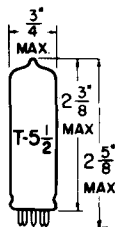


## TUNG-SOL

## TETRODE

## MINIATURE TYPE



## GLASS BULB

MINIATURE BUTTON  
9 PIN BASE E7-1  
OUTLINE DRAWING  
JEDEC 5-3

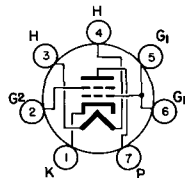
COATED UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.40 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM  
JEDEC 7FD

THE 12K5 IS A TETRODE WITH A UNIPOTENTIAL CATHODE IN THE 7-PIN MINIATURE CONSTRUCTION DESIGNED FOR SPACE-CHARGE GRID OPERATION. IT IS INTENDED FOR USE AS A POWER AMPLIFIER DRIVER WHERE THE HEATER, PLATE AND SPACE-CHARGE GRID POTENTIALS ARE OBTAINED DIRECTLY FROM AN AUTOMOTIVE BATTERY.

### DIRECT INTERELECTRODE CAPACITANCES\*

WITHOUT EXTERNAL SHIELD

|                        |      |    |
|------------------------|------|----|
| INPUT: G2 TO (K+H+G1)  | 13.0 | pf |
| OUTPUT: P TO (K+H+G1)  | 1.8  | pf |
| GRID TO PLATE: G2 TO P | 11.0 | pf |

## RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

|                                              |      |         |
|----------------------------------------------|------|---------|
| HEATER VOLTAGE                               | 12.6 | VOLTS   |
| MAXIMUM PLATE VOLTAGE                        | 30   | VOLTS   |
| MAXIMUM POSITIVE GRID #1 VOLTAGE (ABS. MAX.) | 16   | VOLTS   |
| MAXIMUM NEGATIVE GRID #2 VOLTAGE             | 20   | VOLTS   |
| MAXIMUM GRID #2 CIRCUIT RESISTANCE           | 10   | MEGOHMS |
| MAXIMUM HEATER-CATHODE VOLTAGE               | ±30  | VOLTS   |

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER - SINGLE TUBE

|                                             |        |       |
|---------------------------------------------|--------|-------|
| PLATE VOLTAGE                               | 12.6   | VOLTS |
| GRID #2 (CONTROL GRID) VOLTAGE <sup>B</sup> | -0.5   | VOLTS |
| GRID #1 (SPACE-CHARGE GRID) VOLTAGE         | 12.6   | VOLTS |
| PLATE CURRENT                               | 40     | MA.   |
| GRID #1 (SPACE-CHARGE GRID) CURRENT         | 75     | MA.   |
| PLATE RESISTANCE                            | 480    | OHMS  |
| AMPLIFICATION FACTOR <sup>C</sup>           | 7.2    |       |
| TRANSCONDUCTANCE <sup>C</sup>               | 15 000 | μMHOS |

\*INDICATES AN ADDITION.

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## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS - CONT'D.

## TYPICAL OPERATION

CLASS A<sub>1</sub> AMPLIFIER - SINGLE TUBE

|                                             |         |         |
|---------------------------------------------|---------|---------|
| HEATER VOLTAGE                              | 12.6    | VOLTS   |
| PLATE VOLTAGE                               | 12.6    | VOLTS   |
| GRID #2 (CONTROL GRID) VOLTAGE <sup>D</sup> | -2.0    | VOLTS   |
| GRID #1 (SPACE-CHARGE GRID) VOLTAGE         | 12.6    | VOLTS   |
| PEAK AF GRID #2 VOLTAGE                     | 2.5     | VOLTS   |
| AF SIGNAL SOURCE RESISTANCE                 | 100 000 | OHMS    |
| LOAD RESISTANCE                             | 800     | OHMS    |
| PLATE CURRENT                               | 8.0     | MA.     |
| GRID #1 (SPACE-CHARGE GRID) CURRENT         | 75      | MA.     |
| TOTAL HARMONIC DISTORTION (MAX.)            | 10      | PERCENT |
| POWER OUTPUT                                | 40      | MW.     |

<sup>A</sup> THIS TUBE IS INTENDED TO BE USED IN AUTOMOTIVE SERVICE FROM A NOMINAL 12 VOLT BATTERY SOURCE. THE HEATER IS THEREFORE DESIGNED TO OPERATE OVER THE 10.0 TO 15.9 VOLTAGE RANGE ENCOUNTERED IN THIS SERVICE. THE MAXIMUM RATINGS OF THE TUBE PROVIDE FOR AN ADEQUATE SAFETY FACTOR SUCH THAT THE TUBE WILL WITHSTAND THE WIDE VARIATION IN SUPPLY VOLTAGES.

<sup>B</sup> AVERAGE CONTACT POTENTIAL DEVELOPED ACROSS A 2.2 MEGOHM RESISTOR.

<sup>C</sup> FROM GRID #2 TO PLATE

<sup>D</sup> OBTAINED ACROSS A 2.2 MEG. RESISTOR BY GRID #2 RECTIFICATION IN WHICH CASE THE ZERO SIGNAL PLATE CURRENT IS APPROXIMATELY 40 MA.