

HIGH-TRANSCONDUCTANCE PENTODE TYPES 12BY7 AND 12BY7-A

The 12BY7 and 12BY7-A are high-transconductance pentode types designed for service as video amplifiers. These types are capable of supplying large output voltages across low values of load resistance with low supply voltages.

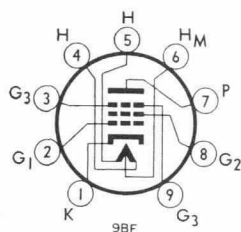
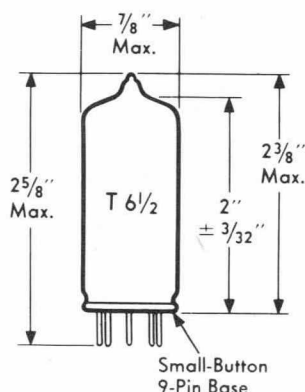
The 12BY7-A has been designed for use in receivers which employ series-connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When it is employed in this type of circuit with other tubes having a heater current rating of 600 ma., heater voltage surges across individual tubes are minimized inasmuch as the heater warm-up characteristic is controlled.

ELECTRICAL:

Cathode	Coated Unipotential		
Heater:	Series	Parallel	
Voltage	12.6	6.3	Volts
Current	0.3	0.6	Ampere
Warm-up Time (Approx.) [⊕]	--	11	Seconds
Direct Interelectrode Capacitances (Unshielded):			
Grid to Plate	0.063		$\mu\mu\text{f}$
Input	10.2		$\mu\mu\text{f}$
Output	3.5		$\mu\mu\text{f}$

MECHANICAL:

Bulb	T-6½
Base	Miniature 9-pin (JEDEC E9-1)
Outline	6-3
Basing	9BF
Mounting Position	Any



DESIGN-CENTER VALUES

Plate Voltage	300	max.	Volts
Screen Voltage	180	max.	Volts
Plate Dissipation	6.5	max.	Watts
Screen Dissipation	1.1	max.	Watt
Control Grid Resistance:			
Fixed Bias	.25	max.	Megohm
Cathode Bias	1.0	max.	Megohm
Control Grid Voltage:			
Negative	50	max.	Volts
Positive	0	max.	Volts
Heater-Cathode Voltage			
Heater Negative with Respect to Cathode			
Total DC + Peak	200	200	max. Volts
Heater Positive with Respect to Cathode			
DC Component	100	100	max. Volts
DC + Peak	200	200	max. Volts

CHARACTERISTICS AND TYPICAL OPERATION

Plate Voltage	250	Volts
Screen Voltage	180	Volts
Cathode Bias Resistor	100	Ohms
Transconductance	11000	μmhos
Plate Resistance	93000	Ohms
Grid 1 Cutoff Voltage [⊕]	-11.6	Volts
Plate Current	26	Ma.
Screen Current	5.75	Ma.
Amplification Factor (Triode Connected)	28.5	
Amplification Factor	1035	

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

⊕ For plate current of 20 microamperes.

