



ELECTRONIC TUBE REFERENCE

5BT8

Voltage - Pentode or Tetrode (with diode) electronic tube

CONSOLIDATED TECHNICAL DATA

3 SECTIONS

CONSTRUCTION

DIODE-DIODE-PENTODE

Indirectly heated double-diode, sharp-cutoff pentode designed for television AFC and detector circuits, IF and video amplification, and automatic gain control. Features a 4.7 V, 600 mA controlled-warm-up heater suitable for series-string operation.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	4.7 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Diode

No fixed ratings recorded.

First physical diode in the Sylvania 5BT8 double-diode and sharp-cutoff pentode, used in television AFC/detector applications. Published unshielded diode capacitances (each diode): plate to heater/cathode 1.3 pF; cathode to heater/plate 3.0 pF. Average diode current 8.0 mA at 10 V DC applied is a typical characteristic, not a maximum cathode-current rating. Pentode-to-diode coupling capacitances also specified: pentode grid-1 to diode plate 0.005 pF; pentode plate to diode plate 0.020 pF. Separate physical diode section; no maximum ratings inferred from operating point.

SECTION2 Diode

No fixed ratings recorded.

Second physical diode in the Sylvania 5BT8 double-diode and sharp-cutoff pentode, used in television AFC/detector applications. Published unshielded diode capacitances (each diode): plate to heater/cathode 1.3 pF; cathode to heater/plate 3.0 pF. Average diode current 8.0 mA with 10 V DC applied is a typical characteristic, not a maximum cathode-current rating. Pentode grid-1 to diode plate coupling 0.005 pF and pentode plate to diode plate coupling 0.020 pF. This is a distinct physical diode section; no independent maximum rating is inferred.

SECTION3 Pentode

PLATE RESISTANCE	300000 Ω
TRANSCONDUCTANCE	0.0062 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.5 W

Sylvania 5BT8 indirectly heated sharp-cutoff pentode plus two physical diodes. Pentode service: IF, video, AGC amplification or reactance tube in television receivers; double diodes serve AFC and detector functions. Heater 4.7 V 600 mA with approximately 11-second controlled warm-up suitable for series-string operation. Small-button nine-pin miniature base E9-1, manufacturer basing 9FE (parent general socket family B9A). Manufacturer design-center maximum plate voltage 300 V, plate dissipation 2.0 W, grid-2 input 0.5 W. Grid-2 SUPPLY maximum 300 V does not establish an unrestricted screen-electrode maximum: grid-2 voltage subject to separate rating chart, so max_screen_voltage retained NULL. Typical pentode operating conditions at V_a 200 V, grid-2 150 V, cathode resistor 180 ohms: I_a 9.5 mA, I_{g2} 2.8 mA, transconductance 6200 μ mhos (0.0062 S), plate resistance about 300 k Ω , approximate cutoff bias -8 V. Published unshielded pentode capacitances grid-1 to plate max 0.04 pF, input 7.0 pF, output 2.3 pF; each diode plate-to-(heater+cathode) 1.3 pF, cathode-to-(heater+plate) 3.0 pF; cross-section coupling pentode grid-1 to diode plate 0.005 pF, pentode plate to diode plate 0.020 pF. Typical values not promoted as maximums.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1970 Sylvania Technical Manual

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1970 SYLVANIA TECHNICAL MANUAL

Section 3 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	200 V	—
Screen Voltage	125 V	—

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