faceplate - Gray		
Light Transmission at Center (Approx.)	74	Percent

MECHANICAL DATA

Maximum Overall Lenght	15	Inches
Greatest Dimensions of Bulb		
Diagonal	21 3/8±1/8	Inches
Width	20 1/4±1/8	Inches
Height	16 3/8±1/8	Inches
Minimum Useful Screen Dimensions		
Diagonal	20 1/4	Inches
Width	19 1/16	Inches
Height	15 1/16	Inches
Neck Length	5 7/16	Inches
Bulb Contact	Recessed Small Cavity Cap	JETEC J1-21
Base	Small Shell Duodecal 6 Pin	JETEC B6-63
Basing		JETEC 12L

Bulb Contact Alignment

Anode Contact Aligns with Pin #6 ± 30 Degrees

from JEDEC release #1941C, Oct. 3, 1978

BASE PIN CONNECTIONS

Pin 1 - Heater	Pin 12 - Heater
Pin 2 - Grid #1	Anode Cap: Grid #3
Pin 6 - Grid #4	Grid #5
Pin 10 - Grid #2	Conductive Coating
Pin 11 - Cathode	

RATINGS - Design - Center Values[A]

Heater Voltage	6.3	Volts
Heater Current	0.6±10%	Amp.
Maximum Anode Voltage[B]	18000	Volts DC
	Min. 12000	Volts DC
Maximum Focusing - Electrode Voltage	-500 to + 1000	Volts DC
Maximum Grid #2 Voltage	500	Volts DC
Maximum Grid #1 Voltage		
Negative - Bias Value	140	Volts DC
Negative - Peak Value	200	Volts DC
Positive - Bias Value	0	Volts DC
Positive - Peak Value	2	Volts
Maximum Peak Heater - Cathode Voltage[C]		
Heater Negative with Respect to Cathode	180	Volts
During Warm - Up Period not to Exceed 15 Seconds	440	Volts
After Equipment Warm - Up Period	180	Volts
Heater Positive with Respect to Cathode	180	Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage[D]	16000	Volts DC
Focusing - Electrode Voltage for Focus[E]	0 to +450	Volts DC
Focusing - Electrode Current	-15 to +25	uAmps DC
Grid #2 Voltage	300	Volts DC
Grid #11 Voltage[F]	-28 to -72	Volts DC

CIRCUIT VALUES

Maximum Grid #1 Circuit Resistance	1.5	Megohms

A-The maximum ratings provide a ten-percent safety factor in accordance with the standard design-center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten-percent.

B-Anode, Grid #3 and Grid #5 which are connected together within the tube are referred to herin as anode. If this tube is operated at voltages in excess of 16,000 volts, X-Ray radiation shielding may be necessary to avert possible danger of personal injury from prolonged exposure at close range. The protective face-viewing window of apparatus using tubes of this type may provide such a safeguard. If the radiation measured in contact with this window does not exceed 0.25 millirontegens per hour, the window will normally provide adequate protection.

C-Cathode should be returned to one side or to the midtap of the heater transformer winding.

D-Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 14,000 volts.

E-The focusing electrode may be modulated within the stipulated maximum range to improve over-all focus.

F-For visual extinction of focused raster.