



SPECIAL VALVES

Ref.: 5J/180E

Forced-Air-Cooled R.F. Pentode

Code: 5J/180E (CV445)

CATHODE

Thoriated-tungsten filament		
Filament voltage	9	V
Nominal current	30	A
Filament cold resistance	0.04	Ω
Maximum usable emission	12	A
†Pirani test figure, approx.	{ Measured at 4A after 60 min }	0.21 V

CHARACTERISTICS

Mutual conductance	{ V_a 6 kV : V_g 1.5 kV I_a 0.5 A }	5.75	mA/V
Screen grid μ			
		4	

DIRECT INTERELECTRODE CAPACITANCES

Input	35	pF
Output	16	pF
Anode to grid	0.9	pF

AIR COOLING REQUIRED

For an anode dissipation of	2.1	2.75	3.5	kW
Volume of air required through radiator	325	450	580	cu ft/min
	9	12.4	16	m ³ /min
At a water pressure of	0.75	1.5	2.5	in
	1.9	3.8	6.4	cm
Maximum ambient temperature	45			°C
Maximum radiator core temperature	130			°C
Maximum anode, or lead, seal temperature	150			°C

MECHANICAL DATA

Nominal overall length	8 $\frac{1}{2}$ in	220	mm
Maximum radiator diameter	5 $\frac{7}{8}$ in	149.2	mm
Net weight		5.2	kg
		11.5	lb
Shipping weight, approx.		19.8	kg←
		44	lb←
Shipping dimensions		24 × 24 × 26	in←
		61 × 61 × 66	cm

† When Pirani tests are made, the figures quoted on the card received with the valves should be used and not the approximate values given above.

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5J/180E—1



Standard Telephones and Cables Limited

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SPECIAL VALVES**Forced-Air-Cooled****R.F. Pentode****Code: 5J/180E (CV445)****MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS****RADIO FREQUENCY**

Class C Power Amplifier. Anode subject to modulation
(Carrier conditions per valve for use with 100% modulation.)

Maximum Ratings

Maximum direct anode voltage	4.8	kV
Maximum direct anode current	1.25	A
Maximum direct anode dissipation	2.35	kW
Maximum direct screen voltage	1.5	kV
Maximum direct screen current	165	mA
Maximum direct screen dissipation	100	W
Maximum direct grid dissipation	50	W
Maximum frequency for above ratings	30	Mc/s

Typical Operating Conditions

Direct anode voltage	4.5	kV
Direct screen voltage	1.5	kV
Direct grid voltage	-900	V
Direct anode current	1	A←
Direct screen current	20	mA←
*Direct grid current	25	mA
Peak r.f. grid voltage	1 050	V
Power output	2.9	kW

Class C Power Amplifier or Oscillator. Unmodulated**Maximum Ratings**

Maximum direct anode voltage	6	kV
Maximum direct anode current	2.5	A
Maximum direct anode dissipation	3.5	kW
Maximum direct screen voltage	1.5	kV
Maximum direct screen current	250	mA
Maximum direct screen dissipation	150	W
Maximum direct grid dissipation	50	W
Maximum frequency for above ratings	30	Mc/s

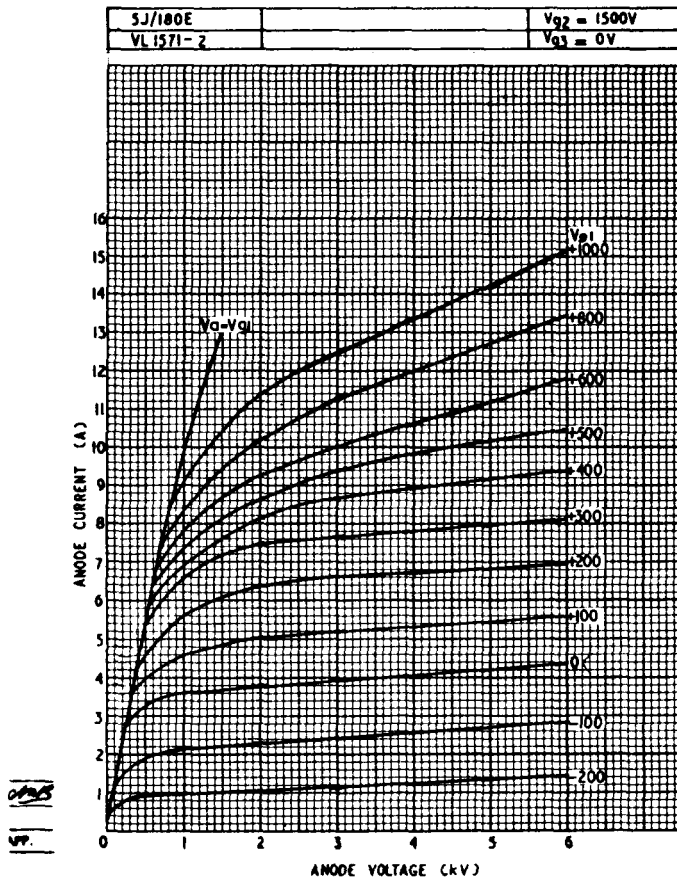
Typical Operating Conditions

Direct anode voltage	6	kV←
Direct screen voltage	1.5	kV
Direct grid voltage	-715	V←
Direct anode current	1.4	A←
Direct screen current	30	mA←
*Direct grid current	45	mA←
Peak r.f. grid voltage	915	V←
Power output	5.75	kW←

*Subject to wide variation dependent upon impedance of the load circuit.

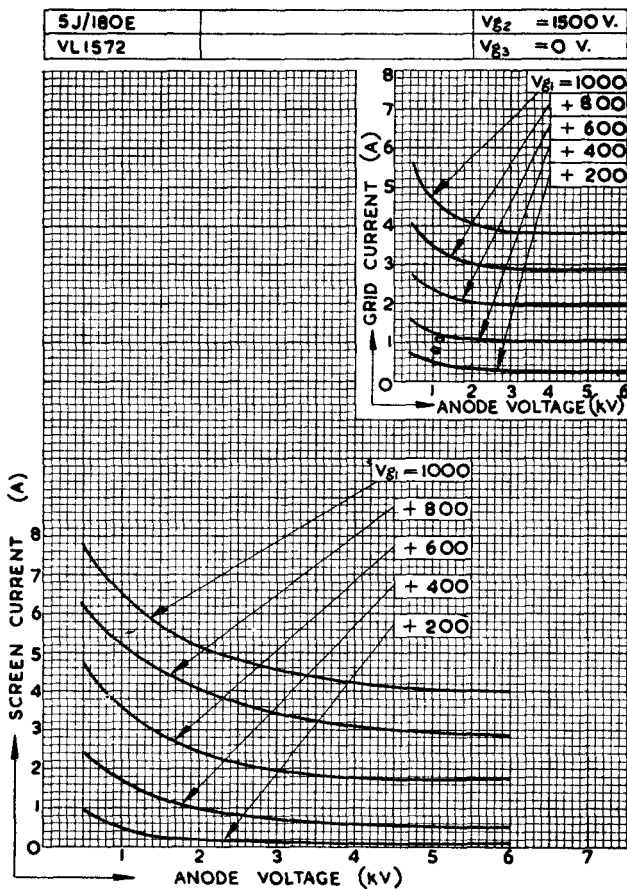
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SPECIAL VALVES
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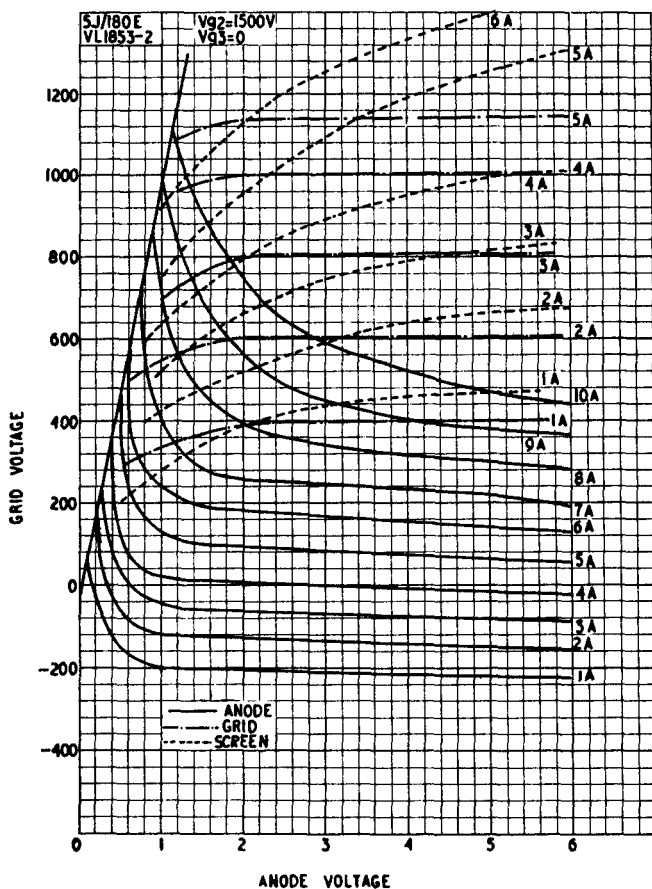




SPECIAL VALVES

Forced-Air-Cooled R.F. Pentode

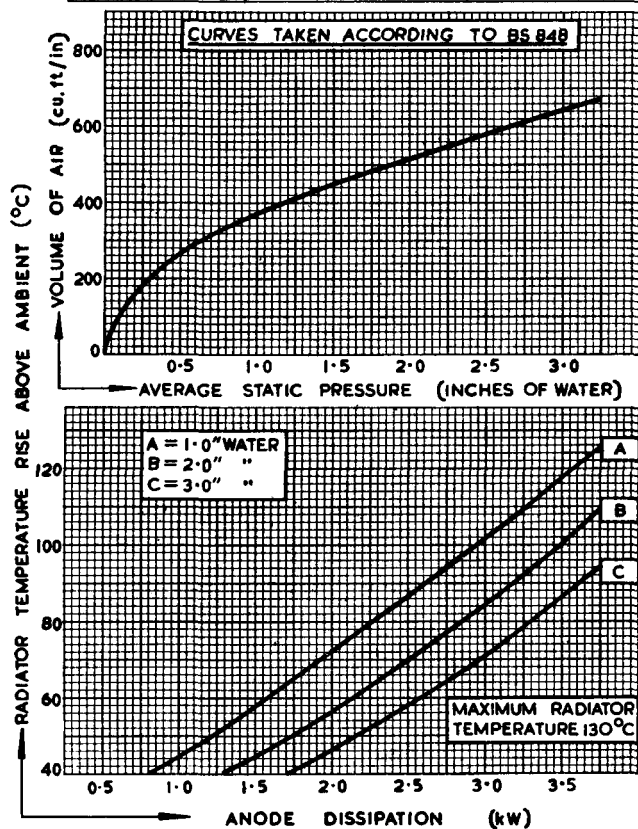
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SPECIAL VALVES
**Forced-Air-Cooled
R.F. Pentode**

Code: 5J/180E (CV445)

3J/170E & 5J/180E	RADIATOR COOLING	$V_f = 9\text{ V}$
VL 1942-2	REQUIREMENTS	$p_a = 3.5\text{ kW (MAX)}$

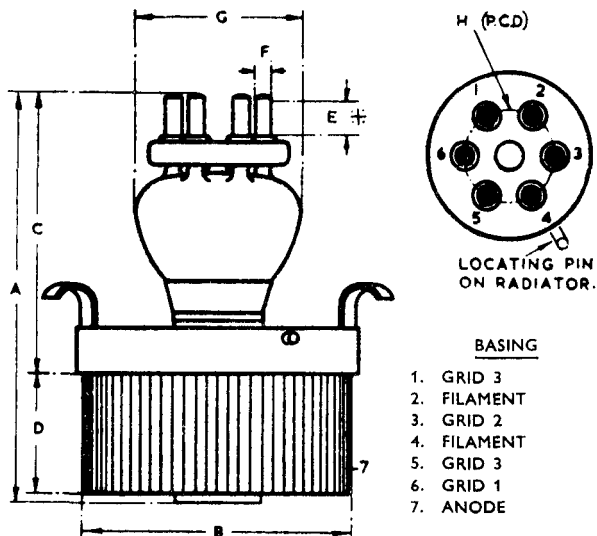




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DIM.	MILLIMETRES	INCHES
A	220 NOM.	$8\frac{11}{16}$ NOM.
B	147.6 ± 1.6	$5\frac{13}{16} \pm \frac{1}{16}$
C	154 ± 3.2	$6\frac{1}{16} \pm \frac{1}{8}$
D	63.5 NOM.	$2\frac{1}{2}$ NOM.
E*	21 MIN.	$\frac{13}{16}$ MIN.
F	9.53 ± 0.05	0.375 ± 0.002
G	92 MAX.	$3\frac{1}{2}$ MAX.
H	49.2 ± 0.8	$1\frac{13}{16} \pm \frac{1}{32}$

BASIC FIGURES ARE INCHES

* DENOTES: CONTACT LENGTH