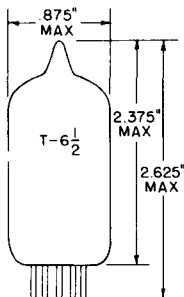


## TUNG-SOL



GLASS BULB  
SMALL-BUTTON MINIATURE  
7 PIN BASE E7-1  
OUTLINE DRAWING  
JEDEC 6-3

## BEAM PENTODE

MINIATURE TYPE

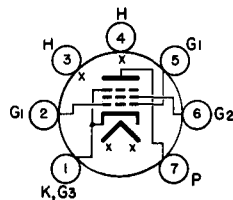
COATED UNIPOTENTIAL CATHODE

HEATER

12.6±1.3 VOLTS 600 MA.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW  
BASING DIAGRAM  
JEDEC 7CV

THE 12CU5 IS A MINIATURE BEAM POWER PENTODE INTENDED FOR USE IN THE AUDIO OUTPUT STAGE OF TELEVISION RECEIVERS. HIGH POWER SENSITIVITY AND HIGH EFFICIENCY AT LOW PLATE AND SCREEN VOLTAGES ENABLE THE 12CU5 TO PROVIDE RELATIVELY HIGH POWER OUTPUT. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED.

### DIRECT INTERELECTRODE CAPACITANCES - APPROX.

WITHOUT EXTERNAL SHIELD

|                                                      |      |    |
|------------------------------------------------------|------|----|
| GRID #1 TO PLATE                                     | 0.6  | pf |
| GRID #1 TO CATHODE & GRID #3,<br>HEATER, AND GRID #2 | 13.0 | pf |
| PLATE TO CATHODE & GRID #3,<br>HEATER, AND GRID #2   | 8.5  | pf |

## RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

CLASS A<sub>1</sub> AMPLIFIER

|                                                      |     |         |
|------------------------------------------------------|-----|---------|
| MAXIMUM PEAK HEATER-CATHODE VOLTAGE:                 |     |         |
| HEATER NEGATIVE WITH RESPECT TO CATHODE              | 200 | VOLTS   |
| HEATER POSITIVE WITH RESPECT TO CATHODE <sup>A</sup> | 200 | VOLTS   |
| MAXIMUM PLATE VOLTAGE                                | 150 | VOLTS   |
| MAXIMUM GRID #2 (SCREEN) VOLTAGE                     | 130 | VOLTS   |
| MAXIMUM GRID #1 (CONTROL-GRID) VOLTAGE:              |     |         |
| POSITIVE BIAS VALUE                                  | 0   | VOLTS   |
| MAXIMUM PLATE DISSIPATION                            | 7   | WATTS   |
| MAXIMUM GRID #2 INPUT                                | 1.4 | WATTS   |
| MAXIMUM BULB TEMPERATURE                             |     |         |
| (AT HOTTEST POINT ON BULB SURFACE)                   | 220 | °C      |
| HEATER WARM-UP TIME (AVERAGE)*                       | 11  | SECONDS |

\* 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.

<sup>A</sup> DC COMPONENT MUST NOT EXCEED 100 VOLTS.

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A<sub>1</sub> AMPLIFIER

|                                |        |         |
|--------------------------------|--------|---------|
| PLATE VOLTAGE                  | 120    | VOLTS   |
| GRID #2 VOLTAGE                | 110    | VOLTS   |
| GRID #1 VOLTAGE                | -8     | VOLTS   |
| PEAK AF GRID #1 VOLTAGE        | 8      | VOLTS   |
| ZERO-SIGNAL PLATE CURRENT      | 49     | MA.     |
| MAXIMUM-SIGNAL PLATE CURRENT   | 50     | MA.     |
| ZERO-SIGNAL GRID #2 CURRENT    | 4      | MA.     |
| MAXIMUM-SIGNAL GRID #2 CURRENT | 8.5    | MA.     |
| PLATE RESISTANCE (APPROX.)     | 10 000 | OHMS    |
| TRANSCONDUCTANCE               | 7 500  | μMHOS   |
| LOAD RESISTANCE                | 2 500  | OHMS    |
| TOTAL HARMONIC DISTORTION      | 10     | PERCENT |
| SIGNAL POWER OUTPUT (MAX. )    | 2.3    | WATTS   |

## MAXIMUM CIRCUIT VALUES

|                                   |     |        |
|-----------------------------------|-----|--------|
| GRID #1 CIRCUIT RESISTANCE:       |     |        |
| FOR FIXED-BIAS OPERATION (MAX.)   | 0.1 | MEGOHM |
| FOR CATHODE-BIAS OPERATION (MAX.) | 0.5 | MEGOHM |

