TETRODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE

HEATER
12.6 VOLTS 0.40 AMP.
AC OR DC
ANY MOUNTING POSITION

CLASS BULB
*MINIATURE BUTTON
9 PIN BASE 7D-3
OUTLINE DRAWING
JEDEC 5-3

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 4.50 VOLTS

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS
CLASS A1 AMPLIFIER - SINGLE TUBE

PLATE VOLTAGE 12.6 VOLTS
GRID #2 (CONTROL GRID) VOLTAGE 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 7.2
TRANSCONDUCTANCE 15000 μMhos

*INDICATES AN ADDITION.

CONTINUED ON FOLLOWING PAGE
## TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS - CONT'D.

**TYPICAL OPERATION**

**CLASS A\textsubscript{1} AMPLIFIER - SINGLE TUBE**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>12.6 Volts</td>
</tr>
<tr>
<td>Plate Voltage</td>
<td>12.6 Volts</td>
</tr>
<tr>
<td>Grid #2 (Control Grid) Voltage\textsuperscript{0}</td>
<td>-2.0 Volts</td>
</tr>
<tr>
<td>Grid #1 (Space-Charge Grid) Voltage</td>
<td>12.6 Volts</td>
</tr>
<tr>
<td>Peak Af Grid #2 Voltage</td>
<td>2.5 Volts</td>
</tr>
<tr>
<td>Af Signal Source Resistance</td>
<td>100 000 Ohms</td>
</tr>
<tr>
<td>Load Resistance</td>
<td>800 Ohms</td>
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<tr>
<td>Plate Current</td>
<td>8.0 MA</td>
</tr>
<tr>
<td>Grid #1 (Space-Charge Grid) Current</td>
<td>75 MA</td>
</tr>
<tr>
<td>Total Harmonic Distortion (Max.)</td>
<td>10 Percent</td>
</tr>
<tr>
<td>Power Output</td>
<td>40 MW</td>
</tr>
</tbody>
</table>

\textsuperscript{0}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.

\textsuperscript{1}Average contact potential developed across a 2.2 megohm resistor.

\textsuperscript{2}From grid \#2 to plate

\textsuperscript{3}Obtained across a 2.2 meg. resistor by grid \#2 rectification in which case the zero signal plate current is approximately 40 MA.