

TUNG-SOL

CATHODE RAY

THE 21YP4 AND 21YP4A ARE DIRECT-VIEW PICTURE TUBES DESIGNED FOR USE IN TELEVISION APPLICATIONS. THEY ARE IDENTICAL *EXCEPT* FOR THE ALUMINIZED SCREEN USED ON THE 21YP4A. THEIR COMMON FEATURES INCLUDE:

MAGNETIC DEFLECTION	UNIPOTENTIAL CATHODE
SPHERICAL FACEPLATE	GREY FILTER FACEPLATE
EXTERNAL CONDUCTIVE COATING	EXTERNAL SINGLE FIELD ION TRAP
RECTANGULAR GLASS CONSTRUCTION	LOW VOLTAGE ELECTROSTATIC FOCUS
19 1/8" X 14 3/16" RASTER SIZE	

ELECTRICAL DATA

		ELECTROSTATIC
		MAGNETIC
FOCUSING METHOD		
DEFLECTING METHOD		
DEFLECTION ANGLE (APPROX.):		
HORIZONTAL	65	DEGREES
VERTICAL	50	DEGREES
DIAGONAL	70	DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.):		
CATHODE TO ALL OTHER ELECTRODES	5	$\mu\mu\text{f}$
GRID #1 TO ALL OTHER ELECTRODES	6	$\mu\mu\text{f}$
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	750	$\mu\mu\text{f}$
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	500	$\mu\mu\text{f}$

OPTICAL DATA

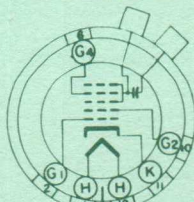
	SULFIDE TYPE	NO. 4
PHOSPHOR NUMBER		WHITE
FLUORESCENT COLOR		WHITE
PHOSPHORESCENT COLOR		SHORT
PERSISTENCE		PERCENT
FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.)	75	

MECHANICAL DATA

OVERALL LENGTH	23 3/8	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	21 3/8	INCHES
WIDTH	20 1/4 $\pm$ 3/16	INCHES
HEIGHT	15 9/16 $\pm$ 3/16	INCHES
MINIMUM USEFUL SCREEN DIMENSIONS:		
WIDTH	19 1/8	INCHES
HEIGHT	14 3/16	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 PIN POSITION #6 $\pm$ 30 DEGREES		

PIN CONNECTIONS

PIN 1 - HEATER
 PIN 2 - GRID NO. 1
 PIN 6 - GRID NO. 4
 PIN 10 - GRID NO. 2
 PIN 11 - CATHODE



PIN 12 - HEATER
 ANODE CAP:
 GRID NO. 3
 GRID NO. 5

BOTTOM VIEW

CONTINUED ON FOLLOWING PAGE

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RATINGS

DESIGN CENTER VALUES

HEATER VOLTAGE	6.3	VOLTS
HEATER CURRENT	0.6	AMP.
MAXIMUM DC ANODE, GRID #3, GRID #5 VOLTAGE ^A	18 000	VOLTS
MAXIMUM DC GRID #4 VOLTAGE ^B	-500 to +1000	VOLTS
MAXIMUM DC GRID #2 VOLTAGE	500	VOLTS
MAXIMUM GRID #1 VOLTAGE:		
DC NEGATIVE-BIAS VALUE	125	VOLTS
DC POSITIVE-BIAS VALUE	0	VOLTS
POSITIVE-PEAK VALUE	2	VOLTS
MAXIMUM DC PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE		
DURING WARM-UP PERIOD NOT TO EXCEED 15 SECONDS	410	VOLTS
AFTER EQUIPMENT WARM-UP PERIOD	180	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	180	VOLTS

^A BRILLIANCE AND DEFINITION DECREASE WITH DECREASING ANODE VOLTAGE. IN GENERAL, ANODE VOLTAGE SHOULD NOT BE LESS THAN 14,000 VOLTS.

^B THIS VALUE APPLIES WHERE AN AC VOLTAGE IS PROVIDED FOR DYNAMIC FOCUSING.

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

DC ANODE, GRID #3, GRID #5 VOLTAGE ^C	16 000	VOLTS
DC GRID #4 VOLTAGE ^D	-64 TO +350	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE ^E	-33 TO -77	VOLTS
ION TRAP MAGNET (RATED STRENGTH)	45	GAUSSES

^C BECAUSE THE RATING OF THIS TUBE PERMITS ANODE VOLTAGES AS HIGH AS 19.8 KV, SHIELDING OF X-RAY RADIATION FROM THE TUBE MAY BE NECESSARY. THIS PRECAUTION SHOULD BE OBSERVED WHEN THE ANODE IS OPERATED IN EXCESS OF 16 KV.

^D WITH ANODE CURRENT OF 100 UAMP.

^E VISUAL EXTINCTION OF UNDEFLECTED FOCUSED SPOT.

CIRCUIT VALUES

MAXIMUM GRID #1 CIRCUIT RESISTANCE	1.5	MEG OHMS
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