1S5
Description and Rating
DIODE-PENTODE

GENERAL DESCRIPTION
Principal Application: The 1S5 is a miniature tube containing a diode and a sharp-cutoff pentode. It is designed for use as a combined detector and audio-frequency voltage amplifier in compact battery-operated equipment.

Cathode: Coated Filament
Filament Voltage (D-C) 1.4 Volts
Filament Current 0.05 Ampere
Envelope: T-5½, Glass
Base: E7-1, Miniature Button 7-Pin
Mounting Position: Any
Direct Inter-electrode Capacitance: Diode Plate to Grid I (Max) 0.1 µf

PHYSICAL DIMENSIONS

TERMINAL CONNECTIONS
Pin 1 - Negative Filament and Grid Number 3
Pin 2 - No Connection
Pin 3 - Diode Plate *
Pin 4 - Grid Number 2 (Screen)
Pin 5 - Plate
Pin 6 - Grid Number 1
Pin 7 - Positive Filament

BASING DIAGRAM

RTMA 5-2

MAXIMUM RATINGS

DESIGN CENTER VALUES:
Plate Voltage 90 Volts
Screen Voltage 90 Volts
Positive D-C Grid Number 1 Voltage 0 Volts
Negative D-C Grid Number 1 Voltage -50 Volts
Total Cathode Current 3 Milliamperes
Diode Current for Continuous Operation 0.25 Milliamperes

CLASS A1 AMPLIFIER
Plate Voltage 67.5 Volts
Screen Voltage 67.5 Volts
Grid Number 1 Voltage 0 Volts
Plate Resistance (Approx) 0.6 Megohm
Transconductance 625 Micromhos
Plate Current 1.6 Milliamperes
Screen Current 0.4 Milliamperes
Grid Number 1 Voltage (Approx) for I b = 10 Microamperes -5 Volts

AVerage Diode Current:
Measured with 10 Volts D-C Applied 1.5 Milliamperes

* With or without external shield #316 connected to pin 1
* The diode is located at the negative end of the filament

CHARACTERISTICS AND TYPICAL OPERATION

Supersedes EF-1231A dated 6-46
### CLASS A RESISTANCE-COUPLED AMPLIFIER

<table>
<thead>
<tr>
<th>Rp (Meg.)</th>
<th>Rs (Meg.)</th>
<th>Ebb = 45 Volts</th>
<th>Ebb = 90 Volts</th>
<th>Ebb = 135 Volts</th>
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<td>0.24</td>
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<td>10</td>
<td>0.5</td>
<td>18</td>
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<tr>
<td>0.24</td>
<td>0.51</td>
<td>10</td>
<td>0.5</td>
<td>24</td>
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<tr>
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<td>10</td>
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<td>10</td>
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<td>10</td>
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<tr>
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<td>10</td>
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</table>

Notes: 1. Eo is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias design, generator impedance is negligible.

### AVERAGE PLATE CHARACTERISTICS

**PENTODE CONNECTION**

- Eeq = 115 VOLTS DC
- Eeq = 67.5 Volts

**Plate Current in Milliamperes**
- 0.2
- 0.4
- 0.6
- 0.8
- 1.0
- 1.2
- 1.4
- 1.6
- 1.8

**Plate Voltage in Volts**
- 0
- 50
- 100
- 150
- 200

Note: Coupling capacitors (C) should be adjusted to give desired frequency response. Rs and Rg should be adequately bypassed.