

## TUNG-SOL

## CATHODE RAY

THE 20MP4 IS A DIRECT-VIEW PICTURE TUBE DESIGNED FOR USE IN TELEVISION APPLICATIONS. ITS FEATURES INCLUDE:

|                                 |                                |
|---------------------------------|--------------------------------|
| MAGNETIC DEFLECTION             | UNIPOTENTIAL CATHODE           |
| GREY FILTER FACEPLATE           | EXTERNAL CONDUCTIVE COATING    |
| RECTANGULAR GLASS CONSTRUCTION  | 17 1/4" X 13 1/4" RASTER SIZE  |
| LOW VOLTAGE ELECTROSTATIC FOCUS | EXTERNAL SINGLE FIELD ION TRAP |

## ELECTRICAL DATA

|                                               |     |                |
|-----------------------------------------------|-----|----------------|
| FOCUSING METHOD                               |     | ELECTROSTATIC  |
| DEFLECTING METHOD                             |     | MAGNETIC       |
| DEFLECTION ANGLE (APPROX.):                   |     |                |
| HORIZONTAL                                    | 66  | DEGREES        |
| VERTICAL                                      | 50  | DEGREES        |
| DIAGONAL                                      | 70  | DEGREES        |
| DIRECT INTERELECTRODE CAPACITANCES (APPROX.): |     |                |
| CATHODE TO ALL OTHER ELECTRODES               | 5   | $\mu\text{mf}$ |
| GRID #1 TO ALL OTHER ELECTRODES               | 6   | $\mu\text{mf}$ |
| MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE  | 750 | $\mu\text{mf}$ |
| MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE  | 500 | $\mu\text{mf}$ |

## OPTICAL DATA

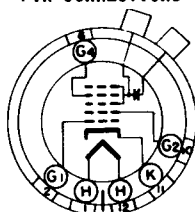
|                                                  |              |         |
|--------------------------------------------------|--------------|---------|
| PHOSPHOR NUMBER                                  | SULFIDE TYPE | NO. 4   |
| FLUORESCENT COLOR                                |              | WHITE   |
| PHOSPHORESCENT COLOR                             |              | WHITE   |
| PERSISTENCE                                      |              | SHORT   |
| FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.) | 66           | PERCENT |

## MECHANICAL DATA

|                                                            |                            |        |
|------------------------------------------------------------|----------------------------|--------|
| OVERALL LENGTH                                             | 21 3/4 $\pm$ 3/8           | INCHES |
| GREATEST DIMENSIONS OF BULB:                               |                            |        |
| DIAGONAL                                                   | 20 3/32 $\pm$ 3/16         | INCHES |
| WIDTH                                                      | 18 11/16 $\pm$ 3/16        | INCHES |
| HEIGHT                                                     | 14 15/16 $\pm$ 3/16        | INCHES |
| MINIMUM USEFUL SCREEN DIMENSIONS:                          |                            |        |
| DIAGONAL                                                   | 18 5/8                     | INCHES |
| WIDTH                                                      | 17 1/4                     | INCHES |
| HEIGHT                                                     | 13 1/4                     | 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



BOTTOM VIEW

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

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**RATINGS**

DESIGN CENTER VALUES

|                                                |               |       |
|------------------------------------------------|---------------|-------|
| HEATER VOLTAGE                                 | 6.3           | VOLTS |
| HEATER CURRENT                                 | 0.6           | AMP.  |
| MAXIMUM DC GRID #3, GRID #5, COLLECTOR VOLTAGE | 16 000        | VOLTS |
| MAXIMUM DC GRID #4 VOLTAGE                     | -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 GRID #3, GRID #5, COLLECTOR VOLTAGE               | 14 000      | VOLTS    |
| DC GRID #4 VOLTAGE (FOCUSING ELECTRODE) <sup>A</sup> | -55 TO +300 | VOLTS    |
| DC GRID #1 VOLTAGE <sup>B</sup>                      | -33 TO -77  | VOLTS    |
| ION TRAP MAGNET (RATED STRENGTH)                     | 45          | GAUSSSES |

<sup>A</sup>FOR ANODE CURRENT OF 100 UAMP.<sup>B</sup>VISUAL EXTINCTION OF UNDEFLECTED FOCUSED SPOT.**CIRCUIT VALUES**

|                                    |     |         |
|------------------------------------|-----|---------|
| MAXIMUM GRID #1 CIRCUIT RESISTANCE | 1.5 | MEGOHMS |
|------------------------------------|-----|---------|

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