



Grounded Grid Triode

3A/146J (CV53)

This is a special triode for UHF operation designed primarily for use as an amplifier at frequencies between 50 and 450 Mc/s. It will operate as an efficient amplifier up to 350 Mc/s with tuning coil and condenser circuits. At higher frequencies, up to 450 Mc/s, coaxial line resonators will be necessary.

CATHODE.

Indirectly-heated oxide-coated. The cathode is strapped inside the glass bulb to one heater lead.

Voltage	4.0	V
Nominal current	0.65	A

RATING.

Amplification factor	$\left\{ \begin{array}{l} \text{Measured at } V_a 250V \\ \text{Auto-bias resistance} \\ 150 \text{ ohms} \end{array} \right\}$	100	
Mutual conductance		5	mA/V

DIRECT INTER-ELECTRODE CAPACITIES.

Anode to grid	$\left\{ \begin{array}{l} \text{Measured with an} \\ \text{earthed shield} \\ \text{around the bulb} \end{array} \right\}$	1.6	pF
Anode to cathode		0.035	pF
Grid to cathode		4.0	pF

DIMENSIONS.

Maximum overall length	82.55	mm.
Maximum diameter of disc	51.3	mm.
Maximum bulb diameter	31.5	mm.
Net weight	24	g.

MAXIMUM RATING.

Maximum direct anode voltage	350	V
Maximum anode dissipation	2	W

MOUNTING.

The valve may be mounted by means of the grid disc. Spade tags are attached to the heater leads, one of which, that connected to the cathode, is painted red.

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TYPICAL OPERATION

Amplifier for frequencies of 250 to 300 Mc/s

The valve is mounted in a screening box so that the grid disc is integral with the screening system and the input circuit well shielded from the output circuit. The anode resonant circuit must be a high quality coil condenser unit and is mutually coupled to the output by a coupling coil the position of which may be varied to increase or decrease the coupling and hence vary the load transferred to the anode circuit. By increasing the coupling the band width is widened.

The cathode circuit consists of two similar coils—one in the heater lead and one in the heater and cathode lead—tuned by a condenser. The coils are decoupled for H.F. by small condensers at the end remote from the valve. The input is tapped on the coil in the cathode lead to match the input impedance to that of the facing impedance, i.e., aerial or preceding valve.

With care given to the design of the tuned circuit, and stray capacities kept at a minimum, a compact and efficient amplifier may be built for frequencies up to 350 Mc/s with a stage gain of 16 db over a band width of 1.5 Mc/s; or 13 db may be obtained for a band width of 4 Mc/s.

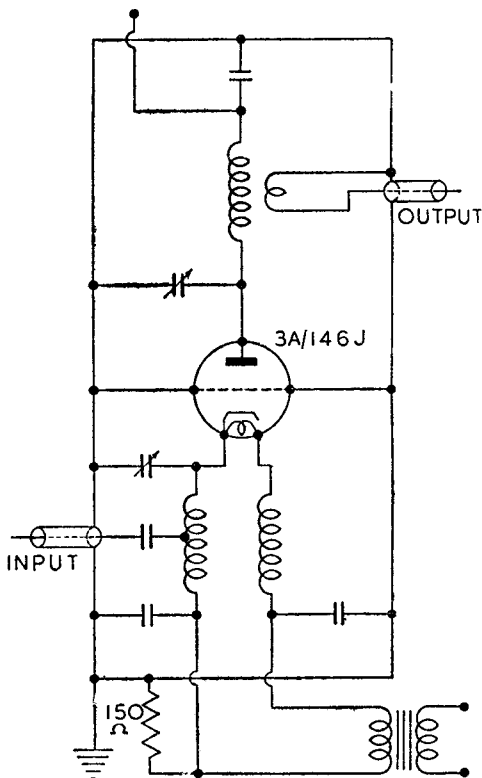


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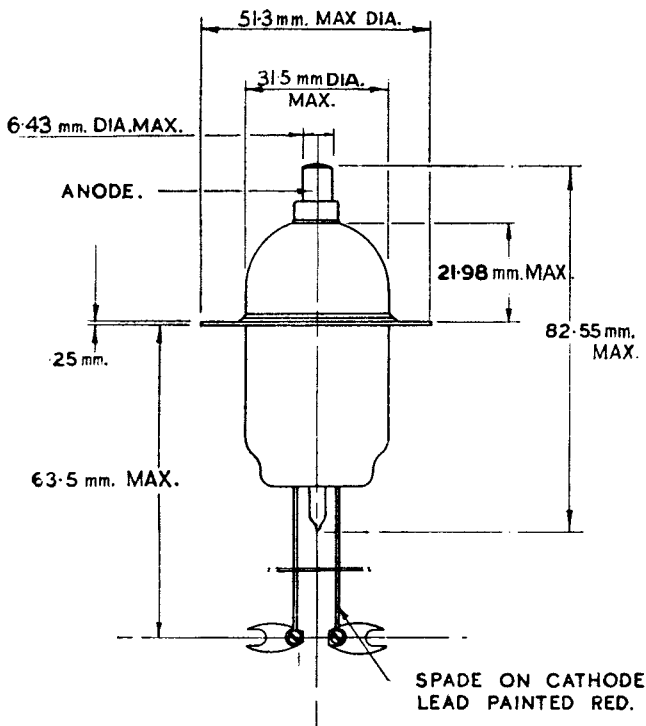
50—300 Mc/s AMPLIFIER.



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Tentative data
May 1947

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