

PULSE TETRODE MODULATOR

QV20-P18

Tetrode for pulsed applications having ratings of 20kV and 18A.

PRELIMINARY DATA

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS – TRANSMITTING VALVES included in this volume of the handbook.

HEATER

V_h	26	V
I_h	2.25	A
t_{h-k} (minimum delay before drawing cathode current)	3	min

MOUNTING POSITION

Any

CAPACITANCES

C_{a-g1} (measured without external shield)	0.3	pF
C_{in}	43	pF
C_{out}	9.0	pF

COOLING

Natural

T_{seals} max. 200 °C

An anode connector providing a high degree of heat transfer by radiation or by conduction must be used.

OPERATION AS PULSE MODULATOR

Limiting Values (Absolute ratings)

V_a max.	20	kV
$V_{a(pulse)}$ max.	25	kV
* V_{g2} max.	1.5	kV
** $-V_{g1}$ max.	1.0	kV
+ $V_{g1(pulse)}$ max.	300	V
$i_{a(pulse)}$ max.	18	A
$p_{a(mean)}$ max.	60	W
$p_{In(mean)}$ max.	360	W
$p_{g2(mean)}$ max.	8.0	W
Duty cycle max.	**	

*A screen-grid series protective resistor of 20kΩ minimum is required with a condenser connected between screen-grid and cathode.

**The maximum control-grid series resistance is 100kΩ.

††For $i_{a(pulse)} > 5A$ the duty cycle must not exceed 0.001, and the product of $i_{a(pulse)}$ and pulse duration shall not exceed 40. The valve must not be operated for longer than 5μsec in any 100μsec interval. For $i_{a(pulse)} < 5A$ the product of $i_{a(pulse)}$ and pulse duration of 40 is still applicable and the $p_{a(mean)}$ max. rating of 60W determines the maximum, permissible duty cycle.



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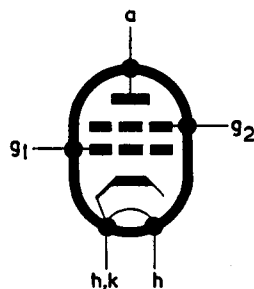
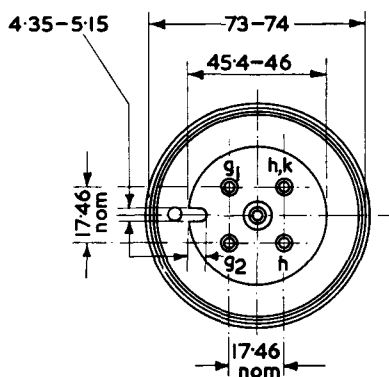
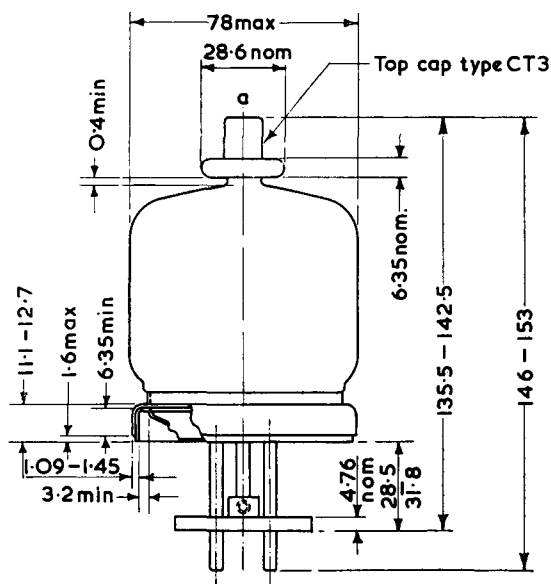
Typical Operating Conditions

t_p	2	2	μsec
P.R.F.	500	500	p/s
V_a	15.8	20	kV
V_{g2}	1.25	1.25	kV
V_{g1}	-600	-600	V
$v_{g1(\text{pulse})}$	700	700	V
$i_{a(\text{pulse})}$	14	16	A
I_a	14	16	mA
$i_{g2(\text{pulse})}$	4.0	3.0	A
I_{g2}	4.0	3.0	mA
$i_{g1(\text{pulse})}$	1.1	1.1	A
I_{g1}	1.1	1.1	mA
$P_{in(\text{pulse})}$	220	320	kW
R_a	1.0	1.2	k Ω
$P_{out(\text{pulse})}$	210	305	kW
$V_{a(out)}$	15	19	kV

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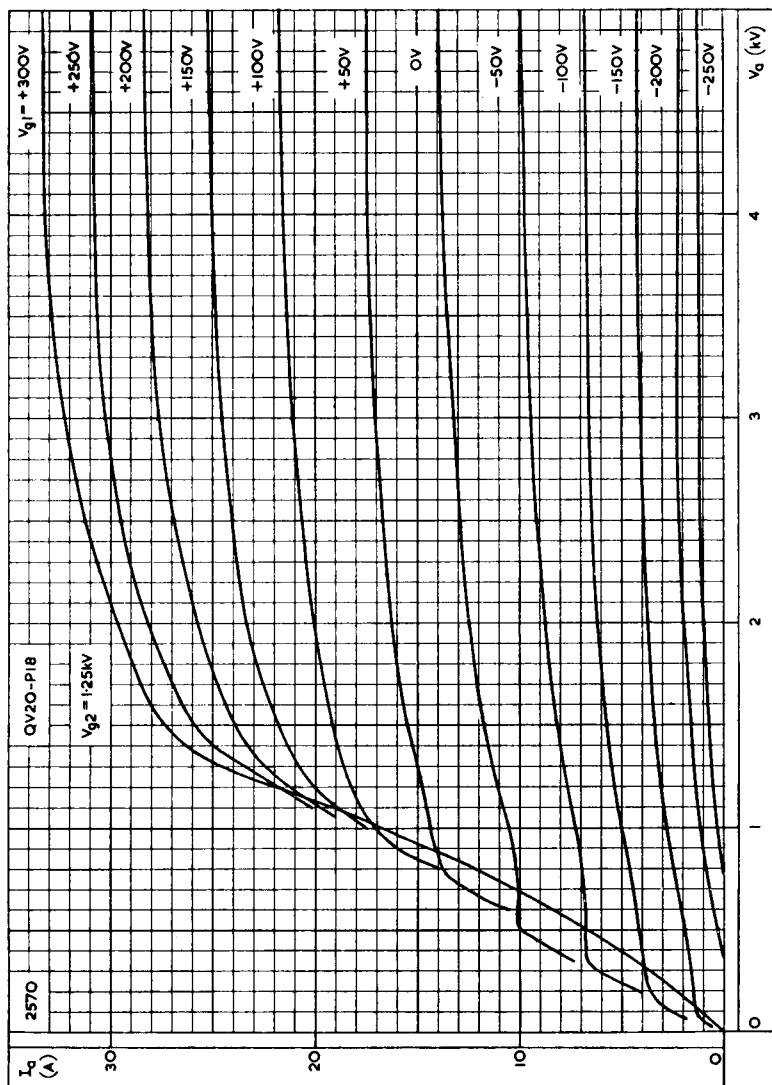
B4A Base

All dimensions in mm.

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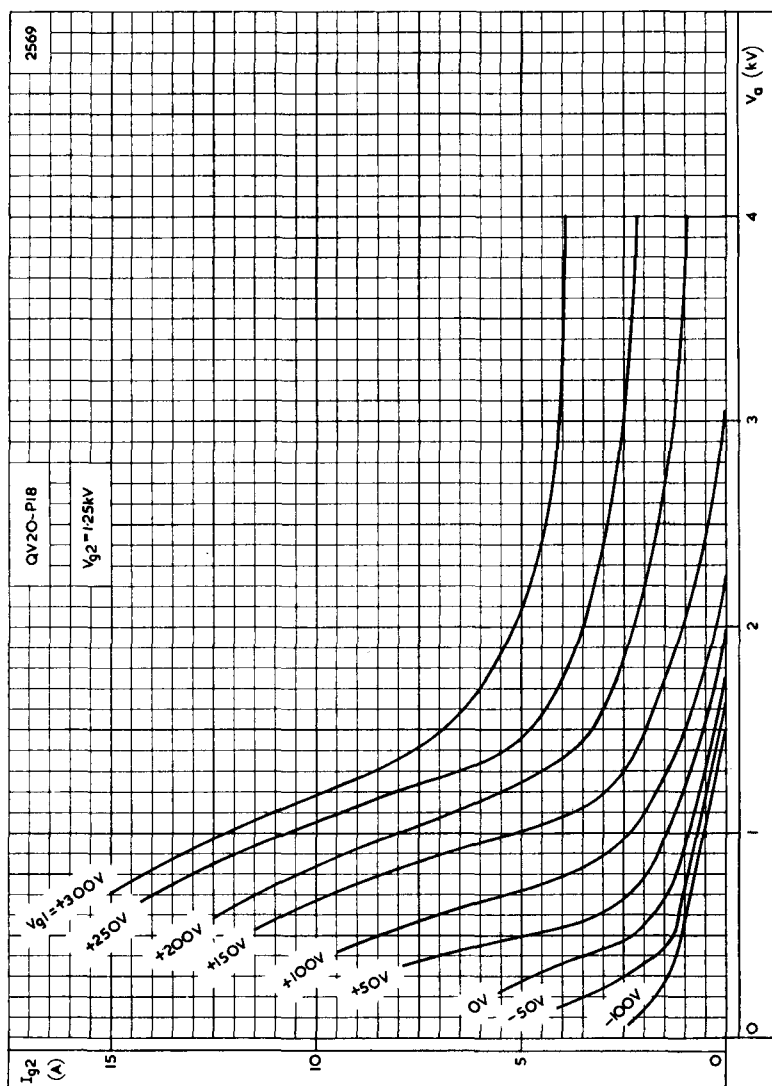


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE

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QV20-PI8

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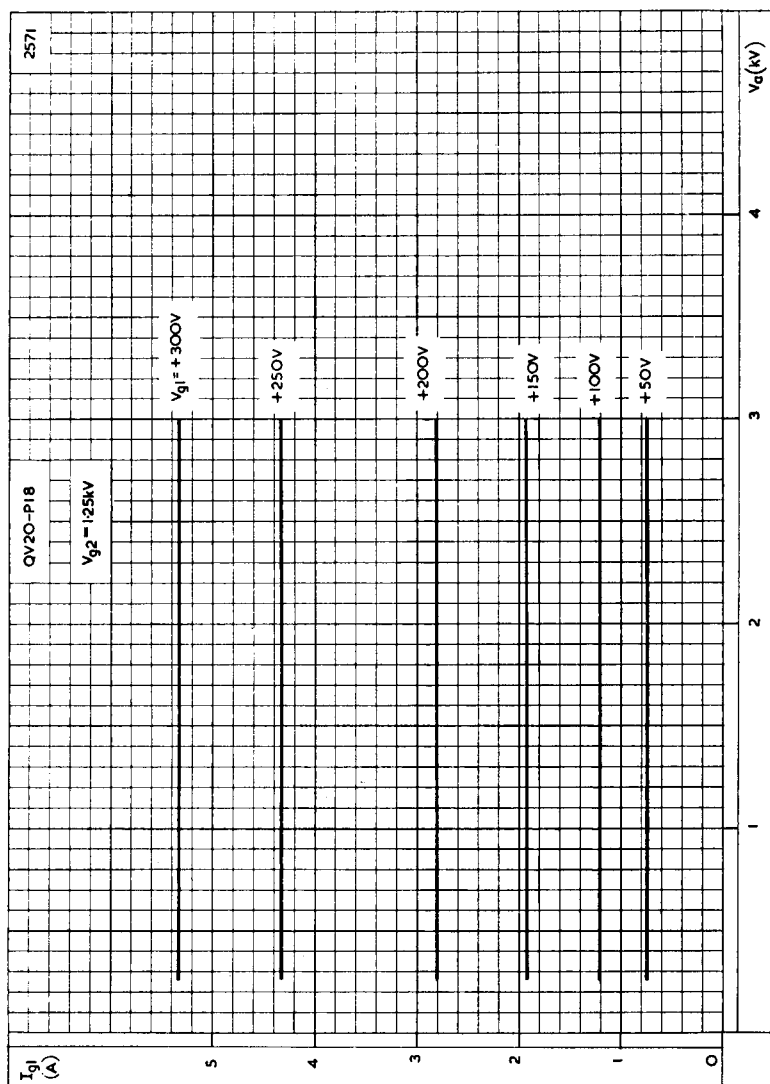


SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE

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CONTROL-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE