6BW8

DUPLEX-DIODE PENTODE

DESCRIPTION AND RATING

The 6BW8 is a duplex-diode sharp-cutoff pentode in which separate cathodes are provided for the diode and pentode sections. The diode sections are primarily intended for use as a horizontal phase detector in television receivers. The pentode section is suitable for use as a sound intermediate-frequency amplifier, sound limiter, and automatic-gain-control keyer.

GENERAL

ELECTRICAL
Cathode—Coated Unipotential
Heater Voltage, AC or DC ........................................ 6.3 ±10% Volts
Heater Current .......................................................... 0.45 Amperes
Direct Inter-electrode Capacitances*
Pentode Grid-Number 1 to Plate, maximum .................. 0.020 μf
Pentode Input ............................................................ 4.8 μf
Pentode Output ......................................................... 2.6 μf
Grid-Number 1 to Each Diode Plate, maximum ............... 0.006 μf
Diode-Number 1 Plate to Diode Cathode and Heater ........ 1.3 μf
Diode-Number 2 Plate to Diode Cathode and Heater ........ 1.2 μf

MECHANICAL
Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin
* Without external shield.

MAXIMUM RATINGS
DESIGN-MAXIMUM VALUES
Plate Voltage .......................................................... 330 Volts
Screen-Supply Voltage ............................................. 330 Volts
Screen Voltage—See Screen Rating Chart
Positive DC Grid-Number 1 Voltage ............................ 0 Volts
Negative DC Grid-Number 1 Voltage ....................... 55 Volts
Plate Dissipation ..................................................... 3.0 Watts
Screen Dissipation ................................................ 0.55 Watts
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
Grid-Number 1 Circuit Resistance
With Fixed Bias .................................................. 0.1 Megohms
With Cathode Bias ............................................. 0.5 Megohms
Diode Current for Continuous Operation, Each Diode ........ 5.0 Milliamperes

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life 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.
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage .................................................. 250 Volts
Screen Voltage .................................................. 110 Volts
Cathode-Bias Resistor ....................................... 68 Ohms
Plate Resistance, approximate ......................... 0.25 Megohms
Transconductance ........................................ 5200 Micromhos
Plate Current .................................................. 10 Milliamperes
Screen Current ............................................... 3.5 Milliamperes
Grid-Number 1 Voltage, approximate
Ib = 10 Microamperes ....................................... -10 Volts
Average Diode Current, Each Diode
With 5 Volts DC Applied .................................. 20 Milliamperes

SCREEN RATING CHART

[Graph showing permissible operation area]
AVG. TRANSFER CHARACTERISTICS
PENTODE SECTION

$E_f = \text{RATED VALUE}$
$E_b = 250 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS
-10 -8 -6 -4 -2 0

PLATE CURRENT IN MILLIAMPERES
0 2 4 6 8 10 12 14

AVG. TRANSFER CHARACTERISTICS
PENTODE SECTION

$E_f = \text{RATED VALUE}$
$E_b = 250 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS
-10 -8 -6 -4 -2 0

SCREEN CURRENT IN MILLIAMPERES
0 1 2 3 4 5 6 7