

BRIMAR

E. I. A.
REGISTRATION DATA

TYPE	7499
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TYPE 7499: HIGH SLOPE VIDEO PENTODE

The 7499 is a nine pin all glass construction pentode for use in video amplifier applications.

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	6 - 3 Bulb
Base	E9-1 Small button
Maximum diameter	$\frac{7}{8}$ "
Maximum overall length	$2\frac{5}{8}$ "
Maximum seated height	$2\frac{3}{8}$ "
Pin connections	Basing
	9DA
	9BA
Pin 1 - Internal connection	Pin 6 - Internal connection
Pin 2 - Grid No.1	Pin 7 - Anode
Pin 3 - Cathode	Pin 8 - Grid No. 2
Pin 4 - Heater	Pin 9 - Grid No. 3
Pin 5 - Heater	

Mounting position	any
Maximum shock (intermittent service)	500g

ELECTRICAL DATAInterelectrode capacitances. (Measured without external shield)

C_{a-g1}	0.18 pF
C in	12.5 pF
C out	5.0 pF

Heater:

Voltage (ac or dc)	6.3 volts
Current	0.75 amps.

Ratings - Absolute maximum values.

Maximum heater voltage variation	$\pm 5\%$ of nominal value.
Maximum cathode current	65 mA
Maximum anode voltage ($I_a=0$)	500 volts
Maximum anode voltage	300 volts
Maximum anode dissipation	12 watts
Maximum screen voltage ($I_{g2}=0$)	500 volts
Maximum screen voltage	300 volts
Maximum screen dissipation	2.5 watts
Maximum bulb temperature (at hottest spot on bulb surface)	250°C

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

Test conditions $V_a = 250V$, $V_{g3} = 0$, $V_{g2} = 250V$, $V_{g1} = -4.5V$

	<u>Min.</u>	<u>Bogey</u>	<u>Max.</u>
Anode current	30	40	50 mA
Screen current	-	6.0	7.5 mA
Mutual conductance	9.0	11.0	13.5 mA/V
Anode current at $V_{g1} = -25V$			10 μA
Inner amplification factor	20	26	32

Maximum value of cathode interface resistance throughout life 10 Ω .