

# Rogers Electronic Tubes & Components

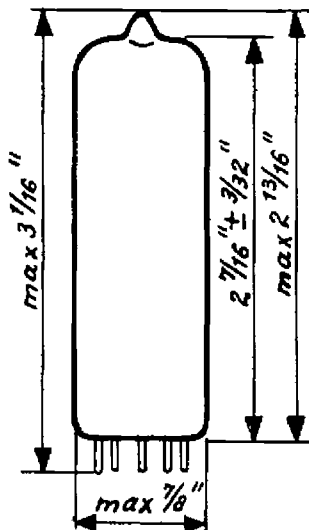
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Description: Pentode for use as frame time base and sound output tube

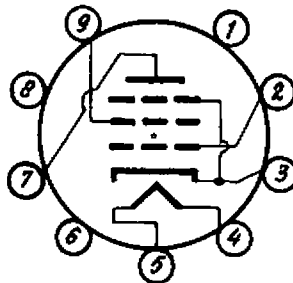
Mechanical data

Cathode	coated, unipotential
Base	E 9-1
Bulb	T 6 <sup>1</sup> / <sub>2</sub>
Outline	6 - 4
Basing	9 CV
Mounting position	any

TUBE OUTLINE



BOTTOM VIEW OF BASE



BASE PIN No.

1	Internally connected
2	Grid No. 1
3	Cathode grid No. 3
4	Heater
5	Heater
6	Internally connected
7	Plate
8	Internally connected
9	Grid No. 2

ELEMENT

Heater data

Heater voltage	6.3 volts
Heater current	0.8 amp

Direct interelectrode capacitances

Grid No.1 to all other elements except plate	11 $\mu\text{F}$
Plate to all other elements except grid No.1	5.9 $\mu\text{F}$
Plate to grid No. 1	max. 1 $\mu\text{F}$
Grid No. 1 to heater	max. 0.15 $\mu\text{F}$

Maximum ratings (design center values)

Plate voltage(without current)	550 volts max.
Plate voltage <sup>1)</sup>	250 volts max.
Peak positive plate voltage <sup>2)</sup>	2500 volts max.
Peak negative plate voltage	500 volts max.
Plate dissipation	9 watts max.
Grid No.2 voltage(without current)	550 volts max.
Grid No.2 voltage	250 volts max.
Grid No.2 dissipation	2.5 watts max.
Peak grid No.2 dissipation	4 watts max.
Cathode current	75 mamps max.
Grid No.1 circuit resistance with cathode bias	1 megohm max.
Grid No.1 circuit resistance with fixed bias	0.4 megohm max.
Voltage between heater and cathode	100 volts max.
Circuit resistance between cathode and heater	20000 ohms max.

Operating conditions as class A sound output tube

Plate and supply voltage	170	200 volts
Grid No. 2 series resistor	0	680 ohms
Grid No. 1 bias	-10.4	-13.9 volts
Plate current	53	45 mamps
Grid No. 2 current	10	8.5 mamps
Transconductance	9000	7600 micromhos
Plate resistance	20000	24000 ohms
Amplification factor of grid No.2 with respect to grid No. 1	10	10
Load resistance	3000	4000 ohms
Power output at 10 % total harmonic distortion	4.0	4.2 watts
Input A.F. voltage for 10 % total harmonic distortion	6.0	7.0 volts (rms)
Input A.F. voltage for 50 milli-watts power output	0.5	0.55 volts (rms)

Operating characteristics as sound output tube, class A push-pull (two tubes)

Plate voltage	170	200	volts
Grid No.2 voltage	170	200	volts
Cathode resistor	100	135	ohms
Load resistance (plate to plate)	4000	4000	ohms
Input A.F. voltage	0 2x9.3	0 2x13.5	volts (rms)
Plate current	2x46 2x50	2x45 2x52	mamps
Grid No.2 current	2x8.7 2x17	2x8.5 2x19	mamps
Power output	0 9	0 12	watts
Total harmonic distortion	- 5	- 5	%

Optimum peak plate current in frame output operation

To allow for tube spread and for deterioration during life in frame output application the circuit should be designed around a peak plate current not exceeding 90 mamps at a plate voltage of 50 volts and a grid No. 2 voltage of 170 volts and 120 mamps at a plate voltage of 60 volts and a grid No. 2 voltage of 200 volts

- 1) When used as frame output tube with a plate dissipation of less than 4.5 watts the maximum permissible plate voltage is 450 volts
- 2) Maximum permissible pulse duration 10 % of a cycle with a maximum of 2 milli-seconds