



Grounded Grid Triode

3A/148J (CV88)

This is a special triode for UHF operation designed primarily for use at 600 Mc/s. The grid being operated at ground potential and the feedback capacity low, the input is well shielded from the output. It differs from the 3A/145J in heater voltage, 6.3 V instead of 4 V, and the heater and cathode are brought out to a concentric thimble suitable for direct attachment to a concentric resonator. Used in a pre-amplifier, improvements of the order of 12 to 15 db resulted in the signal to noise ratio performance of UHF receivers, an improvement of 4 to 5 db over the 3A/145J.

CATHODE.

Indirectly heated oxide-coated. The cathode is strapped internally to one heater lead.

Voltage	6.3	V
Nominal current	0.4	A

RATING.

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

DIRECT INTER-ELECTRODE CAPACITIES.

Anode to grid	$\left\{ \begin{array}{l} \text{Measured with an} \\ \text{earthed shield} \\ \text{around the bulb} \end{array} \right\}$	1.5	pF
Anode to cathode		0.035	pF
Grid to cathode		4.0	pF

DIMENSIONS.

Maximum overall length	80.9	mm.
Maximum diameter over disc	51.3	mm.
Maximum bulb diameter	31.5	mm.
Nominal disc thickness	0.25	mm.
Net weight	30	g.

MOUNTING.

The valve is designed to mount by means of the grid disc between coaxial lines.

MAXIMUM RATINGS.

Maximum direct anode voltage	350	V
Maximum anode dissipation	2	W
With adequate cooling the anode dissipation may be increased to	3	W

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TYPICAL OPERATING CONDITIONS

A suitable amplifier for 600 Mc/s operation is shown in the accompanying sketch.

The valve is mounted between two coaxial lines, suitable blocking condensers being inserted to isolate the D.C. potentials.

The inherent negative feedback limits possible gain, but together with the marked reduction of impedances common to both circuits, makes for greater stability. The impedance of the output circuit must be high with the result that the tuning adjustment is critical. The input impedance, however, is normally low, no tuning or coupling adjustment being necessary for fixed frequency working.

The output coupling controls the band width ; 2 to 6 Mc/s has been obtained in practice. The anode load and gain of the valve may be varied by the output coupling ; this has the advantage that it may be pre-set.

The grid is auto-biased through 150 ohms in parallel with the 0.01 μ F.

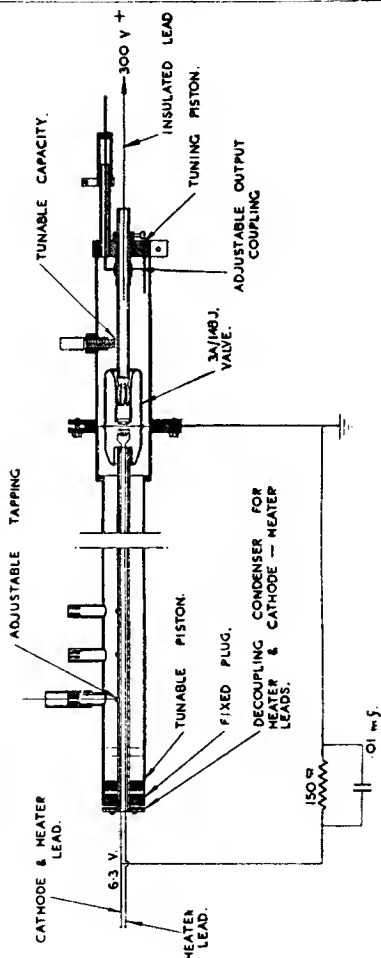
In this design of circuit the frame of the amplifier is at ground potential, it is therefore necessary to insert a capacity in series with the centre conductor of the anode resonator since this is at anode potential. The cathode is coupled to the input resonator by the capacity of the cathode and heater leads to the centre conductor.

Input is fed to the adjustable tapping on the input resonator. Output power is taken from the slider on the centre line of the anode resonator.



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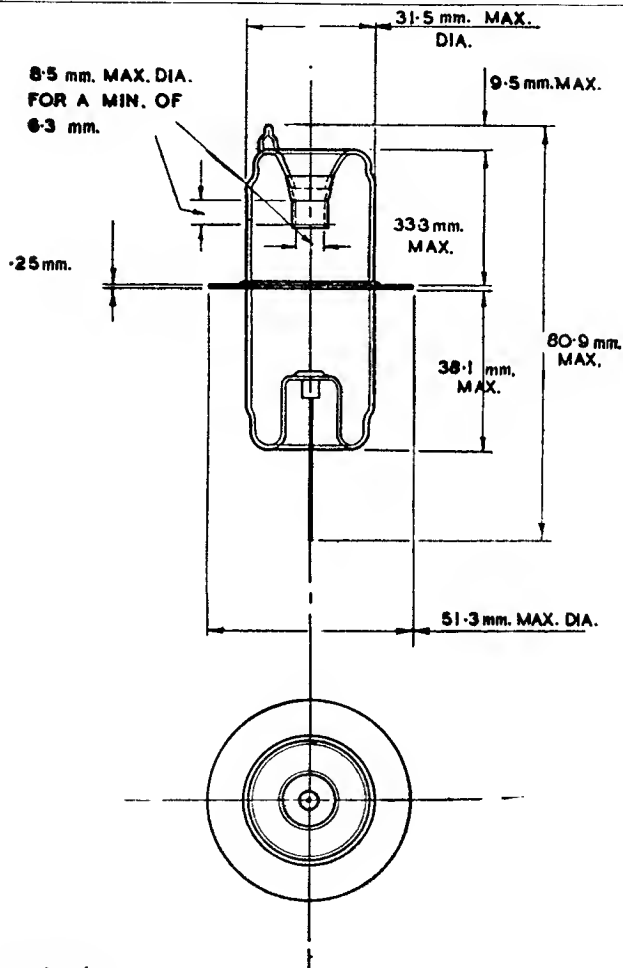


Tentative data
October, 1945

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