TUNG-SOL
TRIODE PENTODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
FOR APPLICATION IN FM OR TV RECEIVERS ANY MOUNTING POSITION

GLASS BULB
MINIATURE BUTTON
9 PIN BASE 9B-1
OUTLINE DRAWING JEDEC 6-2

THE 6U8A COMBINES TWO ELECTRICALLY INDEPENDENT SECTIONS: A TRIODE AND A PENTODE IN THE 9 PIN MINIATURE CONSTRUCTION. BOTH UNITS ARE CAPABLE OF GOOD PERFORMANCE AT THE HIGH FREQUENCIES. THE TUBE MAY BE USED AS A LOCAL OSCILLATOR-PENTODE MIXER IN FM OR TELEVISION RECEIVERS OR IN THE MANY COMBINED FUNCTIONS OF SUCH RECEIVERS. 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
WITH SHIELD A WITHOUT SHIELD
PENTODE GRID 1 TO PENTODE PLATE; (PG1 TO PP) MAX. 0.007 0.015 pf
PENTODE INPUT; PG1 TO (H+PK+PG2+PG3+I.S.) 5.0 5.0 pf
PENTODE OUTPUT; PP TO (H+PK+PG2+PG3+I.S.) 3.5 2.6 pf
PENTODE CATHODE TO HEATER; H TO (PK+PG3+I.S.) 3.0B 3.0 pf
TRIODE GRID TO TRIODE PLATE; (TG TO TP) 1.8 1.8 pf
TRIODE INPUT; TG TO (TK+H+PK+PG3+I.S.) 2.8 2.8 pf
TRIODE OUTPUT; TP TO (TK+H+PK+PG3+I.S.) 2.0 1.5 pf
TRIODE CATHODE TO HEATER; (TK TO H) 3.0B 3.0 pf
PENTODE GRID TO TRIODE PLATE (PG TO TP) (MAX.) 0.20 0.2 pf
PENTODE PLATE TO TRIODE PLATE (PP TO TP) (MAX.) 0.02 0.1 pf

HEATER CHARACTERISTICS AND RATINGS
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS 6.3 VOLTS 450 MA.
HEATER WARM-UP TIME 11 SECONDS
HEATER SUPPLY LIMITS:
CURRENT OPERATION 450±30 MA.
VOLTAGE OPERATION 6.3±0.6 VOLTS
MAXIMUM HEATER CATHODE VOLTAGE; (EACH UNIT) 200 VOLTS
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
CONTINUED FROM PRECEDING PAGE

MAXIMUM RATINGS
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

PENTODE PLATE VOLTAGE 330 VOLTS
TRIODE PLATE VOLTAGE 330 VOLTS
GRID 2 SUPPLY VOLTAGE 330 VOLTS
GRID 2 VOLTAGE SEE RATING CHART
PENTODE PLATE DISSIPATION 3.0 WATTS
GRID 2 DISSIPATION: *
FOR VOLTAGES UP TO 165 VOLTS 0.55 WATTS
FOR VOLTAGES BETWEEN 165 & 330 VOLTS SEE RATING CHART
POSITIVE DC GRID 1 VOLTAGE 0 VOLTS
POSITIVE DC TRIODE GRID VOLTAGE 0 VOLTS
TRIODE PLATE DISSIPATION 2.5 WATTS
PENTODE GRID 1 CIRCUIT RESISTANCE: *
WITH CATHODE BIAS 1.0 MEGOHM
WITH FIXED BIAS 0.5 MEGOHM

TYPICAL OPERATING CHARACTERISTICS
CLASS A 1 AMPLIFIER

<table>
<thead>
<tr>
<th>TRIODE</th>
<th>PENTODE</th>
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<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>125</td>
</tr>
<tr>
<td>GRID 2 VOLTAGE</td>
<td>-1.0</td>
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<tr>
<td>GRID 1 VOLTAGE</td>
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<tr>
<td>TRANSCONDUCTANCE</td>
<td>7500</td>
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<tr>
<td>PLATE CURRENT</td>
<td>13.5</td>
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<tr>
<td>GRID 2 CURRENT</td>
<td>-1.0</td>
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<tr>
<td>PLATE RESISTANCE (APPROX.)</td>
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<tr>
<td>AMPLIFICATION FACTOR</td>
<td>40</td>
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<tr>
<td>GRID 1 VOLTAGE (APPROX.) FOR IB = 20 μA</td>
<td>-8</td>
</tr>
<tr>
<td>ZERO BIAS TRANSCONDUCTANCE (WITH Eb = 100 V; Ec2 = 70 V)*</td>
<td>5500</td>
</tr>
</tbody>
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A EXTERNAL SHIELD 315 CONNECTED TO PIN 4.
B EXTERNAL SHIELD 315 CONNECTED TO PIN 6.
C 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 THREE TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

→ INDICATES A CHANGE.
* INDICATES AN ADDITION.
6U8A

PENTODE UNIT
MIXER CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3 \text{ Volts}$
$E_b = E_{c2} = 150 \text{ Volts DC}$
$E_{c3} = 0 \text{ Volts}$
$R_{c1} = 270,000 \text{ Ohms}$

$\dot{I}_b$
$\dot{I}_{c2}$
$\dot{q}_c$

Conversion Transconducance ($q_c$) - microhensels

Plate ($I_b$) or Grid #2 ($I_{c2}$) milliamperes

Grid #1 DC Supply Volts

TUNG-SOL ELECTRIC INC., ELECTRON TUBE DIVISION, BLOOMFIELD, NEW JERSEY, U.S.A., NOVEMBER 1, 1962 PLATE 6611
6U8A

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$lb$
$ic_2$
$gc$

PLATE $I_b$ OR GRID #2 ($I_{C2}$) MILLIAMPERES
CONVERTED TRANSCONDUCTANCE ($g_c$) - MICROHMS

$E_{C2} = 150$

GRID #1 OSCILLATOR RMS VOLTS

17.5 1750
15.0 1500
12.5 1250
10.0 1000
7.5 750
5.0 500
2.5 250
0 0
6U8A Rating Chart

Screen grid input expressed as percent of max. screen grid input rating

Screen grid voltage expressed as percent of max. screen grid supply voltage rating