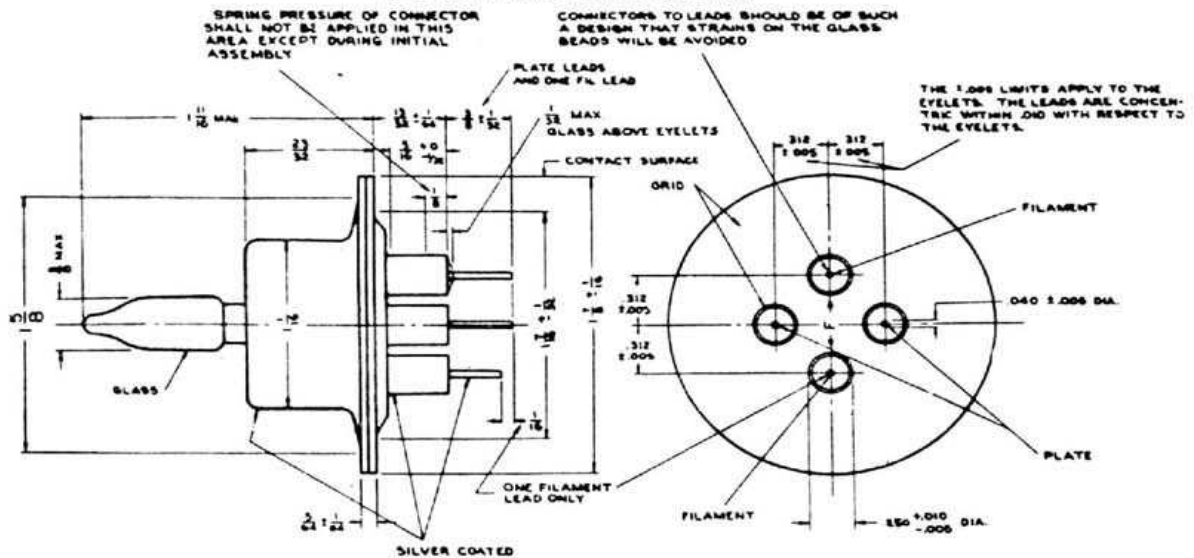


TECHNICAL INFORMATION

WESTERN ELECTRIC 708A VACUUM TUBE



CLASSIFICATION

This vacuum tube is a negative grid radiation-cooled triode designed for operation as a converter or radio frequency amplifier at centimeter wavelengths. It is particularly adapted to the grounded-grid type of circuits and its base and leads are designed for convenient connection to coaxial tuners or transmission lines. The metal envelope provides complete shielding of the tube elements.

The grid is mounted on the metal base plate and is electrically connected to it. Two filament and two plate leads are brought out through glass seals in the eyelets in the metal base. One filament lead is cut 1/16" shorter than the other three leads. The grid structure is extended beyond the plate on either side in order to provide sharp cut-off and to reduce the filament-to-plate capacitance and hence simplify neutralization problems in the case where the tube is used as an amplifier.

MOUNTING

No base is provided. The dimensions and arrangement of terminal connections are shown in the above drawing. The terminal leads and eyelets are intended to serve as connectors for coaxial lines. The eyelets are at grid potential and hence should be connected to the ground side of the circuit. These connections should be made with a friction device which puts no strain on the area extending 1/8" from the end of the eyelet after connection has been made. Connections to filament and plate leads should be made with brass or copper sleeves, split for a positive friction connection or equipped with set screws. In making connections care must be taken to avoid excessive strain on the glass seals in the eyelets. It is desirable that connectors be of sufficient size to assist in cooling of the terminals. Silver plating of all connectors and leads in r.f. circuits is recommended for maximum efficiency.

The tube may be mounted in any position but should be cushioned against vibration and mechanical shock. The filament is somewhat more fragile than the thoriated tungsten filaments used in transmitting tubes and this tube should be handled accordingly.

FILAMENT

Thoriated Tungsten

Filament voltage (nominal) 1.7 volts

Filament current (nominal) 1.85 amp. a-c or d-c

Designed for operation on a voltage basis. The filament voltage should be kept within $\pm 5\%$ of the nominal value operation. Voltages below these limits may result in failure to function. Voltages above these limits will cause short life.

MAXIMUM RATINGS

Max. plate voltage	350 volts
Max. plate current	50 ma
Max. plate dissipation	15 watts
Max. grid current	12 ma

DIRECT INTERELECTRODE CAPACITANCES

Filament to grid (approx.)	2.7 puf
Grid to plate (approx.)	3.2 puf
Plate to filament (approx.)	0.1 puf

AVERAGE CHARACTERISTICS

At plate voltage	350 volts
At plate current	45 ma
Amplification factor	10
Grid-plate transconductance	2500 micromhos
Plate resistance	4000 ohms

OPERATION

As a converter this tube is operated at low plate voltage (20-50V) and low plate currents (1-5 ma). The signal and local oscillator frequencies are applied through coaxial tuners to one or both filament leads and the resulting intermediate frequency power is taken from one or both plate leads. Optimum conditions are attained by varying filament current, grid bias, plate voltage and plate current.

When used as an amplifier the tube is operated in a grounded-grid circuit utilizing coaxial tuners or transmission lines in the centimeter ranges. With properly designed circuits no neutralizing is necessary due to the low filament to plate capacitance.