

## 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 1/4" X 18 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 |

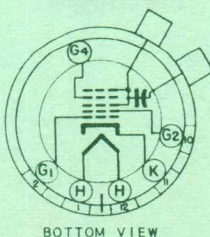
## MECHANICAL DATA

|                                                            |                            |        |
|------------------------------------------------------------|----------------------------|--------|
| OVERALL LENGTH                                             | 23 1/16 $\pm$ 3/8          | INCHES |
| GREATEST DIMENSIONS OF BULB:                               |                            |        |
| DIAGONAL                                                   | 26 13/16                   | INCHES |
| WIDTH                                                      | 25 9/32 $\pm$ 3/16         | INCHES |
| HEIGHT                                                     | 20 7/32 $\pm$ 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 | 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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CONTINUED FROM PRECEDING PAGE

## 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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