

Sharp-Cutoff Pentode

7-PIN MINIATURE TYPE

For High-Gain, Resistance-Coupled-Amplifier Applications Critical as to Hum and Microphonism

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3	volts
Current	0.3	amp

Direct Interelectrode Capacitances:

	Without External Shield	With External Shield [▲]	
<i>Pentode Connection:</i>			
Grid No.1 to plate.	0.0035 max.	0.0035 max.	μmf
Grid No.1 to cathode, grid No.3 & internal shield, grid No.2, and heater	5.5	5.5	μmf
Plate to cathode, grid No.3 & internal shield, grid No.2, and heater	5	5	μmf
<i>Triode Connection:</i> ●			
Grid No.1 to plate, grid No.3 & internal shield, and grid No.2	2.6	2.6	μmf
Grid No.1 to cathode and heater.	3.2	3.2	μmf
Plate, grid No.3 & internal shield, and grid No.2 to cathode and heater.	1.2	8.5	μmf

Hum Output Voltage:

Average Value (RMS, Cathode Bypassed) 1.2 millivolts

Measured in "true rms" units under the following conditions:
heater volts = 6.3; center-tap of heater transformer connected to ground; plate and grid-No.2 supply volts = 250; plate load resistor (megohms) = 0.27; grid No.3 and internal shield connected to cathode at socket; grid-No.2 resistor (megohms) = 0.68; grid-No.1 resistor (megohms) = 0.1; cathode resistor (ohms) = 1000; grid resistor of following stage (megohms) = 10; and stage gain of 340.

Average Value (RMS, Cathode Unbypassed) . . . 0.9 millivolt

Measured in "true rms" units under the same conditions as for "Average Value" except that the cathode resistor is unbypassed, and the stage gain is 110.

Characteristics, Class A₁ Amplifier:

Pentode Connection

Plate Supply Voltage.	100	250	250	volts
Grid No.3 & Internal Shield . . .	Connected to cathode at socket			



Grid-No.2 Supply Voltage.	100	125	150	volts
Cathode Resistor.	150	100	68	ohms
Plate Resistance (Approx.).	0.5	1.5	1	megohms
Transconductance.	3900	4500	5200	μ mhos
Plate Current	5	7.6	10.6	ma
Grid-No.2 Current	2.1	3	4.3	ma
Grid-No.1 Voltage (Approx.) for plate μ a = 10	-4.2	-5.5	-6.5	volts

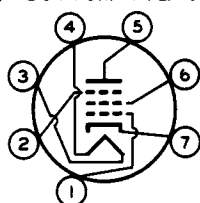
Triode Connection

Plate Supply Voltage.	250	volts
Cathode Resistor.	330	ohms
Amplification Factor.	36	
Plate Resistance (Approx.).	7500	ohms
Transconductance.	4800	μ mhos
Plate Current	12.2	ma

Mechanical:

Operating Position.	Any
Maximum Overall Length.	2-1/8"
Maximum Seated Length	1-7/8"
Length, Base Seat to Bulb Top (Excluding tip).	1-1/2" $\pm$ 3/32"
Diameter.	0.650" to 0.750"
Dimensional Outline	See <i>General Section</i>
Bulb.	T5-1/2
Base.	Small-Button Miniature 7-Pin (JEDEC No.E7-1)
Basing Designation for BOTTOM VIEW.	7BK

Pin 1 - Grid No.1
Pin 2 - Grid No.3,
Internal
Shield
Pin 3 - Heater



Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid No.2
Pin 7 - Cathode

AMPLIFIER — Class A₁

Maximum Ratings, Design-Center Values:

	Triode Connection	Pentode Connection
PLATE VOLTAGE	250 max.	300 max. volts
GRID No.3 (SUPPRESSOR GRID)	-	Connect to cathode at socket
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE.	-	300 max. volts
GRID-No.2 VOLTAGE	-	See Grid-No.2 Input
<i>Rating Chart at front of Receiving Tube Section</i>		
GRID-No.1 (CONTROL-GRID) VOLTAGE:		
Positive-bias value	0 max.	0 max. volts
GRID-No.2 INPUT:		
For grid-No.2 voltages up to 150 volts	-	0.65 max. watt
For grid-No.2 voltages be- tween 150 and 300 volts	-	See Grid-No.2 Input
<i>Rating Chart at front of Receiving Tube Section</i>		

PLATE DISSIPATION.	3.2 max.	3 max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	200 max.	200 max.	volts
Heater positive with respect to cathode	200★ max.	200★ max.	volts

Typical Operation as Resistance-Coupled Amplifier:

*See RESISTANCE-COUPLED-AMPLIFIER CHART No.8
at front of this Section*

- ▲ With external shield JEDEC No.316 connected to cathode.
- Grid No.3 & internal shield and grid No.2 connected to plate.
- ★ The dc component must not exceed 100 volts.

CURVES

**For the 7543, within its ratings, are the same
as those shown for Type 6AU6**

