

BRIMAR

**E. I. A.
REGISTRATION DATA**

TYPE	7502
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TYPE 7502: HEPTODE FREQUENCY CHANGER.

The 7502 is a seven pin all glass construction heptode for use as a frequency changer up to 60 Mc/s.

The use of a special rugged electrode construction manufactured by means of semi-automatic assembly techniques contributes to a low catastrophic failure rate.

The cathode sleeve is made of a special alloy to inhibit the growth of cathode interface resistance during long periods of operation under cut-off conditions and the pure tungsten heater has been designed to withstand frequent heater switching (see note) In addition the heater-cathode construction and materials ensure very low levels of leakage throughout life.

The glass base and envelope strain patterns are tightly controlled during manufacture to prevent glass failures during life. Special attention is also given to the control of materials and processes to minimise variation of characteristics during life. A particular feature is the very low change in inter-electrode capacitances during life.

Note: A sample from each production lot is tested under the following elevated conditions to assess heater quality:- heater voltage 120% of nominal value: heater-cathode voltage 240V r.m.s; applied voltages cycled 1 minute on, 3 minutes off for 100 hours.

MECHANICAL DATA

Coated unipotential cathode.

Outline drawing	5-2 Bulb	T-5 $\frac{1}{2}$
Base	E7-1 Small button.....	7 pin
Maximum diameter		$\frac{3}{4}$ "
Maximum overall length		1 $\frac{7}{8}$ "
Maximum seated height		2 $\frac{3}{8}$ "
Pin connections	Basing	7CH

Pin 1 - Grid No. 1 (Osc.)	Pin 5 - Anode
Pin 2 - Cathode & Grid No. 5	Pin 6 - Grids No. 2 & No. 4
Pin 3 - Heater	Pin 7 - Grid No. 3 (sig.)
Pin 4 - Heater	

Mounting position	any
Maximum shock (intermittent service)	500g

ELECTRICAL DATAInterelectrode capacitances (Measured with external shield)

C in 7.5 pF
 C out..... 13.5 pF
 Ca-g₃..... 0.35 pF max.

Heater:

Voltage (ac or dc) 6.3 volts
 Current 0.3 amps

Ratings - Absolute maximum values.

Maximum heater voltage variation $\pm 5\%$ of nominal value.
 Maximum heater-cathode voltage
 Heater negative with respect to cathode 100 volts
 Heater positive with respect to cathode 100 volts
 Maximum cathode current 15.5 mA
 Maximum anode voltage 330 volts
 Maximum anode dissipation 1.1 watts
 Maximum screen voltage 110 volts
 Maximum screen dissipation 1.1 watts
 Maximum bulb temperature (hottest spot on bulb surface).. 165°C

RANGE OF CHARACTERISTIC VALUES FOR EQUIPMENT DESIGN. (At Zero hours)

Test conditions:- $V_a = 250V$, $V_{g3} = -1.5V$, $V_{g2+4} = 100V$,

$I_{g1} = 0.5$ mA r.m.s. $R_{g1} = 20K\Omega$

	<u>Min.</u>	<u>Bogey</u>	<u>Max.</u>
Anode current	1.9	3.0	4.1 mA
Screen current	5.2	7.5	9.8 mA
Mutual conductance g_m (osc.)	5.5	7.25	9.0 mA/V
Inner amplification factor	17	21	25
Anode impedance		1.0	$M\Omega$

Maximum value of cathode interface resistance throughout life
 under cut-off conditions 10 Ω