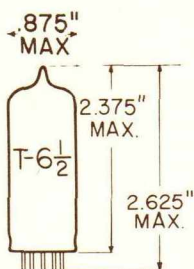


## TUNG-SOL

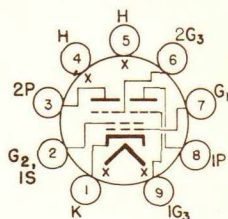
TWIN PENTODE  
MINIATURE TYPE

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

COATED UNIPOTENTIAL CATHODE

HEATER  
3.15 VOLTS 600 $\pm$ 40 MA.  
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW  
BASING DIAGRAM  
JEDEC 9FG

THE 3BU8 IS A MINIATURE MULTISECTION TUBE WHICH INCORPORATES SEPARATE PLATES AND NUMBER 3 GRIDS FOR THE TWO SECTIONS TOGETHER WITH A COMMON SCREEN, NUMBER 1 GRID, AND CATHODE. THE TUBE IS INTENDED FOR USE AS A COMBINED SYNC-AGC TUBE IN TELEVISION RECEIVERS. IN THIS SERVICE, WHEN USED IN CONJUNCTION WITH SUITABLE CIRCUITRY, ONE SECTION OF THE 3BU8 FUNCTIONS AS SYNC SEPARATOR AND SYNC CLIPPER, WHILE THE OTHER SECTION IS USED TO GENERATE THE AUTOMATIC-GAIN-CONTROL VOLTAGE. IN ADDITION, BY UTILIZING THE COMMON, #1 GRID, NOISE PULSES CAN BE SUPPRESSED FROM BOTH SYNCHRONIZING AND AUTOMATIC-GAIN-CONTROL CIRCUITS. 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. EXCEPT FOR HEATER RATINGS THE 3BU8 IS IDENTICAL TO THE 6BU8.

DIRECT INTERELECTRODE CAPACITANCES — APPROX.  
WITHOUT EXTERNAL SHIELD

|                                  |       |    |
|----------------------------------|-------|----|
| GRID #3 TO PLATE, (EACH SECTION) | 1.9   | pf |
| GRID #1 TO ALL                   | 6.0   | pf |
| GRID #3 TO ALL (EACH SECTION)    | 3.6   | pf |
| PLATE TO ALL (EACH SECTION)      | 3.0   | pf |
| GRID #3 (SECTION 1) TO           |       |    |
| GRID #3 (SECTION 2) MAX.         | 0.015 | pf |

## RATINGS

→ DESIGN MAXIMUM VALUES — SEE EIA STANDARD RS-239

|                                                      |      |       |
|------------------------------------------------------|------|-------|
| MAXIMUM PLATE VOLTAGE (EACH SECTION)                 | 300  | VOLTS |
| MAXIMUM SCREEN VOLTAGE                               | 150  | VOLTS |
| MAXIMUM POSITIVE DC GRID #3 VOLTAGE (EACH SECTION)   | 3.0  | VOLTS |
| MAXIMUM NEGATIVE DC GRID #3 VOLTAGE (EACH SECTION)   | 50   | VOLTS |
| MAXIMUM PEAK POSITIVE GRID #3 VOLTAGE (EACH SECTION) | 50   | VOLTS |
| MAXIMUM NEGATIVE DC GRID #1 VOLTAGE                  | 50   | VOLTS |
| MAXIMUM PLATE DISSIPATION (EACH SECTION)             | 1.1  | WATTS |
| MAXIMUM SCREEN DISSIPATION                           | 0.75 | WATTS |
| MAXIMUM DC CATHODE CURRENT                           | 12   | MA.   |

CONTINUED ON FOLLOWING PAGE

→ INDICATES A CHANGE.

## TUNG-SOL

CONTINUED FROM PRECEDING PAGE

## RATINGS — CONT'D

DESIGN MAXIMUM VALUES — SEE EIA STANDARD RS-239

## MAXIMUM HEATER-CATHODE VOLTAGE:

|                                                   |      |         |
|---------------------------------------------------|------|---------|
| HEATER POSITIVE WITH RESPECT TO CATHODE           |      |         |
| DC COMPONENT                                      | 100  | VOLTS   |
| TOTAL DC AND PEAK                                 | 200  | VOLTS   |
| HEATER NEGATIVE WITH RESPECT TO CATHODE           |      |         |
| TOTAL DC AND PEAK                                 | 200  | VOLTS   |
| MAXIMUM GRID #1 CIRCUIT RESISTANCE                | 0.5  | MEGOHMS |
| MAXIMUM GRID #3 CIRCUIT RESISTANCE (EACH SECTION) | 0.5  | MEGOHMS |
| HEATER WARM-UP TIME*                              | 11.0 | SECONDS |

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS  
BOTH SECTIONS OPERATING

|                                |      |      |       |
|--------------------------------|------|------|-------|
| PLATE VOLTAGE (EACH SECTION)   | 100  | 100  | VOLTS |
| SCREEN VOLTAGE                 | 67.5 | 67.5 | VOLTS |
| GRID #3 VOLTAGE (EACH SECTION) | -10  | 0    | VOLTS |
| GRID #1 VOLTAGE                | **   | **   |       |
| PLATE CURRENT (EACH SECTION)   |      | 2.2  | MA.   |
| SCREEN CURRENT                 | 6.5  | 3.3  | MA.   |
| CATHODE CURRENT                | 6.6  | 7.8  | MA.   |

EACH SECTION SEPARATELY <sup>A</sup>

|                                             |       |      |            |
|---------------------------------------------|-------|------|------------|
| PLATE VOLTAGE                               | 100   | 100  | VOLTS      |
| SCREEN VOLTAGE                              | 67.5  | 67.5 | VOLTS      |
| GRID #3 VOLTAGE                             | 0     | 0    | VOLTS      |
| GRID #1 VOLTAGE                             | 0     | **   | VOLTS      |
| GRID #3 TRANSCONDUCTANCE                    | ---   | 180  | $\mu$ MHOS |
| GRID #1 TRANSCONDUCTANCE                    | 1 500 | ---  | $\mu$ MHOS |
| PLATE CURRENT                               | ---   | 2.2  | MA.        |
| GRID #3 VOLTAGE (APPROX.) $I_b=100\mu$ AMPS | ---   | -4.5 | VOLTS      |
| GRID #1 VOLTAGE (APPROX.) $I_b=100\mu$ AMPS | ---   | 2.3  | VOLTS      |

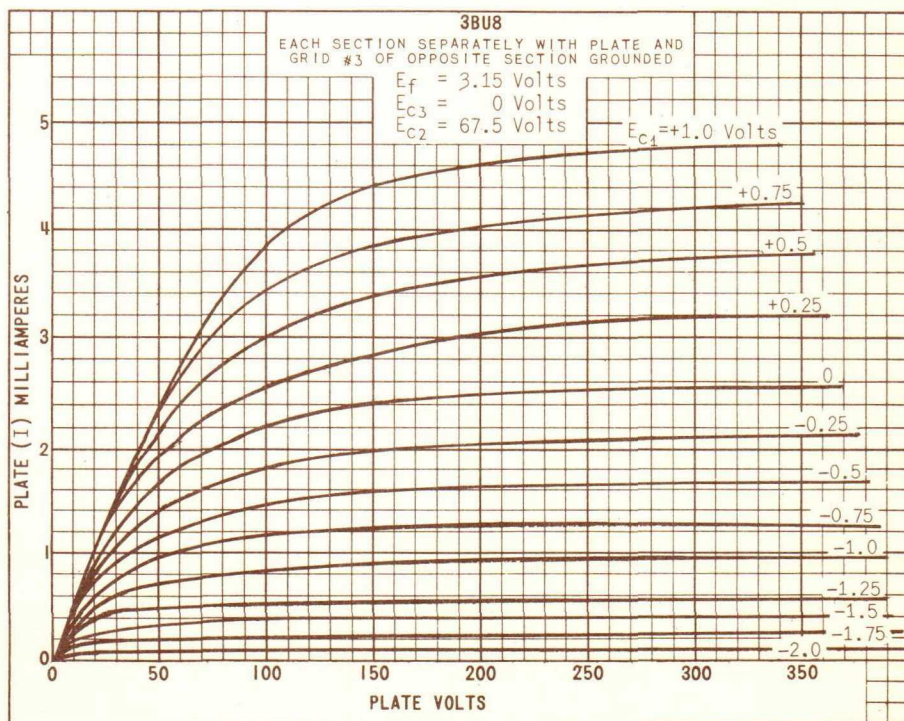
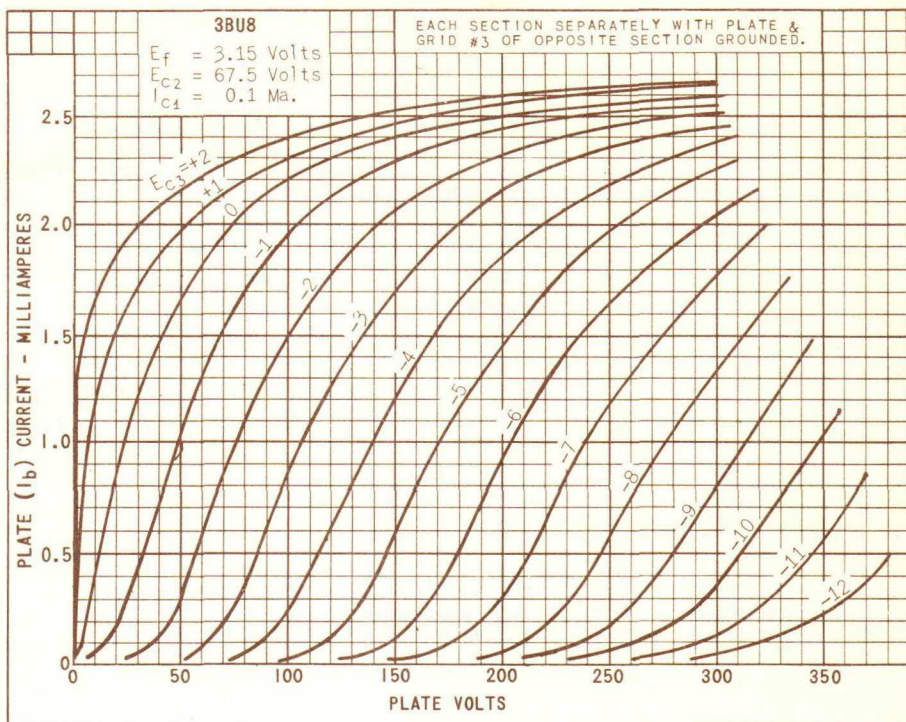
\* HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

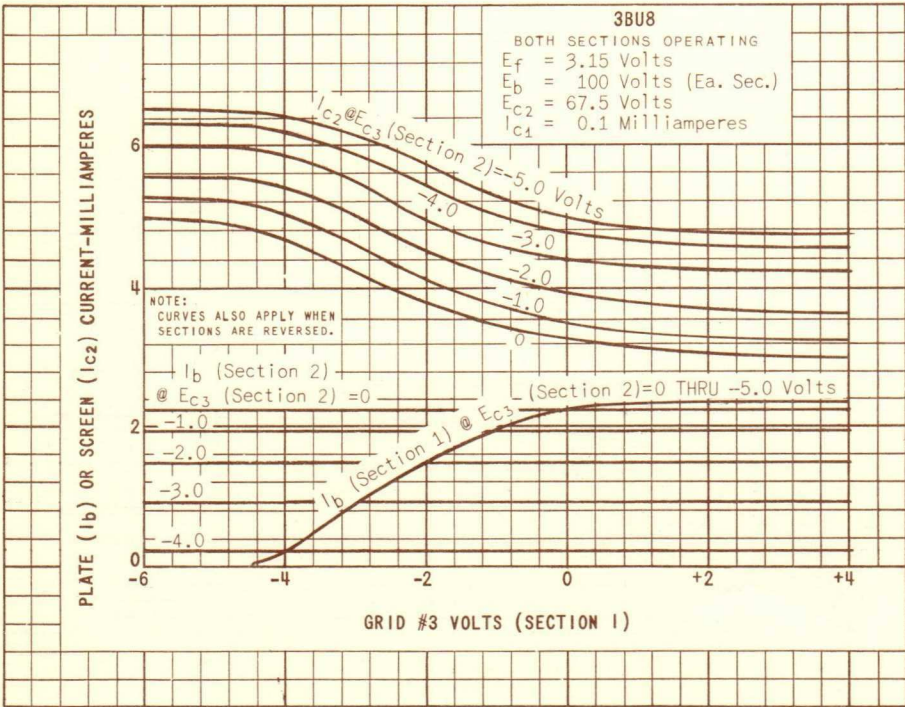
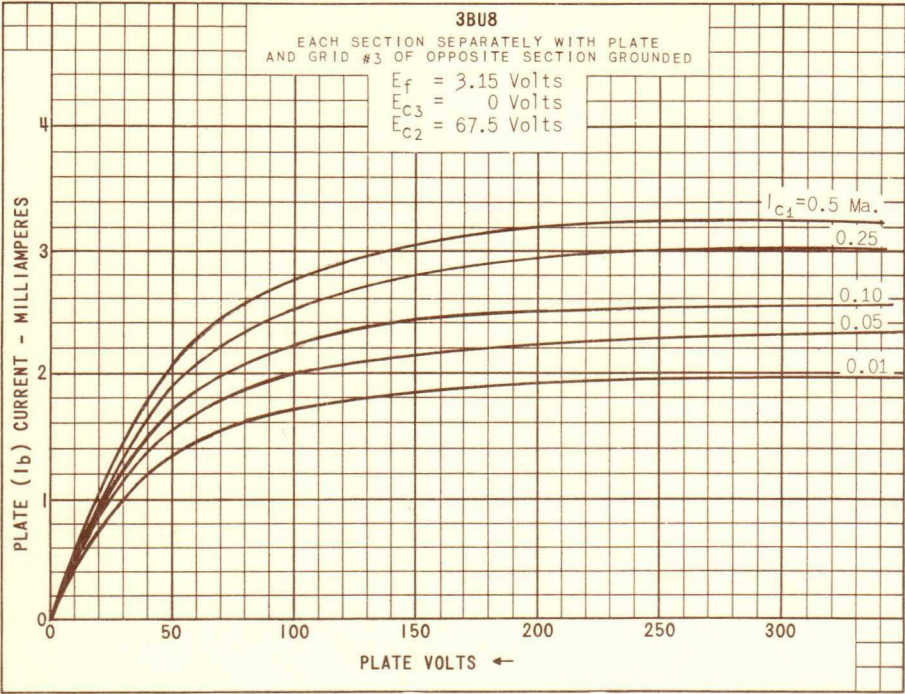
\*\* WITH GRID CURRENT ADJUSTED FOR 100  $\mu$ AMPS D-C.

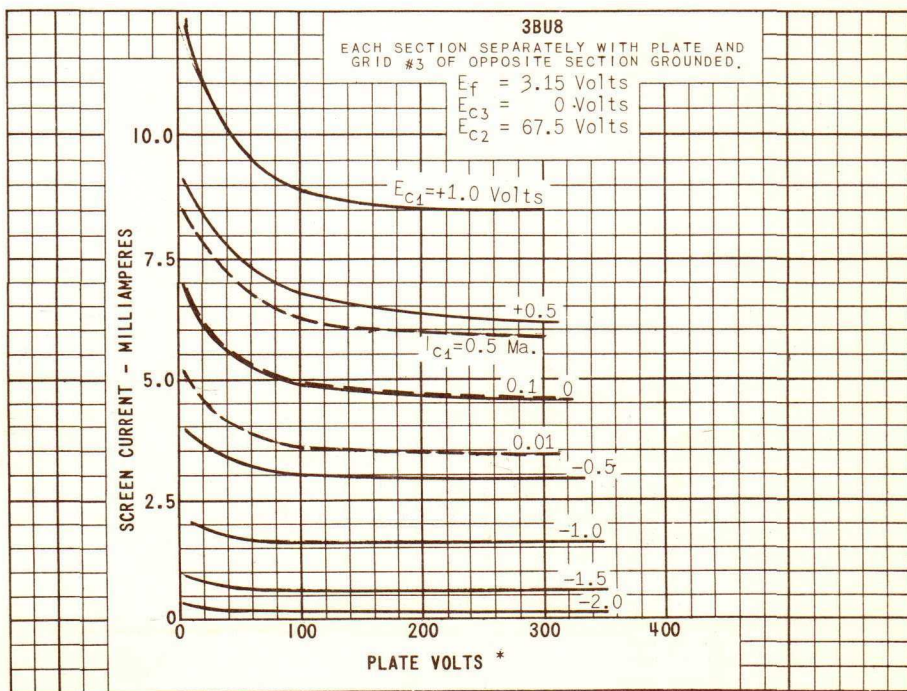
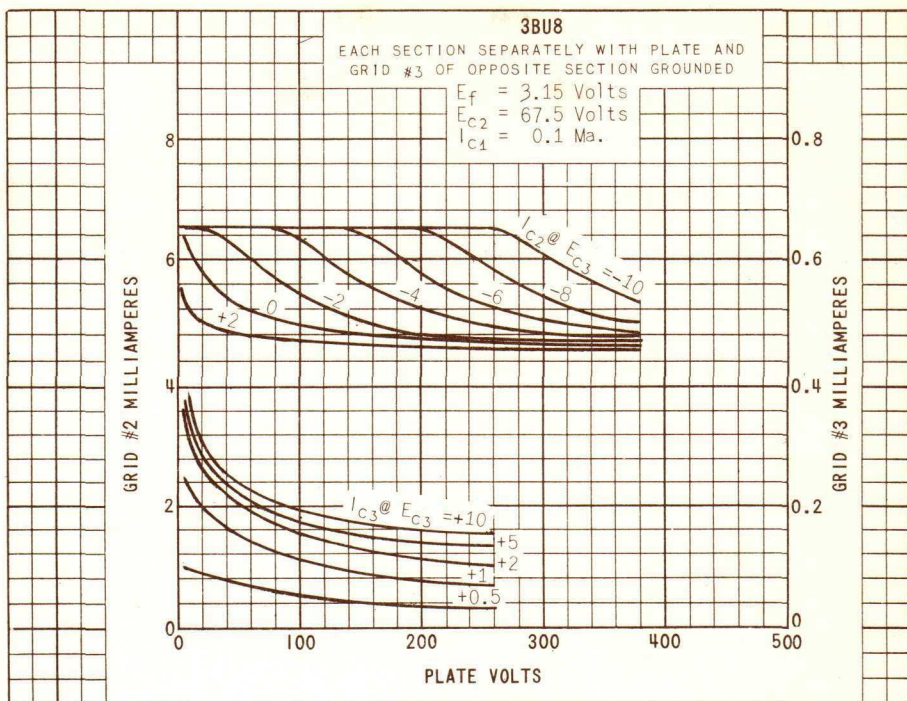
<sup>A</sup> WITH PLATE AND GRID #3 OF OPPOSITE SECTION GROUNDED.

DESIGN-MAXIMUM RATINGS ARE THE LIMITING VALUES EXPRESSED WITH RESPECT TO BOGIE TUBES AT WHICH SATISFACTORY TUBE LIFE CAN BE EXPECTED TO OCCUR. TO OBTAIN SATISFACTORY CIRCUIT PERFORMANCE, THEREFORE, THE EQUIPMENT DESIGNER MUST ESTABLISH THE CIRCUIT DESIGN SO THAT NO DESIGN-MAXIMUM VALUE IS EXCEEDED WITH A BOGIE TUBE UNDER THE WORST PROBABLE OPERATING CONDITIONS WITH RESPECT TO SUPPLY-VOLTAGE VARIATION, EQUIPMENT COMPONENT VARIATION, EQUIPMENT CONTROL ADJUSTMENT, LOAD VARIATION, AND ENVIRONMENTAL CONDITIONS.

SIMILAR TYPE REFERENCE: Except for heater ratings and heater warm-up time the 3BU8 is identical to the 6BU8.

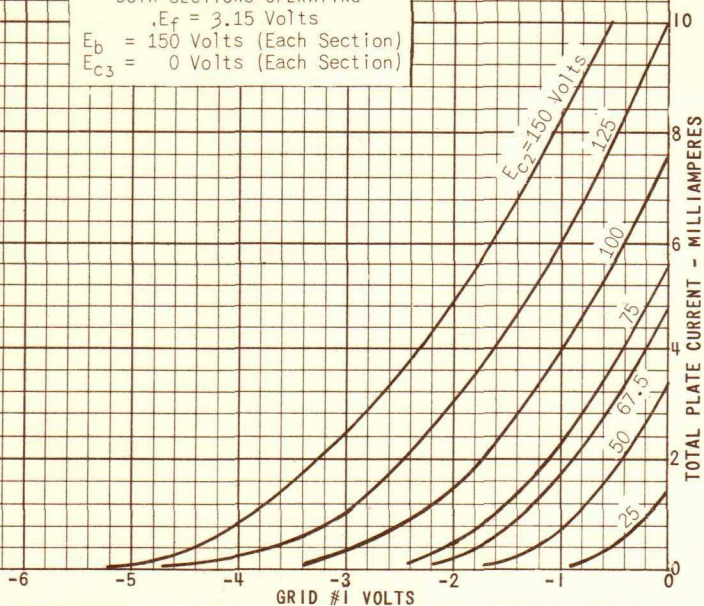






## 3BU8

BOTH SECTIONS OPERATING

 $E_f = 3.15$  Volts $E_b = 150$  Volts (Each Section) $E_{c3} = 0$  Volts (Each Section)

## 3BU8

BOTH SECTIONS OPERATING

 $E_f = 3.15$  Volts $E_b = 150$  Volts $E_{c1} = 0.1$  Milliamperes