

**TUNG-SOL**

**CATHODE RAY**

THE 27SP4 IS A DIRECT-VIEW PICTURE TUBE DESIGNED FOR USE IN TELEVISION APPLICATIONS. ITS FEATURES INCLUDE:

- |                                 |                                |
|---------------------------------|--------------------------------|
| ALUMINIZED SCREEN               | SPHERICAL FACEPLATE            |
| UNIPOTENTIAL CATHODE            | MAGNETIC DEFLECTION            |
| EXTERNAL CONDUCTIVE COATING     | GREY FILTER FACEPLATE          |
| RECTANGULAR GLASS CONSTRUCTION  | 2 1/2" X 1 1/2" RASTER SIZE    |
| LOW VOLTAGE ELECTROSTATIC FOCUS | EXTERNAL SINGLE FIELD ION TRAP |

**ELECTRICAL DATA**

FOCUSING METHOD	LOW VOLTAGE ELECTROSTATIC
DEFLECTING METHOD	MAGNETIC
DEFLECTION ANGLE: (APPROX.)	
HORIZONTAL	85 DEGREES
DIAGONAL	90 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 <sup>A</sup>	750 $\mu\mu\text{f}$
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE <sup>A</sup>	500 $\mu\mu\text{f}$

<sup>A</sup>EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

**OPTICAL DATA**

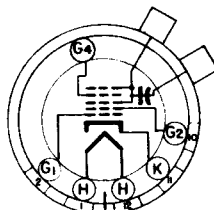
PHOSPHOR NUMBER	P-4
FLUORESCENT COLOR	WHITE
PHOSPHORESCENT COLOR	WHITE
PERSISTENCE	MEDIUM
FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.)	68 PERCENT

**MECHANICAL DATA**

OVERALL LENGTH	23 1/16 ± 3/8	INCHES
GREATEST DIMENSIONS OF BULB:		
DIAGONAL	26 13/16	INCHES
WIDTH	25 9/32 ± 3/16	INCHES
HEIGHT	20 7/32 ± 3/16	INCHES
MINIMUM USEFUL SCREEN DIMENSIONS:		
WIDTH	24	INCHES
HEIGHT	18 1/2	INCHES
BULB CONTACT	RECESSED SMALL CAVITY CAP	J1-21
BASE	SMALL SHELL DUODECAL 6 PIN	86-63
BASING		12L
BULB CONTACT ALIGNMENT		
J1-21 CONTACT ALIGNS WITH PIN POSITION #6 ± 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	20 000	VOLTS
MAXIMUM DC GRID #4 VOLTAGE (FOCUSING ELECTRODE)	-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

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

DC ANODE, GRID #3, GRID #5 VOLTAGE <sup>B</sup>	18 000	VOLTS
DC GRID #4 VOLTAGE (FOCUSING ELECTRODE)	-72 TO +396	VOLTS
DC GRID #2 VOLTAGE	300	VOLTS
DC GRID #1 VOLTAGE REQUIRED FOR CUTOFF <sup>C</sup>	-28 TO -72	VOLTS
ION TRAP MAGNET STRENGTH (APPROX.)	40	GAUSSSES

<sup>B</sup> BRILLIANCE AND DEFINITION DECREASE WITH DECREASING ANODE VOLTAGE. IN GENERAL, ANODE VOLTAGE SHOULD NOT BE LESS THAN THIS VALUE.

<sup>C</sup> VISUAL EXTINCTION OF FOCUSED RASTER. EXTINCTION OF THE STATIONARY FOCUSED SPOT WILL REQUIRE THAT THESE VALUES BE ABOUT 5 VOLTS MORE NEGATIVE.

## CIRCUIT VALUES

MAXIMUM GRID #1 CIRCUIT RESISTANCE	1.5	MEGOHMS
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