ESV1002

VAPOUR COOLED TRIODE

GENERAL

The ESV1002 is a Vapour Cooled Triode having a directly heated thoriated tungsten filament. It has a maximum anode dissipation of 25 kW, and a maximum anode voltage rating of 10 kV, the maximum operating frequency at full rating being 10 Mc/s.

RATING

Filament Voltage	(volts)	V_f	8·0
Filament Current	(amps)	I_f	124
Maximum Anode Voltage	(kV)	$V_{a(max)}$	11†
Maximum Grid Bias Voltage	(volts)	V_{g1}	−1200†
Maximum Anode Dissipation	(kW)	$P_{a(max)}$	25†
Maximum Cathode Current	(amps)	$I_{k(max)}$	33†
Maximum Grid Dissipation	(watts)	$P_{g(max)}$	800†
Mutual Conductance	(mA/V)	g_m	35
Amplification Factor		μ	28
Anode Impedance	(ohms)	r_a	800
Maximum Operating Frequency	(Mc/s)	$f_{(max)}$ (abs)	10*
Maximum R. F. Power Output	(kW)	P_{out}	60

* Limited by the boilers and boiler's condensers. The maximum operating frequency may not be increased by operation at reduced ratings.

† Absolute maximum values which must not be exceeded.

INTER-ELECTRODE CAPACITANCES (pF)

Anode/Grid	C_{a-g1}	40
Anode/Filament	C_{a-f}	1·3
Grid/Filament	C_{g1-f}	56

DIMENSIONS

Maximum Overall Length	(ins)	14
Maximum Diameter	(ins)	6½
Approximate Nett Weight	(lbs)	36
Approximate Packed Weight	(lbs)	92

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TYPICAL OPERATION—Class C R.F. Amplifier and Oscillator.

Anode Voltage	(kV)	V_a	6	8	10
Grid Bias Voltage	(volts)	V_{g1}	−300	−400	−450
Grid Positive Voltage (Peak)	(volts)	$V_{g1(pk)}$	+520	+520	+520
Grid Bias Resistor	(ohms)	R_{g1}	254	380	455
Mean Anode Current	(amps)	I_a	7·62	7·2	7·68
Mean Grid Current	(amps)	I_{g1}	1·18*	1·06*	0·99*
Grid Drive r.m.s. Voltage	(volts)	$V_{g1(rms)}$	580	650	685
Peak Cathode Current	(amps)	$I_{k(pk)}$	33	33	33
Anode Dissipation	(kW)	P_a	11·6	12·1	16·4
Grid Drive Power	(watts)	P_{dr}	870*	875*	860*
Grid Dissipation	(watts)	P_{g1}	516*	453*	415*
Anode Efficiency	%	η_a	76·4	78·6	78·6
Anode Output (Amplifier)	(kW)	P_{out}	35	45·4	60·4
Anode Output (Oscillator)	(kW)	P_{out}	29	37·8	50·5
Angle of Anode Current flow	(degrees)	θ_a	163	162	166
Minimum Convection Cooler area	(sq. ft.)		9·8	10·2	13·4
Minimum Water Flow (Water Cooled Types)	(litres/min at 20°C inlet temp.)		4	4·1	5·4

* Approximate values. With lamps as the grid resistor and normal HT regulation, grid dissipation should not rise by more than 25% at $\frac{1}{3}$ full load anode current.

See "Application Notes on the use of Vapour Cooled Valves."

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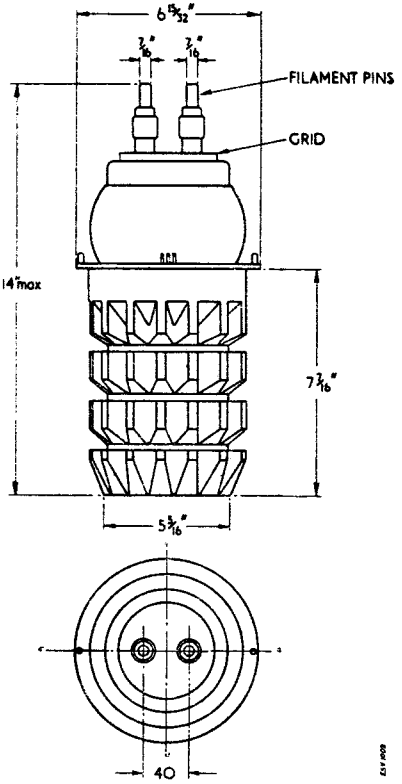

All dimensions in mm. unless stated otherwise

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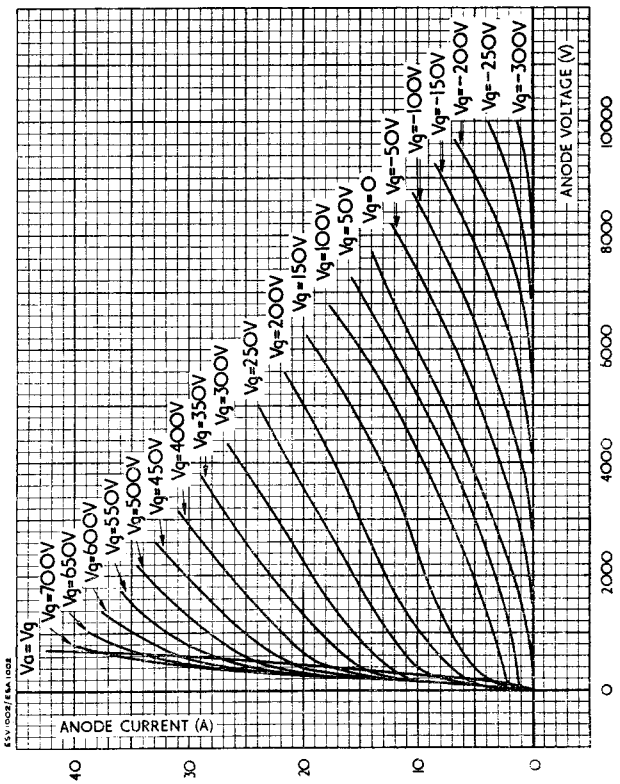
TYPICAL CHARACTERISTIC CURVES : I_a/V_a



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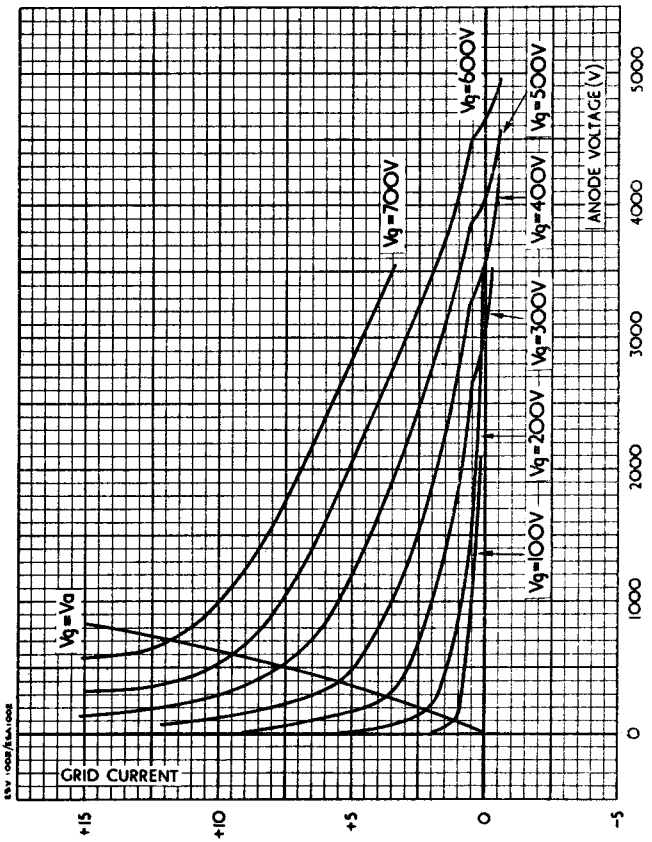
TYPICAL CHARACTERISTIC CURVES : I_g/V_a



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