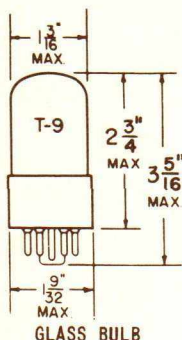


## TUNG-SOL

## DOUBLE TRIODE



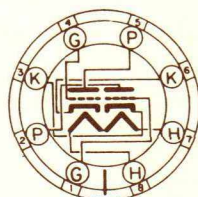
COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.3 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

INTERMEDIATE SHELL  
8 PIN OCTAL

880

THE 12SN7GTA IS A MEDIUM-MU DOUBLE TRIODE SUITABLE FOR USE IN A WIDE VARIETY OF GENERAL-PURPOSE AMPLIFIER AND PHASE-INVERTER APPLICATIONS. IT IS ALSO USEFUL AS A BLOCKING OSCILLATOR, MULTIVIBRATOR, OR VERTICAL-DEFLECTION AMPLIFIER IN TELEVISION RECEIVERS. EXCEPT FOR HEATER AND HEATER WARM-UP TIME RATINGS, THE 12SN7GTA IS IDENTICAL TO THE 6SN7GTB.

## DIRECT INTERELECTRODE CAPACITANCES

WITH NO EXTERNAL SHIELD

GRID TO PLATE: G TO P

INPUT: G TO (H+K)

OUTPUT: P TO (H+K)

## TRIODE 1

4.0

2.2

0.7

## TRIODE 2

3.8

2.6

0.7

μuf

μuf

μuf

## RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

EACH UNIT

|                                                           | CLASS A <sub>1</sub><br>AMPLIFIER | VERTICAL <sup>A</sup><br>DEFLECTION<br>AMPLIFIER |         |
|-----------------------------------------------------------|-----------------------------------|--------------------------------------------------|---------|
| HEATER VOLTAGE                                            | 12.6                              |                                                  | VOLTS   |
| MAXIMUM HEATER-CATHODE VOLTAGE:                           |                                   |                                                  |         |
| HEATER NEGATIVE WITH RESPECT TO CATHODE                   |                                   |                                                  |         |
| TOTAL DC AND PEAK                                         | 200                               |                                                  | VOLTS   |
| HEATER POSITIVE WITH RESPECT TO CATHODE                   |                                   |                                                  |         |
| DC                                                        | 100                               |                                                  | VOLTS   |
| TOTAL DC AND PEAK                                         | 200                               |                                                  | VOLTS   |
| MAXIMUM PLATE VOLTAGE                                     | 450                               | 450                                              | VOLTS   |
| MAXIMUM PEAK POSITIVE PLATE VOLTAGE<br>(ABSOLUTE MAXIMUM) | ---                               | 1 500                                            | VOLTS   |
| MAXIMUM PLATE DISSIPATION:                                |                                   |                                                  |         |
| EACH PLATE                                                | 5.0                               | 5.0 <sup>B</sup>                                 | WATTS   |
| BOTH PLATES                                               | 7.5                               | 7.5 <sup>B</sup>                                 | WATTS   |
| MAXIMUM PEAK NEGATIVE GRID VOLTAGE                        | ---                               | 250                                              | VOLTS   |
| MAXIMUM AVERAGE CATHODE CURRENT                           | 20                                | 20                                               | MA.     |
| MAXIMUM PEAK CATHODE CURRENT                              | ---                               | 70                                               | MA.     |
| MAXIMUM GRID CIRCUIT RESISTANCE                           |                                   |                                                  |         |
| CATHODE BIAS                                              | 1.0                               | 2.2                                              | MEGOHMS |

<sup>A</sup> FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCASTING STATIONS; FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE NOT TO EXCEED 15% OF A SCANNING CYCLE.

<sup>B</sup> IN STAGES OPERATING WITH GRID-LEAK BIAS, AN ADEQUATE CATHODE BIAS RESISTOR OR OTHER SUITABLE MEANS IS REQUIRED TO PROTECT THE TUBE IN THE ABSENCE OF EXCITATION.

CONTINUED ON FOLLOWING PAGE

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## RATINGS - CONT'D

|                                         | VERTICAL <sup>C</sup><br>DEFLECTION<br>OSCILLATOR | HORIZONTAL <sup>C</sup><br>DEFLECTION<br>OSCILLATOR |         |
|-----------------------------------------|---------------------------------------------------|-----------------------------------------------------|---------|
| HEATER VOLTAGE                          | 12.6                                              |                                                     | VOLTS   |
| MAXIMUM HEATER-CATHODE VOLTAGE:         |                                                   |                                                     |         |
| HEATER NEGATIVE WITH RESPECT TO CATHODE |                                                   |                                                     |         |
| TOTAL DC AND PEAK                       | 200                                               |                                                     | VOLTS   |
| HEATER POSITIVE WITH RESPECT TO CATHODE |                                                   |                                                     |         |
| DC                                      | 100                                               |                                                     | VOLTS   |
| TOTAL DC AND PEAK                       | 200                                               |                                                     | VOLTS   |
| MAXIMUM DC PLATE VOLTAGE                | 450                                               | 450                                                 | VOLTS   |
| MAXIMUM PLATE DISSIPATION:              |                                                   |                                                     |         |
| EACH PLATE                              | 5.0                                               | 5.0                                                 | WATTS   |
| BOTH PLATES                             | 7.5                                               | 7.5                                                 | WATTS   |
| MAXIMUM PEAK NEGATIVE GRID VOLTAGE      | 400                                               | 600                                                 | VOLTS   |
| MAXIMUM AVERAGE CATHODE CURRENT         | 20                                                | 20                                                  | MA.     |
| MAXIMUM PEAK CATHODE CURRENT            | 70                                                | 300                                                 | MA.     |
| MAXIMUM GRID CIRCUIT RESISTANCE         | 2.2                                               | 2.2                                                 | MEGOHMS |

<sup>C</sup> FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCASTING STATIONS," FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE NOT TO EXCEED 15% OF A SCANNING CYCLE

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER - EACH UNIT

|                                               |       |       |       |
|-----------------------------------------------|-------|-------|-------|
| HEATER VOLTAGE                                | 12.6  |       | VOLTS |
| HEATER CURRENT                                | 0.3   |       | AMP.  |
| PLATE VOLTAGE                                 | 90    | 250   | VOLTS |
| GRID VOLTAGE                                  | 0     | -8    | VOLTS |
| PLATE CURRENT                                 | 10    | 9     | MA.   |
| AMPLIFICATION FACTOR                          | 20    | 20    |       |
| PLATE RESISTANCE (APPROX.)                    | 6 700 | 7 700 | OHMS  |
| TRANSCONDUCTANCE                              | 3 000 | 2 600 | μMHOS |
| PLATE CURRENT                                 | 10    | 9.0   | MA.   |
| GRID VOLTAGE FOR $I_b = 10 \mu A$ . (APPROX.) | -7.0  | -18   | VOLTS |

## TUNG-SOL

## RESISTANCE COUPLED AMPLIFIER

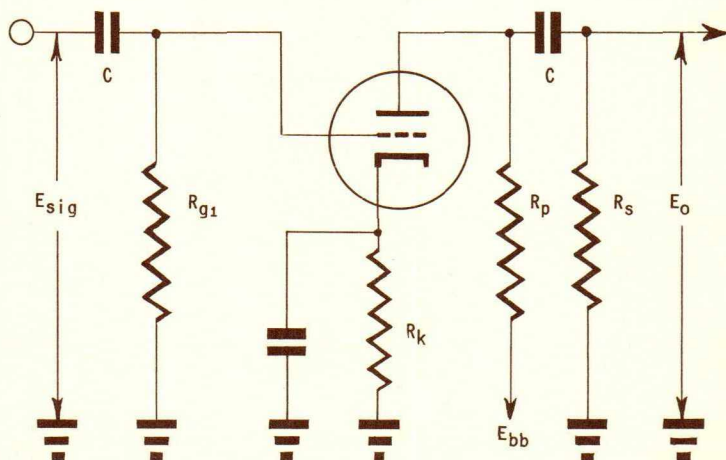
EACH SECTION

| $R_p$<br>MEG. | $R_s$<br>MEG. | $R_{g1}$<br>MEG. | $E_{bb} = 90 \text{ VOLTS}$ |      |       | $E_{bb} = 180 \text{ VOLTS}$ |      |       | $E_{bb} = 300 \text{ VOLTS}$ |      |       |
|---------------|---------------|------------------|-----------------------------|------|-------|------------------------------|------|-------|------------------------------|------|-------|
|               |               |                  | $R_k$                       | GAIN | $E_o$ | $R_k$                        | GAIN | $E_o$ | $R_k$                        | GAIN | $E_o$ |
| 0.10          | 0.10          | 0.10             | 3900                        | 10   | 10    | 3600                         | 11   | 20    | 3500                         | 11   | 30    |
| 0.10          | 0.24          | 0.10             | 5000                        | 11   | 14    | 4700                         | 12   | 27    | 4400                         | 12   | 41    |
| 0.24          | 0.24          | 0.10             | 9400                        | 11   | 13    | 8700                         | 11   | 25    | 8700                         | 12   | 38    |
| 0.24          | 0.51          | 0.10             | 11000                       | 11   | 17    | 11000                        | 12   | 32    | 11000                        | 12   | 48    |
| 0.51          | 0.51          | 0.10             | 19000                       | 11   | 15    | 18000                        | 12   | 29    | 18000                        | 12   | 43    |
| 0.51          | 1.0           | 0.10             | 24000                       | 11   | 19    | 23000                        | 12   | 37    | 23000                        | 12   | 54    |
| 0.24          | 0.24          | 10               | 0                           | 14   | 12    | 0                            | 16   | 20    | 0                            | 17   | 28    |
| 0.24          | 0.51          | 10               | 0                           | 14   | 16    | 0                            | 16   | 28    | 0                            | 17   | 40    |
| 0.51          | 0.51          | 10               | 0                           | 14   | 15    | 0                            | 15   | 26    | 0                            | 16   | 38    |
| 0.51          | 1.0           | 10               | 0                           | 14   | 19    | 0                            | 16   | 35    | 0                            | 16   | 52    |

NOTES: 1.  $E_o$  IS MAXIMUM RMS VOLTAGE OUTPUT FOR FIVE PERCENT (5%) TOTAL HARMONIC DISTORTION.

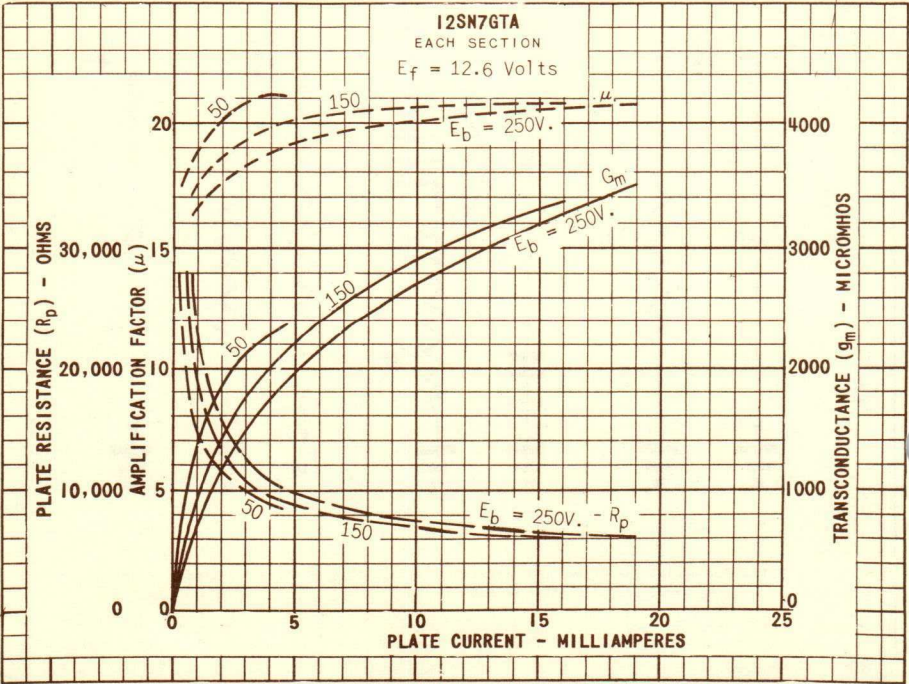
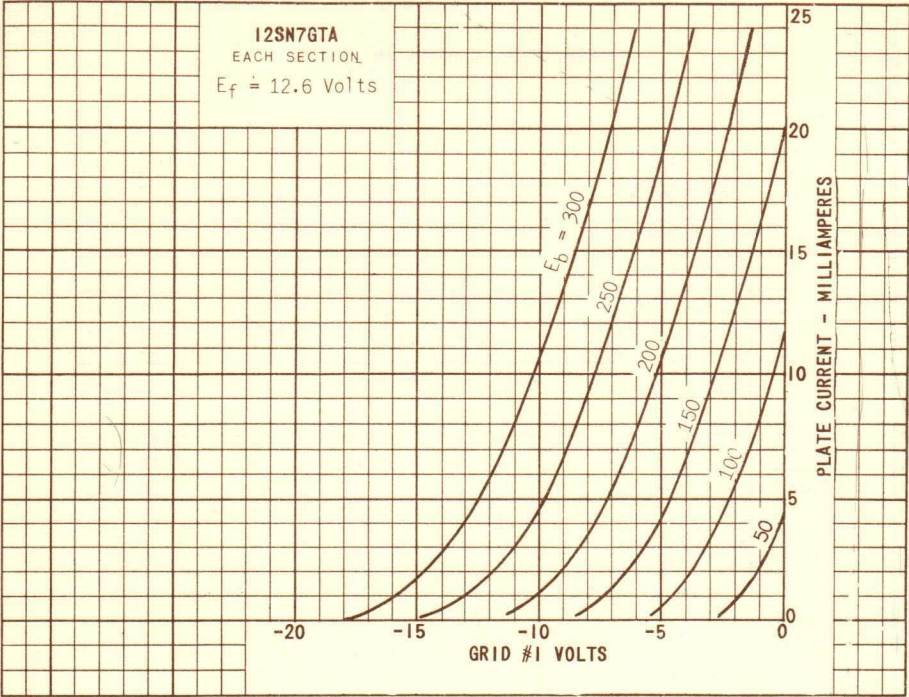
2. GAIN MEASURED AT 2.0 VOLTS RMS OUTPUT.

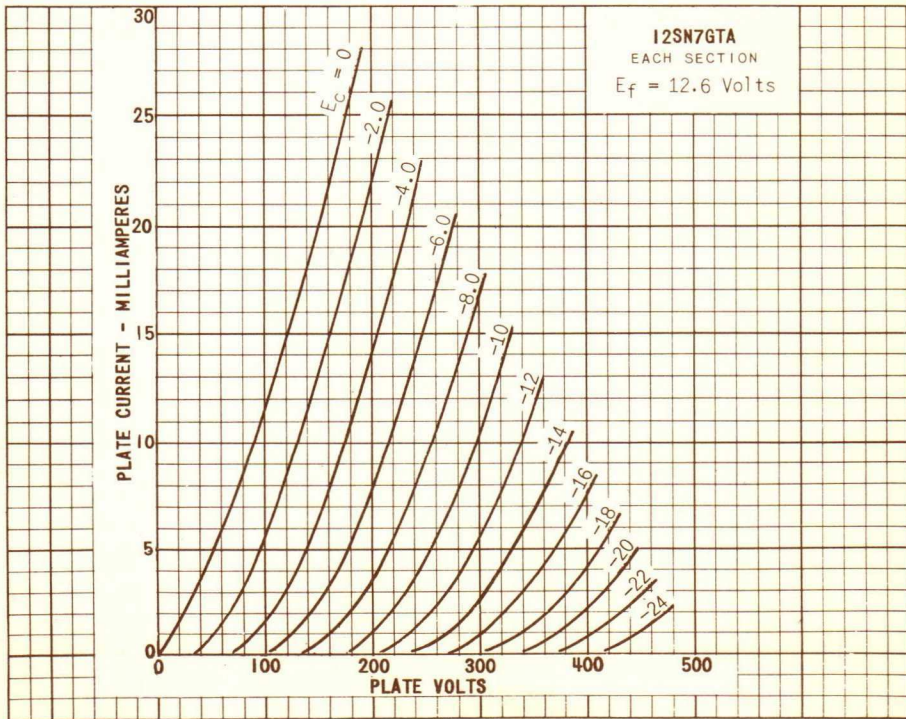
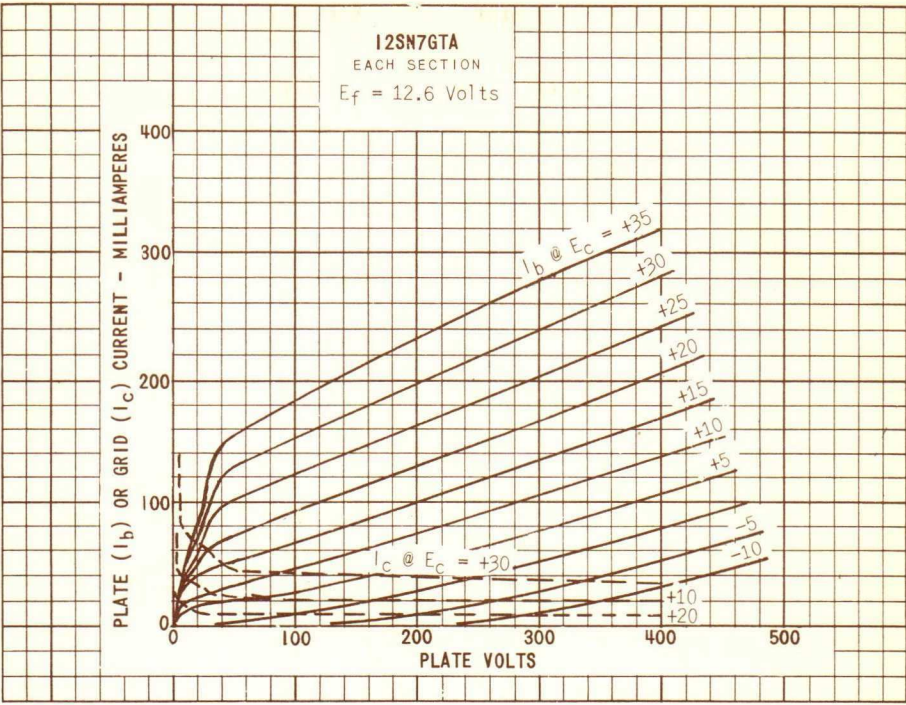
3. FOR ZERO-BIAS DATA, GENERATOR IMPEDANCE IS NEGLIGIBLE.



NOTES: COUPLING CAPACITORS (C) SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE.  
 $R_k$  SHOULD BE ADEQUATELY BY-PASSED

12SN7GTA





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