Type 6678/6U8 is designed specifically for use in mobile communications equipment. The 6678/6U8 may be operated without serious degradation under normal variations in supply voltage as encountered with automotive electrical systems. Also consistent with the requirements of the equipment the tube is capable of withstanding appreciable on-off cycling.

**MECHANICAL DATA**
- Bulb: T-6½
- Base: E9-1, Small Button 9-Pin
- Outline: 6-2
- Basing: 9AE
- Cathode: Coated Unipotential
- Mounting Position: Any

**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**
- Heater Voltage\(^1\) .................. 6.3 Volts
- Heater Current .................. 450 Ma
- Heater-Cathode Voltage (Design Maximum Values)
- heater Negative with respect to Cathode
  - Total DC and Peak .................. 200 Volts Max.
- heater Positive with respect to Cathode
  - Total DC and Peak .................. 200 Volts Max.

**DIRECT INTERELECTRODE CAPACITANCES**
- Grid No. 1 to Plate .................. 0.006 Shielded 0.01 \(\mu\)F Max.
- Input: \(E_g\) to (h+k+g2+g3+1.S.) ........ 5.0 Shielded 5.0 \(\mu\)F
- Output: \(E_p\) to (h+k+g2+g3+1.S.) ...... 3.5 Shielded 2.6 \(\mu\)F
- Cathode to Heater .................. 3.0 Shielded 3.0 \(\mu\)F
- Grid to Plate .................. 1.8 Unshielded 1.8 \(\mu\)F
- Input: \(E_g\) to (h+Pk+Tk+g3+1.S.) ...... 2.5 Unshielded 2.5 \(\mu\)F
- Output: \(E_p\) to (h+Pk+Tk+g3+1.S.) ...... 1.0 Unshielded 0.4 \(\mu\)F
- Cathode to Heater .................. 3.0 Unshielded 3.0 \(\mu\)F
- Coupling
  - Pentode Grid No. 1 to Triode Plate .................. 0.2 Unshielded 0.2 \(\mu\)F Max.
  - Pentode Plate to Triode Plate .................. 0.02 Unshielded 0.1 \(\mu\)F Max.

**RATINGS (Design Maximum System)**
- Plate Voltage .................. 330 Triode Section
- Grid No. 2 Supply Voltage ........ 330 Pentode Section
- Grid No. 2 Voltage .................. See Rating Chart
- Positive DC Grid No. 1 Voltage ........ 0 Volts Max.
- Plate Dissipation .................. 3.0 Watts Max.
- Grid No. 2 Dissipation ........ 0.55 Watt Max.

**CHARACTERISTICS AND TYPICAL OPERATION**
- Plate Voltage .................. 150 Triode Section
- Grid No. 2 Voltage ........ 250 Volts Pentode Section
- Cathode Bias Resistor ........ 110 Volts
- Plate Current .................. 68 Ohms
- Grid No. 2 Current ........ 10 Ma
- Transconductance ........ 3.5 Ma
- Amplification Factor ........ 5200 \(\mu\)hos
- Plate Resistance (Approx.) ........ 5000 \(\mu\)h 400K Ohms
- Ecl for \(I_b = 10 \mu\)A (Approx.) ...... −10 Volts −12 Volts

SYLVANIA
ELECTRONIC TUBES
A Division of Sylvania Electric Products Inc.

RECEIVING TUBE OPERATIONS
EMPORIUM, PA.

Prepared and Released By The TECHNICAL PUBLICATIONS SECTION EMPORIUM, PENNSYLVANIA AUGUST, 1960
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SPECIAL TESTS AND RATINGS

Heater Cycling Ratings
Cycles of Intermittent Operation (Minimum) .................. 2000 Cycles
Ef = 7.5 volts cycled for one minute on and one minute off.
Eb + Ec2 + Ec1 = 0 volts.
Ehk = 135 volts with heater positive with respect to cathode.

Average Transconductance at Reduced Heater Voltage
Pentode Section ................................................. 4100 \( \mu \)mhos
Ef = 5.0 volts, Eb = 250 volts, Ec2 = 110 volts,
Rk = 68 ohms (bypassed)

Average Transconductance at Reduced Heater Voltage
Triode Section ................................................. 6800 \( \mu \)mhos
Ef = 5.0 volts, Eb = 150 volts,
Rk = 56 ohms (bypassed)

NOTE:
1. When operated from automotive electrical systems, the heater may be subjected to voltage variations as great as ±20 percent. Although such extremes in heater voltage may be tolerated for short periods, increased equipment reliability can be achieved with improved supply-voltage regulation.

RATING CHART

GRID NO. 2 VOLTAGE EXPRESSED AS PERCENT
OF MAX GRID NO. 2 SUPPLY VOLTAGE RATING

GRID NO. 2 DISSIPATION EXPRESSED AS PERCENT
OF MAX GRID NO. 2 DISSIPATION RATING
AVERAGE PLATE CHARACTERISTICS
(Triode Section)

AVERAGE TRANSFER CHARACTERISTICS
(Triode Section)
AVERAGE TRANSFER CHARACTERISTICS
(Triode Section)

AMPLIFICATION FACTOR (μ)

PLATE RESISTANCE (rp) IN OHMS

TRANSCONDUCTANCE (gm) IN MICROMHOS

PLATE CURRENT IN MILLIAMPERES

Ef = RATED VALUE
AVERAGE PLATE CHARACTERISTICS
(Pentode Section)
AVERAGE TRANSFER CHARACTERISTICS
(Pentode Section)

\[ E_f = \text{RATED VALUE} \]
\[ E_b = 150 \text{ Vdc} \]
\[ E_{C2} = 150 \text{ Vdc} \]
\[ E_{C3} = 0 \text{ Vdc} \]
\[ R_{gi} = 270,000 \text{ OHMS} \]
SEPARATE EXCITATION

\[ E_{C1} = 2 \text{ VOLTS} \]
\[ E_{C1} = 3 \text{ VOLTS} \]
\[ I_b \]
\[ I_{C2} \]

PLATE AND GRID NO. 2 MA

CONVERSION TRANSCONDUCANCE (g_o) - MICROHIGS

GRID NO. 1 OSCILLATOR RMS VOLTS