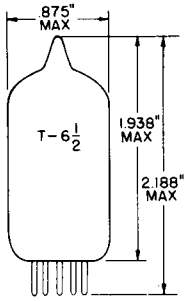
# TUNG-SOL

## DOUBLE TRIODE

MINIATURE TYPE



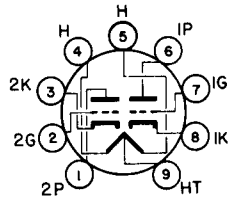

GLASS BULB

SMALL BUTTON MINIATURE
9 PIN BASE E9-1
OUTLINE DRAWING
JEDEC 6-2

COATED UNIPOTENTIAL CATHODE

FOR AUDIO AMPLIFIER OR
COMBINED OSCILLATOR-MIXER
APPLICATIONS

ANY MOUNTING POSITION




BOTTOM VIEW

BASING DIAGRAM
JEDEC 9A

THE 12AZ7A COMBINES TWO INDEPENDENT MEDIUM-MU TRIODES IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS ADAPTABLE FOR APPLICATIONS AS AN AUDIO AMPLIFIER OR AS A COMBINED OSCILLATOR-MIXER IN VHF TELEVISION TUNERS.

### DIRECT INTERELECTRODE CAPACITANCES

| | WITH[A] SHIELD | WITHOUT SHIELD | |
|---|---|---|---|
| GRID TO PLATE: (G TO P) EACH SECTION | 1.9 | 2.0 | pf |
| INPUT: G TO (H+K) EACH SECTION | 2.8 | 2.6 | pf |
| OUTPUT: P TO (H+K) TRIODE 1 | 1.4 | 0.44 | pf |
| OUTPUT: P TO (H+K) TRIODE 2 | 1.6 | 0.36 | pf |

### HEATER CHARACTERISTICS AND RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

| | | | |
|---|---|---|---|
| AVERAGE CHARACTERISTICS | | | |
| HEATER IN SERIES | 12.6 VOLTS | 225 | MA. |
| HEATER IN PARALLEL | 6.3 VOLTS | 450 | MA. |
| HEATER WARM-UP TIME[B] | | 11 | SECONDS |
| HEATER SUPPLY LIMITS: | | | |
| VOLTAGE OPERATION (HEATER IN SERIES) | | 12.6±1.3 | VOLTS |
| CURRENT OPERATION (HEATER IN PARALLEL) | | 450±30 | MA. |
| 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 |

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## MAXIMUM RATINGS

DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

| | | |
|---|---|---|
| PLATE VOLTAGE | 330 | VOLTS |
| NEGATIVE DC GRID VOLTAGE | 55 | VOLTS |
| PLATE DISSIPATION (EACH SECTION) | 2.5 | WATTS |
| TOTAL PLATE DISSIPATION | 5.0 | WATTS |
| GRID CIRCUIT RESISTANCE: | | |
| FIXED BIAS | 0.25 | MEGOHM |
| SELF BIAS | 1.0 | MEGOHM |

## TYPICAL OPERATING CHARACTERISTICS

CLASS A1 AMPLIFIER

| | | | |
|---|---|---|---|
| PLATE VOLTAGE | 100 | 250 | VOLTS |
| CATHODE BIAS RESISTOR | 270 | 200 | OHMS |
| PLATE CURRENT | 3.7 | 10 | MA. |
| TRANSCONDUCTANCE | 4,000 | 5,500 | μMHOS |
| AMPLIFICATION FACTOR | 60 | 60 | |
| PLATE RESISTANCE (APPROX.) | 15,000 | 10,900 | OHMS |
| GRID VOLTAGE (APPROX.) | | | |
| FOR Ib=10μA. PLATE CURRENT | -5 | -12 | VOLTS |

A
WITH EXTERNAL SHIELD 315 CONNECTED TO CATHODE OF SECTION UNDER TEST.

B
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 HEATER OPERATING RESISTANCE.