



# Triode Type DET 24

VHF AMPLIFIER AND OSCILLATOR

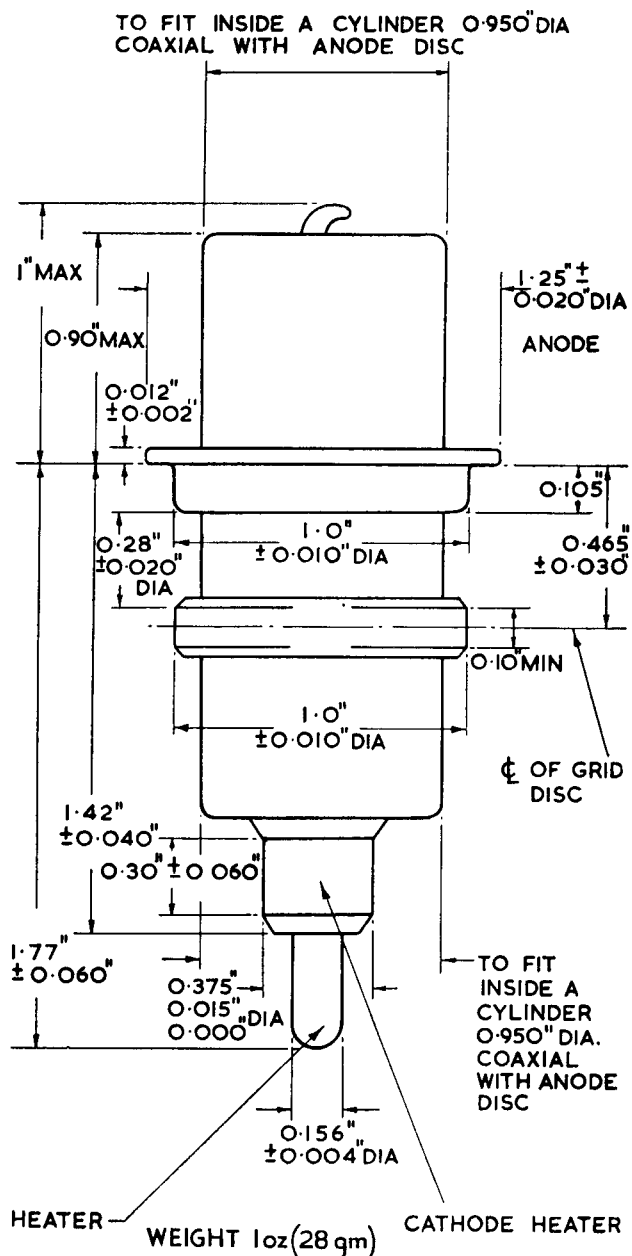
**General.** A disc seal triode intended for use as an oscillator or amplifier in co-axial line circuits at frequencies up to 2,000 Mc/s.

**Cooling.** The temperature of the metal to glass seals must not exceed 140°C. In order to limit the temperature and the rate of change of temperature, the mass of metal in close thermal contact with the anode disc must not be less than 120 gm.

**Mounting.** The valve may be mounted in any position. Rigid connection must be made to the anode flange only.

## APPROXIMATE DATA

$V_f$	6.3	V
$I_f$	1	A
$V_a$ (max)	400	V
$I_{k(pk)}$ (max)	600	mA
$P_a$ (max)	20	W
$P_{g1}$ (max)	1	W
$\mu$	28	taken at $V_a$ 400 V $I_a$ 50 mA
$g_m$		



MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Chelmsford, Essex, England. Telephone: Chelmsford 3221. Telex: 1953. Telegrams: Expanse Chelmsford Telex

## APPLICATION DATA

A typical circuit design for a self-oscillator is shown where the anode-grid and grid-cathode circuits are both co-axial lines, the grid tube being common to both circuits.

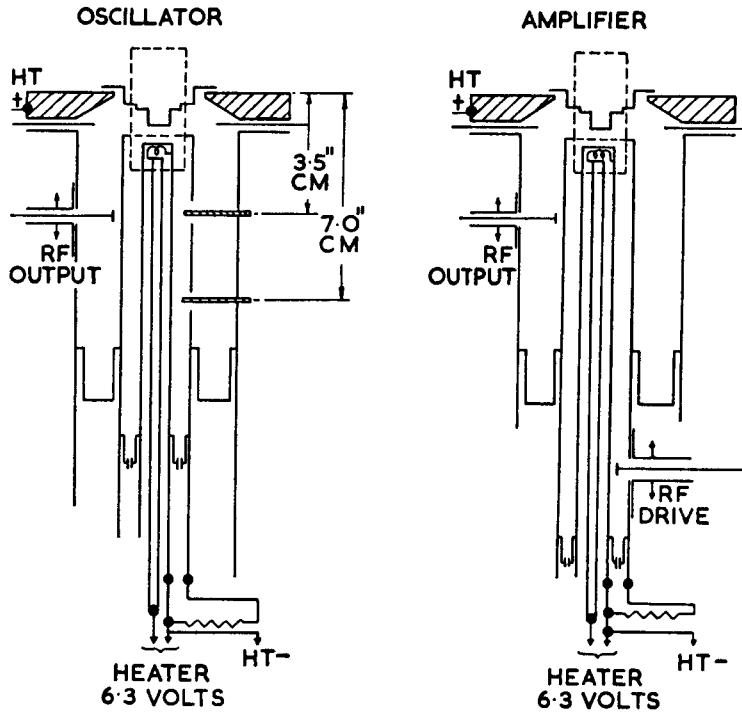
Movable bridges tune the anode-grid and grid-cathode lines. The grid-cathode bridge incorporates a capacitor so that grid bias may be used. Feedback is obtained by a probe which makes contact with the anode line and passes through a hole in the grid line to the grid-cathode space. To cover the ranges 25–90 cm and 15–30 cm two positions of the probe at distances of 3.5 cm and 7 cm respectively from the plane of the anode disc are necessary. For wavelengths greater than 25 cm the probe should carry an end plate, shaped to the curvature of the cathode line so as to obtain

additional capacitance at a reasonable clearance. It is not necessary to tune the heater-cathode line at any wavelength. Output may be taken by means of a co-axial line with a capacity probe in the anode-grid space.

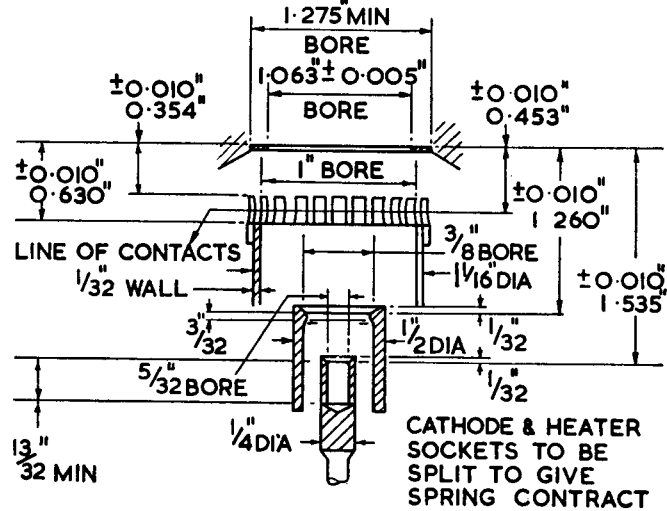
The lengths for anode and cathode lines for a range of wavelengths are shown in graphical form. The effect of loading on line length is very slight except when an end plate is used on the feedback probe; in this case the cathode line length is substantially reduced when the circuit is loaded.

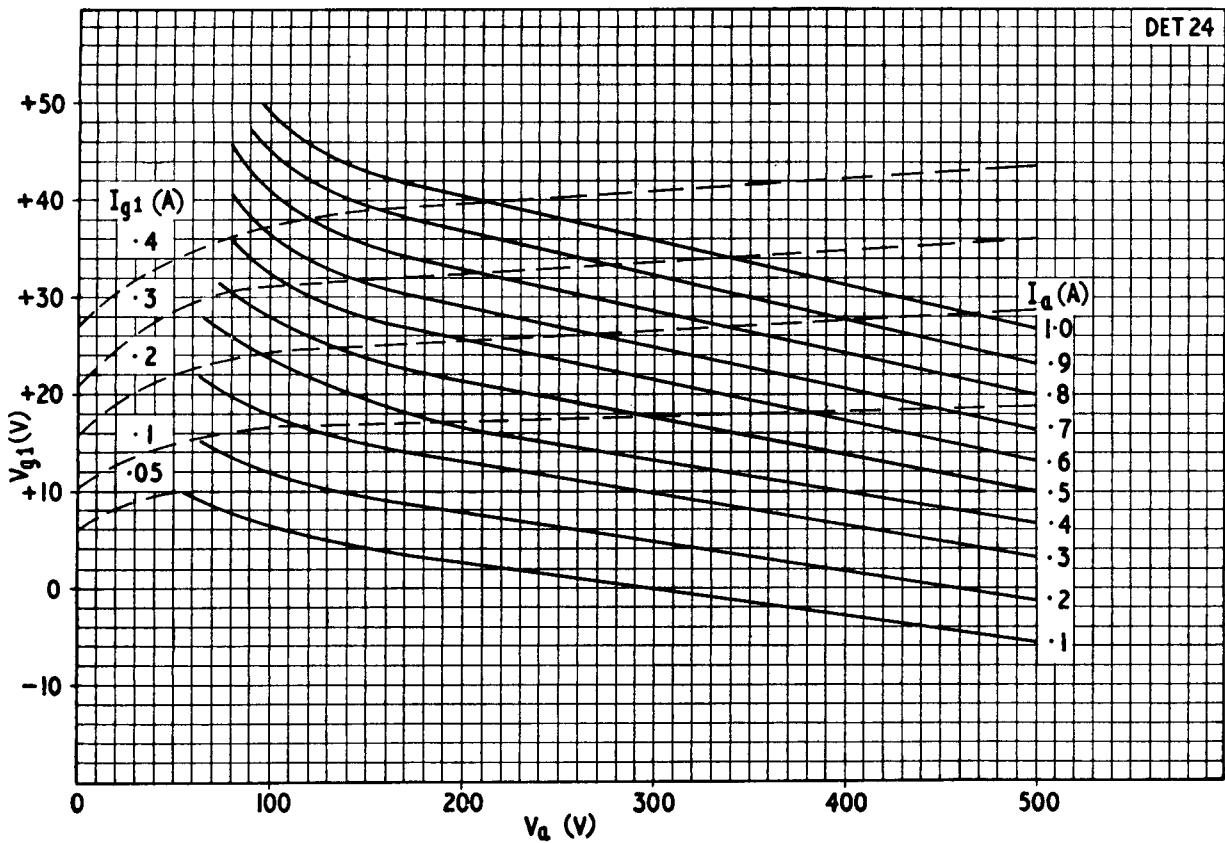
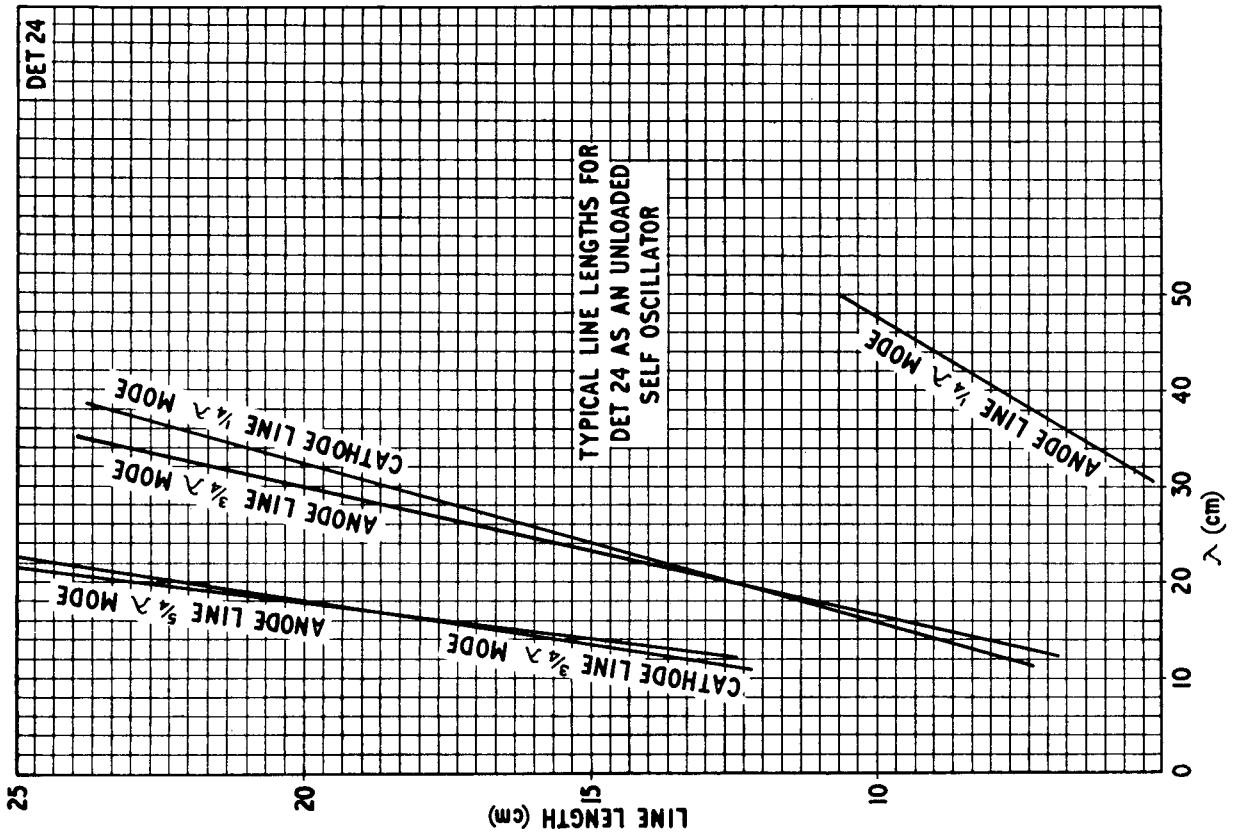
A typical circuit for an amplifier is also shown. The RF input is fed into the grid cathode line by a capacity probe. This line is operated on the  $3/4 \lambda$  or  $5/4 \lambda$  modes depending on the wavelength.

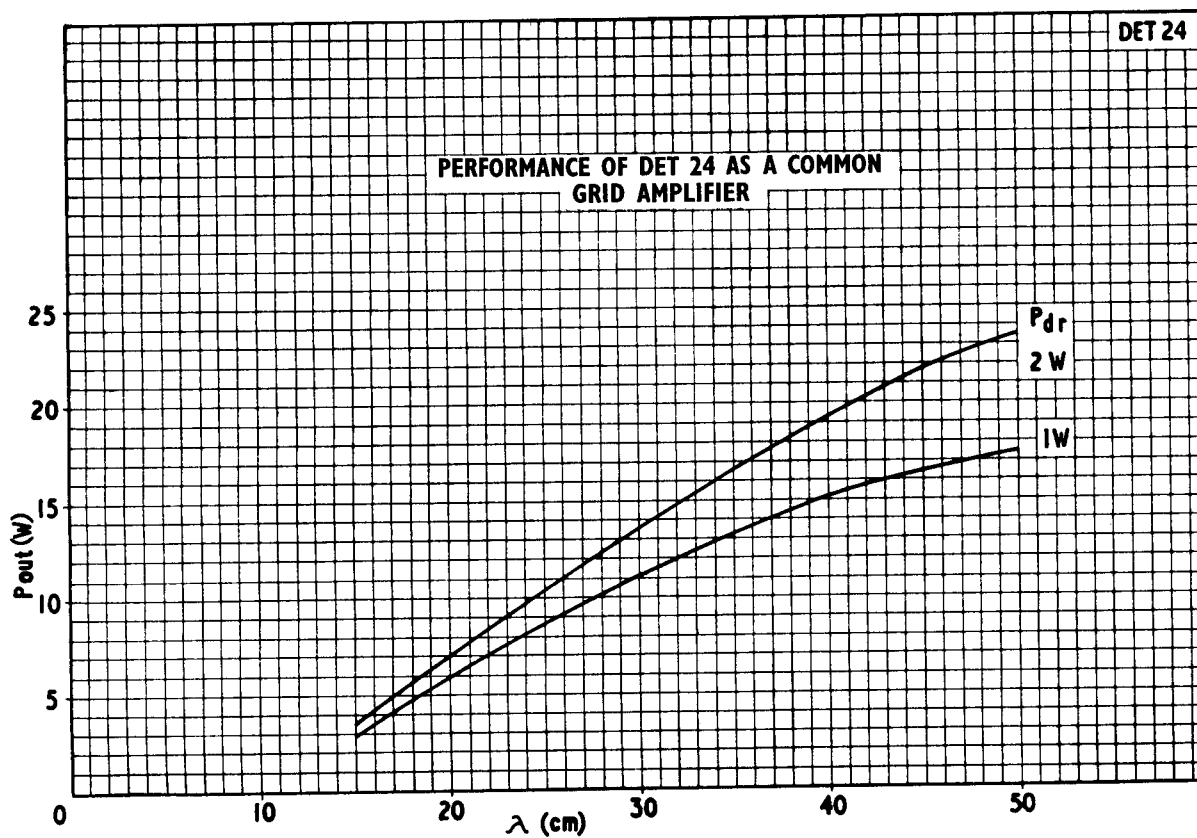
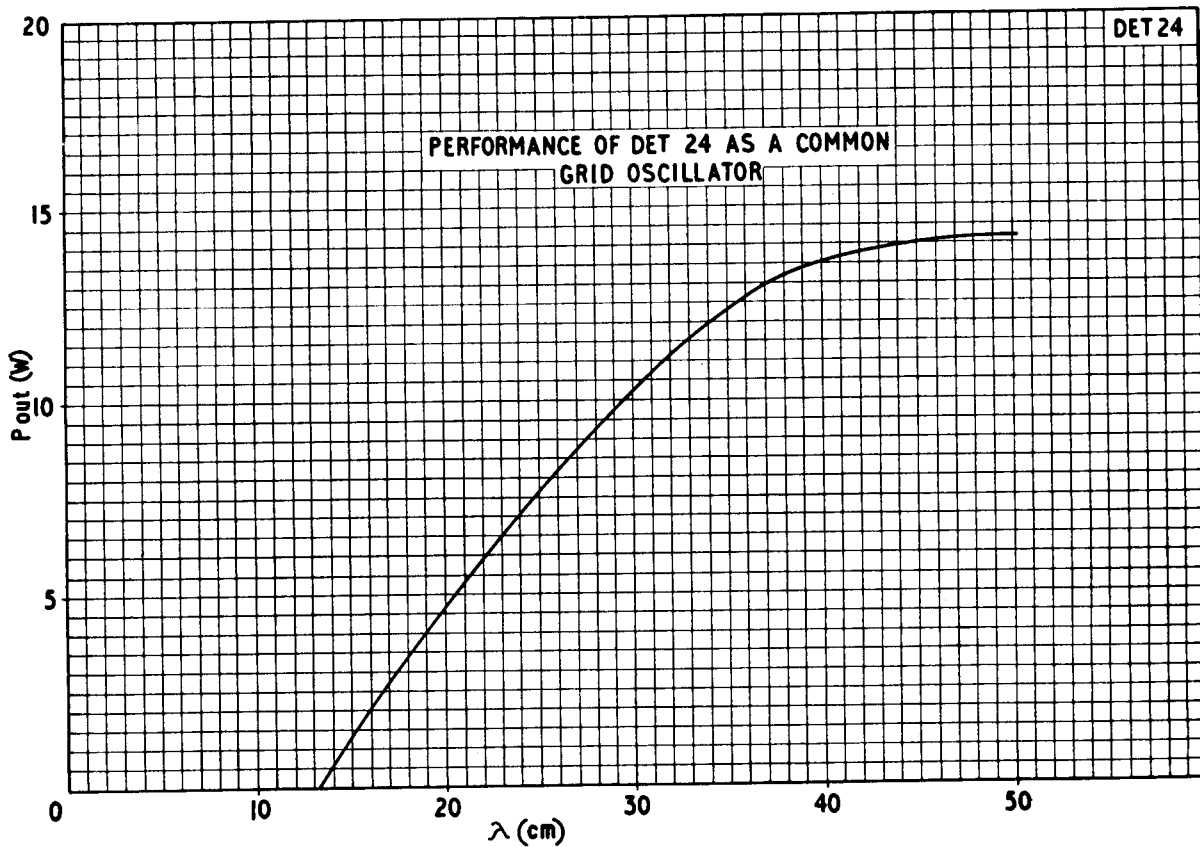
## CIRCUIT ARRANGEMENTS



### RECOMMENDED CIRCUIT DIMENSIONS













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