

# Forced-Air-Cooled Industrial Triode

Ref.: 3J/202E

Code: 3J/202E

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## CATHODE

Thoriated-tungsten filament			
Filament voltage	$5 \pm 2\%$	$5 \pm 5\%$	V
Filament current (nominal)		112	A
Maximum usable emission	18	12	A
Filament cold resistance		0.007	$\Omega$

It is recommended that some resistance or reactance should be introduced into the filament supply to limit the switch or surge current to about two and a half times the normal working value. This impedance may be short circuited if desired as soon as the surge has decayed.

## PIRANI TEST\*

$I_f$		12	A
$V_f$ range		0.07 to 10.1	V
Approx. measuring time		60	min

\* See card supplied with individual valve for actual test figures.

## CHARACTERISTICS

Amplification factor	{ at $V_a$ 2kV, $I_a$ 0.25A }	16	
Mutual conductance	{ at $V_a$ 2kV, $V_g$ -75V }	32	mA/V

## DIRECT INTERELECTRODE CAPACITANCES

Grid to anode	30	pF
Grid to filament	60	pF
Anode to filament	1.5	pF

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3J/202E-1

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**ITT**  
**COMPONENTS**

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## COOLING REQUIREMENTS

For air-cooling requirements see graphs on page 6.

Maximum radiator core temperature	220	°C
Maximum seal temperature (Note 1)	180	°C

Note 1.—To ensure that the stern seals are kept below the stated temperatures, it is necessary to direct into the grid flange a flow of cooling air of the order of 10 to 50 ft<sup>3</sup>/min (0,28 to 1,42 m<sup>3</sup>/min) dependent upon the circuit and frequency conditions.

## MECHANICAL DATA

Dimensions	As shown in outline drawings		
Mounting position	Vertical, anode upwards or downwards		
Shipping weight, approximately	40 lb	18	kg

### Accessories

The following approved items are supplied separately under the codes indicated:

214-LVA-001A	Filament connector, smaller
214-LVA-001B	Filament connector, larger
214-LVA-001C	Grid connector
GC8	Glass support tube

## MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Class C. Industrial Heating R.F. Oscillator

### MAXIMUM RATINGS

Maximum anode voltage (peak value of direct voltage plus ripple)	7	kV
Maximum direct anode current	3	A
Maximum direct anode dissipation (continuous)	6	kW
Maximum direct grid dissipation (continuous)	280	W
Maximum direct grid current (Note 2)	700	mA
Maximum negative grid bias	-1 500	V
Maximum frequency for above ratings	50	MHz

Note 2.—This figure is given for guidance. Grid dissipation is absolute rating.

### TYPICAL OPERATING CONDITIONS

Direct anode voltage	6	6.5	kV
Direct grid voltage	-670	-770	V
Direct anode current	2.5	3	A
Peak r.f. grid voltage	950	1 050	V
Direct grid current (Note 3)	450 (650)	350 (500)	mA
Grid dissipation (Note 3)	140	115	W
Grid resistor	1.5	2.2	kΩ
Power input	15	19.5	kW
Output power (oscillator)	11.5	14.1	kW
Power into load at 85% transfer efficiency	10	12	kW

Note 3.—Subject to wide variation dependent upon the impedance of the load circuit. The values of current shown in brackets are typical of off-load conditions and are given for guidance only: practical figures are dependent upon compensatory devices in the grid circuit.

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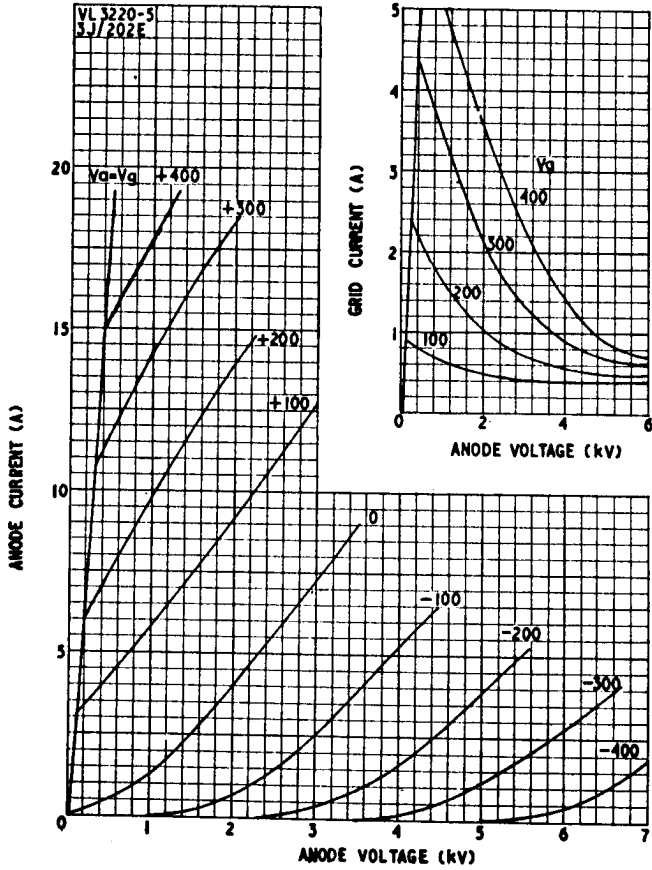
**Class B. A.F. Power Amplifier or Modulator**  
(for balanced two-valve operation)

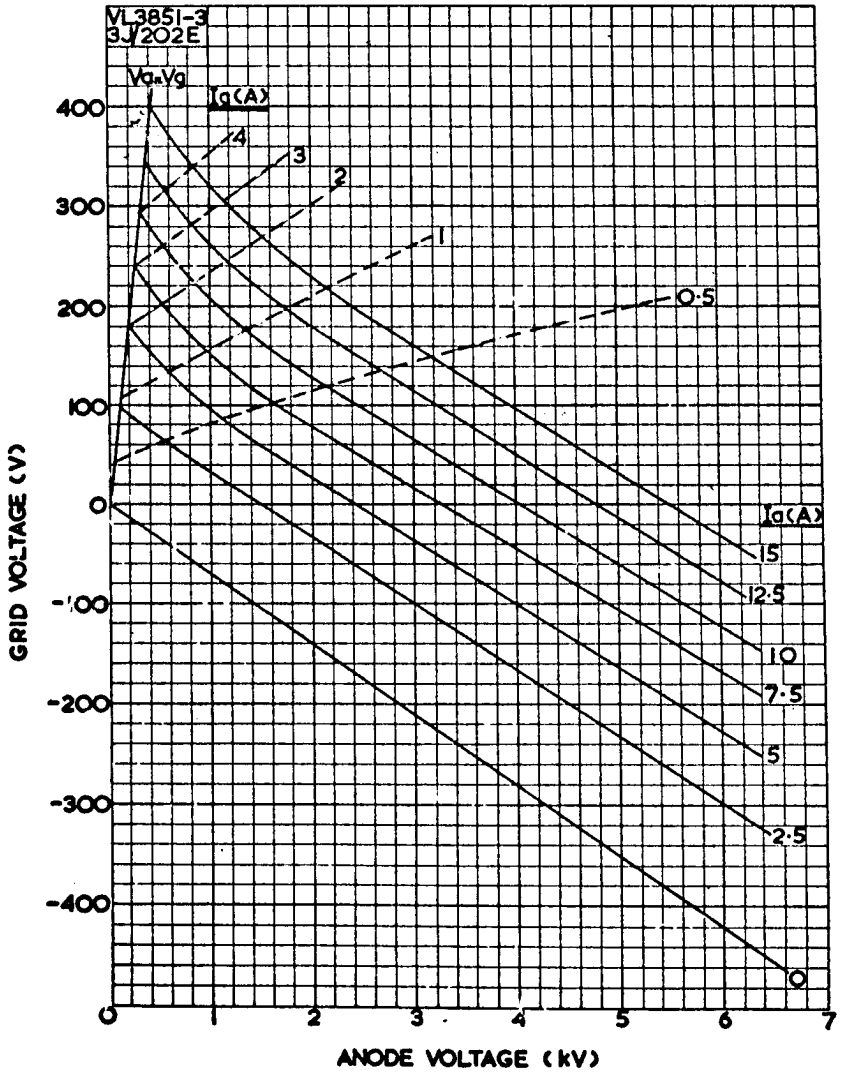
**MAXIMUM RATINGS**

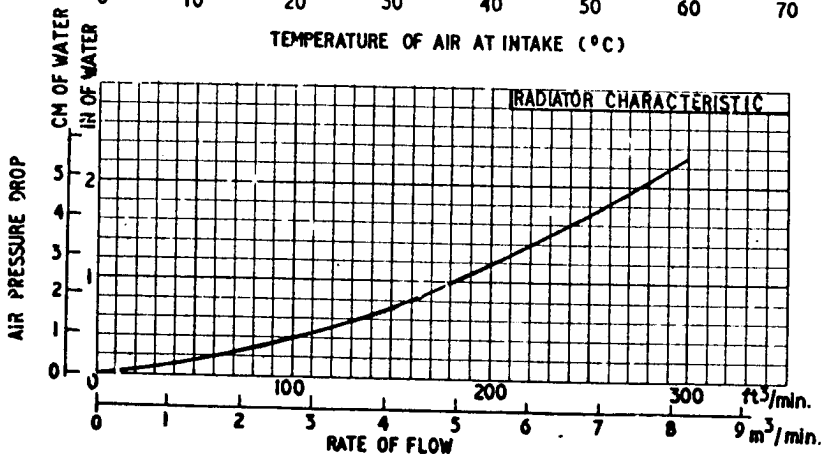
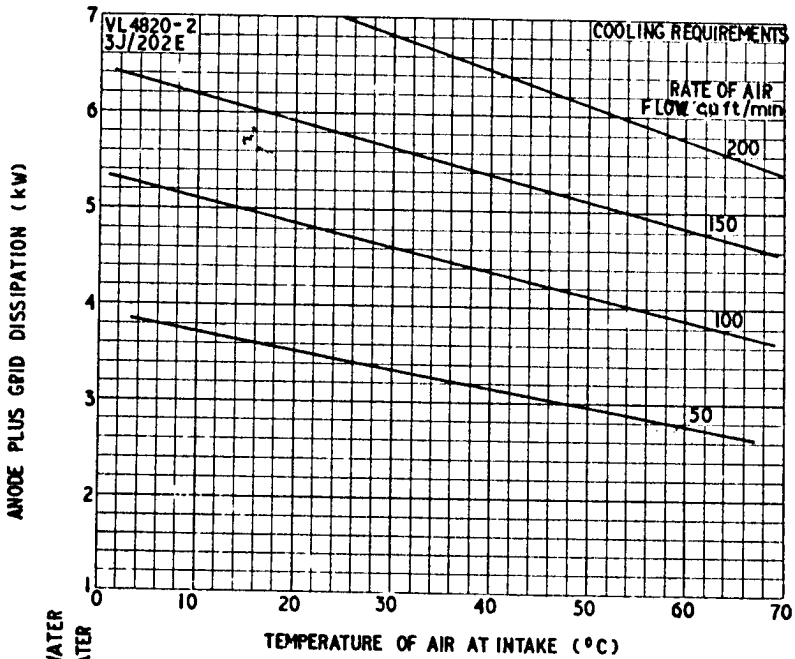
Maximum direct anode voltage	7	kV
Maximum direct anode current	3	A
Maximum direct anode dissipation (intermittent)	7	kW
Maximum direct anode dissipation (continuous)	6	kW
Maximum direct grid dissipation (continuous)	280	W
Maximum direct grid voltage	-1.5	kV

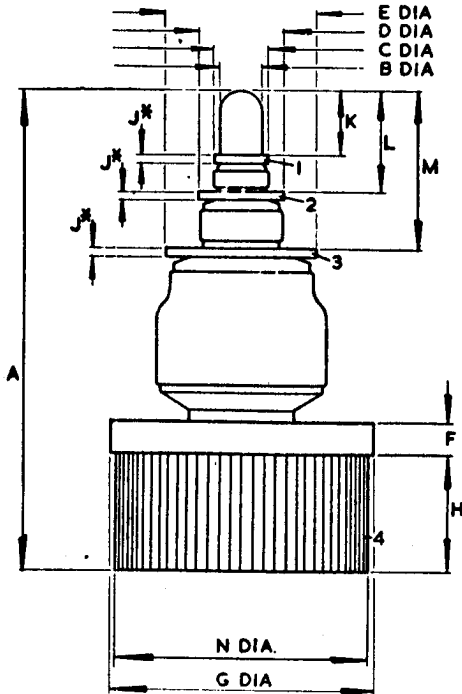
**TYPICAL OPERATING CONDITIONS**

Direct anode voltage	5	kV
Direct grid voltage	-350	V
Direct anode current (zero signal), per valve	0.5	A
Direct anode current (maximum signal), per valve	1.9	A
Load resistor, anode-to-anode	2.7	k $\Omega$
Peak a.f. grid to grid voltage	920	V
Grid drive power, approximately (2 valves)	75	W
Direct grid current, per valve	84	mA
Direct grid dissipation, per valve	7.6	W
Output power (2 valves)	12	kW









**CONNEXIONS**

- 1 FILAMENT
- 2 FILAMENT
- 3 GRID
- 4 ANODE

\*DENOTES:- CONTACT LENGTH

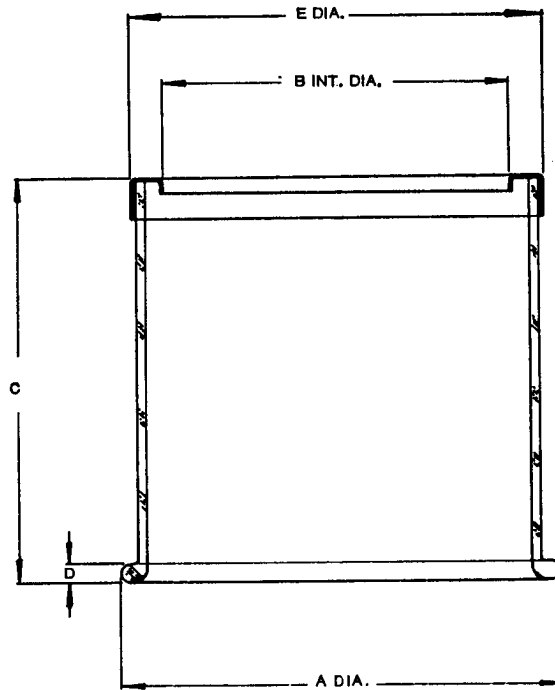
DIM.	MILLIMETRES	INCHES	DIM.	MILLIMETRES	INCHES
A	282,6 MAX.	11 1/4 MAX.	H	69,9 ± 1,6	2 3/4 ± 1/16
B	25,4 MAX.	1 MAX.	J	4,7 MIN. 6,4 MAX.	1/8 MIN. 1/4 MAX.
C	31,7 ± 0,4	1 1/4 ± 1/16	K	38,1 ± 1,6	1 1/2 ± 1/16
D	50,8 ± 0,4	2 ± 1/16	L	60,3 ± 4,8	2 3/8 ± 1/8
E	88,9 ± 0,4	3 1/2 ± 1/16	M	95,3 ± 4,8	3 3/8 ± 1/8
F	19,1 ± 1,6	3/4 ± 1/16	N	147,6 ± 1,6	5 3/4 ± 1/16
G	154,0 ± 0,8	6 1/8 ± 1/16			

NOTE: BASIC FIGURES ARE INCHES

# GLASS SUPPORT TUBE

Code: GC8

GC8 Outline



DIM.	INCHES	MILLIMETRES
A	7.1/4 MIN. 7.5/8 MAX.	184,1 MIN. 193,7 MAX.
B	5.29/32 ± 1/32	150,0 ± 0,8
C	7.1/32 ± 5/32	178,6 ± 4,0
D	1/4 MIN. 3/8 MAX.	6,3 MIN. 9,5 MAX.
E	7 MAX.	177,8 MAX.

BASIC DIMS. ARE INCHES