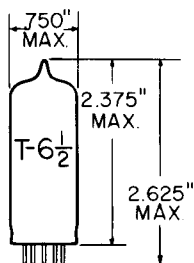


## TUNG-SOL

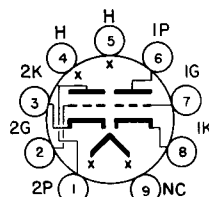
TWIN TRIODE  
MINIATURE TYPE

GLASS BULB  
SMALL-BUTTON  
9 PIN NOVAL E9-1  
OUTLINE DRAWING  
JEDEC 6-3

COATED UNIPOTENTIAL CATHODE

FOR SERIES STRING OPERATION  
IN TELEVISION RECEIVERS

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM  
JEDEC 9LP

THE 8FQ7 IS A GENERAL PURPOSE, MEDIUM-MU TWIN TRIODE IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS INTENDED PRIMARILY FOR USE AS A VERTICAL-DEFLECTION OSCILLATOR AND HORIZONTAL-DEFLECTION OSCILLATOR IN TELEVISION RECEIVERS. THE 8FQ7 MAY ALSO BE USED IN PHASE-INVERTER, MULTIVIBRATOR, SYNC-SEPARATOR, SYNC-AMPLIFIER, AND IN RESISTANCE-COUPLED AF AMPLIFIER CIRCUITS OF ELECTRONIC EQUIPMENT.

## DIRECT INTERELECTRODE CAPACITANCES - APPROX.

WITHOUT EXTERNAL SHIELD

|                                      | UNIT #1 | UNIT #2 |    |
|--------------------------------------|---------|---------|----|
| GRID TO PLATE                        | 3.6     | 3.8     | pf |
| GRID TO CATHODE AND HEATER           | 2.4     | 2.4     | pf |
| PLATE TO CATHODE AND HEATER          | 0.34    | 0.26    | pf |
| PLATE OF UNIT #1 TO PLATE OF UNIT #2 |         | 1.0     | pf |

## HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

|                                         |           |        |         |
|-----------------------------------------|-----------|--------|---------|
| AVERAGE CHARACTERISTICS                 | 8.4 VOLTS | 450    | MA.     |
| HEATER SUPPLY LIMITS:                   |           |        |         |
| CURRENT OPERATION                       |           | 450±27 | MA.     |
| MAXIMUM PEAK HEATER-CATHODE VOLTAGE:    |           |        |         |
| HEATER NEGATIVE WITH RESPECT TO CATHODE |           | 200    | VOLTS   |
| HEATER POSITIVE WITH RESPECT TO CATHODE |           | 200*   | VOLTS   |
| HEATER WARM-UP TIME (APPROX.)*          |           | 11     | SECONDS |

\* THE DC COMPONENT MUST NOT EXCEED 100 VOLTS.

\*

HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

CONTINUED ON FOLLOWING PAGE

## TUNO-30L

CONTINUED FROM PRECEDING PAGE

## MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

CLASS A<sub>1</sub> AMPLIFIER

VALUES ARE FOR EACH UNIT

|                                    |     |        |
|------------------------------------|-----|--------|
| PLATE VOLTAGE                      | 330 | VOLTS  |
| GRID VOLTAGE:                      |     |        |
| POSITIVE-BIAS VALUE                | 0   | VOLTS  |
| CATHODE CURRENT                    | 22  | MA.    |
| PLATE DISSIPATION:                 |     |        |
| EITHER PLATE                       | 4   | WATTS  |
| BOTH PLATES (BOTH UNITS OPERATING) | 5.7 | WATTS  |
| MAX. CIRCUIT VALUES:               |     |        |
| GRID-CIRCUIT RESISTANCE:           |     |        |
| FOR FIXED -BIAS OPERATION          | 1   | MEGOHM |

HORIZONTAL-DEFLECTION OSCILLATOR <sup>B</sup>

VALUES ARE FOR EACH UNIT

|                                               |     |        |
|-----------------------------------------------|-----|--------|
| DC PLATE VOLTAGE                              | 330 | VOLTS  |
| PEAK NEGATIVE-PULSE GRID VOLTAGE <sup>C</sup> | 660 | VOLTS  |
| CATHODE CURRENT:                              |     |        |
| PEAK                                          | 330 | MA.    |
| DC                                            | 22  | MA.    |
| PLATE DISSIPATION:                            |     |        |
| EITHER PLATE                                  | 4   | WATTS  |
| BOTH PLATES (BOTH UNITS OPERATING)            | 5.7 | WATTS  |
| MAX. CIRCUIT VALUES:                          |     |        |
| GRID-CIRCUIT RESISTANCE                       | 2.2 | MEGOHM |

VERTICAL-DEFLECTION OSCILLATOR <sup>B</sup>

VALUES ARE FOR EACH UNIT

|                                               |     |         |
|-----------------------------------------------|-----|---------|
| DC PLATE VOLTAGE                              | 330 | VOLTS   |
| PEAK NEGATIVE-PULSE GRID VOLTAGE <sup>D</sup> | 440 | VOLTS   |
| CATHODE CURRENT:                              |     |         |
| PEAK                                          | 77  | MA.     |
| DC                                            | 22  | MA.     |
| PLATE DISSIPATION:                            |     |         |
| EITHER PLATE                                  | 4   | WATTS   |
| BOTH PLATES (BOTH UNITS OPERATING)            | 5.7 | WATTS   |
| MAX. CIRCUIT VALUES:                          |     |         |
| GRID-CIRCUIT RESISTANCE                       | 2.2 | MEGOHMS |

## CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER

EACH UNIT

|                                               |      |      |       |
|-----------------------------------------------|------|------|-------|
| PLATE VOLTAGE                                 | 90   | 250  | VOLTS |
| GRID VOLTAGE                                  | 0    | -8   | VOLTS |
| AMPLIFICATION FACTOR                          | 20   | 20   |       |
| PLATE RESISTANCE (APPROX.)                    | 6700 | 7700 | OHMS  |
| TRANSCONDUCTANCE                              | 3000 | 2600 | μMHOS |
| PLATE CURRENT                                 | 10   | 9    | MA.   |
| PLATE CURRENT FOR GRID VOLTS $E = -12.5$      | ---  | 1.3  | MA.   |
| GRID VOLTAGE (APPROX.) FOR PLATE $\mu A = 10$ | -7   | -18  | VOLTS |

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## NOTES

<sup>B</sup>FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE CONCERNING TELEVISION BROADCAST STATIONS." FEDERAL COMMUNICATIONS COMMISSION.

<sup>C</sup>THIS RATING IS APPLICABLE WHERE THE DURATION OF THE VOLTAGE PULSE DOES NOT EXCEED 15 PER CENT OF ONE HORIZONTAL SCANNING CYCLE. IN A 525-LINE, 30-FRAME SYSTEM, 15 PER CENT OF ONE HORIZONTAL SCANNING CYCLE IS 10 MICROSECONDS.

<sup>D</sup>THIS RATING IS APPLICABLE WHERE THE DURATION OF THE VOLTAGE PULSE DOES NOT EXCEED 15 PER CENT OF ONE VERTICAL SCANNING CYCLE. IN A 525-LINE, 30-FRAME SYSTEM, 15 PER CENT OF ONE VERTICAL SCANNING CYCLE IS 2.5 MILLISECONDS.

*SIMILAR TYPE REFERENCE: Except for heater ratings, the 8FQ7 is identical to the 6FQ7.*