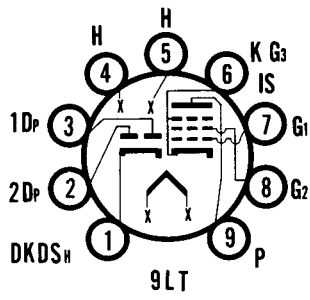
SYLVANIA TYPES 6ET7 8ET7

DUO DIODE PENTODE



MECHANICAL DATA

Bulb	T-6½
Base	E9-1, Small Button 9-Pin
Outline	6-3
Basing	9LT
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

	6ET7	8ET7
Heater Voltage	6.3	8.0 Volts
Heater Current	750	600 Ma
Maximum Heater Current Range		560-640 Ma
Heater Warm-up Time[1]		11 Seconds
Heater-Cathode Voltage (Design Maximum Values)		
Heater Negative with Respect to Cathode		
Total D C and Peak		200 Volts Max.
Heater Positive with Respect to Cathode		
D C		100 Volts Max.
Total D C and Peak		200 Volts Max.

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Pentode Section	
Grid No. 1 to Plate	0.1 μμf Max.
Input: g1 to (h+Pk,g3,I.S.+g2+Dk,DSh)	10 μμf
Output: p to (h+Pk,g3,I.S.,g2+Dk,DSh)	4.2 μμf
Diode Section (Each Diode)	
Diode Plate to (h+Dk,Dsh+Pk,g3,I.S.)	1.5 μμf
Diode Cathode; Diode Shield to (h+Dp+Pk,g3,I.S.)	7.5 μμf
Coupling	
Pentode Grid No. 1 to Diode Plate (Each Diode)	.005 μμf Max.
Pentode Plate to Diode Plate (Each Diode)	.02 μμf Max.

RATINGS (Design Maximum Values)[2]

Plate Voltage	330 Volts Max.
Grid No. 2 Supply Voltage	330 Volts Max.
Grid No. 2 Voltage	See Rating Chart
Positive Grid No. 1 Voltage	0 Volts Max.
Plate Dissipation	5.0 Watts Max.
Grid No. 2 Dissipation	1.1 Watts Max.
Grid No. 1 Circuit Resistance	
Cathode Bias	0.25 Megohms Max.
Fixed Bias	0.1 Megohms Max.

CHARACTERISTICS AND TYPICAL OPERATION

Pentode—Class A1 Amplifier	
Plate Voltage	200 Volts
Grid No. 2 Voltage	150 Volts
Cathode Bias Resistor	100 Ohms
Plate Current	25 Ma
Grid No. 2 Current	5.5 Ma
Transconductance	11,500 μmhos
Plate Resistance (approx.)	60,000 Ohms
Ec1 for Ib = 100 μa (approx.)	−10 Volts
Average Diode Current with 10 Volts D C Applied (Each Diode)	1.5 Ma

Instantaneous Plate Knee Values

Eb = 60 V, Ec2 = 150, and Ec1 = 0 V;
Ib = 55 Ma and Ic2 = 18 Ma

NOTES:

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

2. Design-Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey electron device of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.
The device manufacturer chooses these values to provide acceptable serviceability of the device, taking responsibility for the effects of changes in operating conditions due to variations in device characteristics.
The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey device under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variations, and environmental conditions.

APPLICATION

The Type 8ET7 is a duo-diode sharp-cutoff pentode. The diode and pentode units are provided with separate cathodes. The pentode unit is intended for use as a video amplifier, while the diodes are essentially intended for use as a horizontal phase detector in television receivers.