

DOUBLE TETRODE PULSE MODULATOR

QQV5-P10

Double tetrode for pulsed applications having
ratings of 5kV and 10A.

PRELIMINARY DATA

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

CATHODE

Indirectly heated for series or parallel operation.

	Series	Parallel	
V_h	$12.6 +10\%$ -5%	$6.3 +10\%$ -5%	V
I_h	1.2	2.4	A

MOUNTING POSITION

Vertical—base up or down

Horizontal—anode pins in horizontal plane

CAPACITANCES (each section)

C_{g1-k}	14	pF
C_{a-k}	7.0	pF

CHARACTERISTICS (each section) measured at $I_a=60\text{mA}$

g_m	8.5	mA/V
$1/2 g_1 - g_2$	9.0	

COOLING Natural.

OPERATION AS PULSE MODULATOR

Limiting Values (Absolute ratings) Two sections in parallel.

V_a max.	5.0	kV
$V_{a(\text{pulse})}$ max.	5.75	kV
V_{g2} max.	850	V
$-V_{g1}$ max.	225	V
$-V_{g1(\text{pulse})}$ max.	600	V
$+V_{g1(\text{pulse})}$ max.	250	V
$i_{a(\text{pulse})}$ max.	See curve on p. 5	
$i_{g2(\text{pulse})}$ max.	3.5	A
$i_{g1(\text{pulse})}$ max.	4.0	A
P_a max.	15	W
$P_{in(\text{mean})}$ max.	85	W
$P_{g2(\text{mean})}$ max.	3.0	W
$P_{g1(\text{mean})}$ max.	1.0	W
V_{h-k} max.	100	V

QQV5-P10

DOUBLE TETRODE PULSE MODULATOR

*Double tetrode for pulsed applications having
ratings of 5kV and 10A.*

Typical Operating Conditions

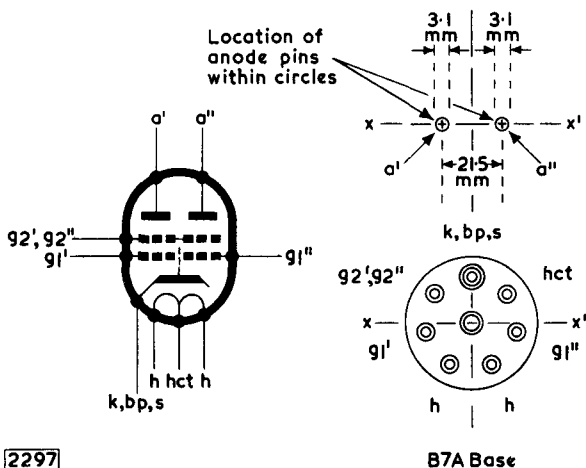
	0.1	1.0	3.0	* 1.0	μ s
t_p					
P.R.F.	1200	1200	330	1000	p/s
D.F.	0.00012	0.0012	0.001	0.001	
V_a	4.5	4.5	4.5	5.0	kV
V_{g2}	800	800	800	850	V
V_{g1}	-200	-200	-200	-200	V
$V_{g1(pulse)}$	350	300	350	350	V
$i_{a(pulse)}$	9.0	8.0	9.0	10	A
I_a	1.1	9.6	9.0	10	mA
I_{g2}	0.25	1.5	2.0	2.0	mA
I_{g1}	0.125	0.625	1.0	1.0	mA
R_a	400	450	400	400	Ω

*This condition includes some of the absolute maximum ratings and therefore assumes protective conditions of operation.

QQV5-P10

Technical drawing of a vacuum tube (6X4) showing dimensions in millimeters. The drawing includes a top view and a side view. Key dimensions include:

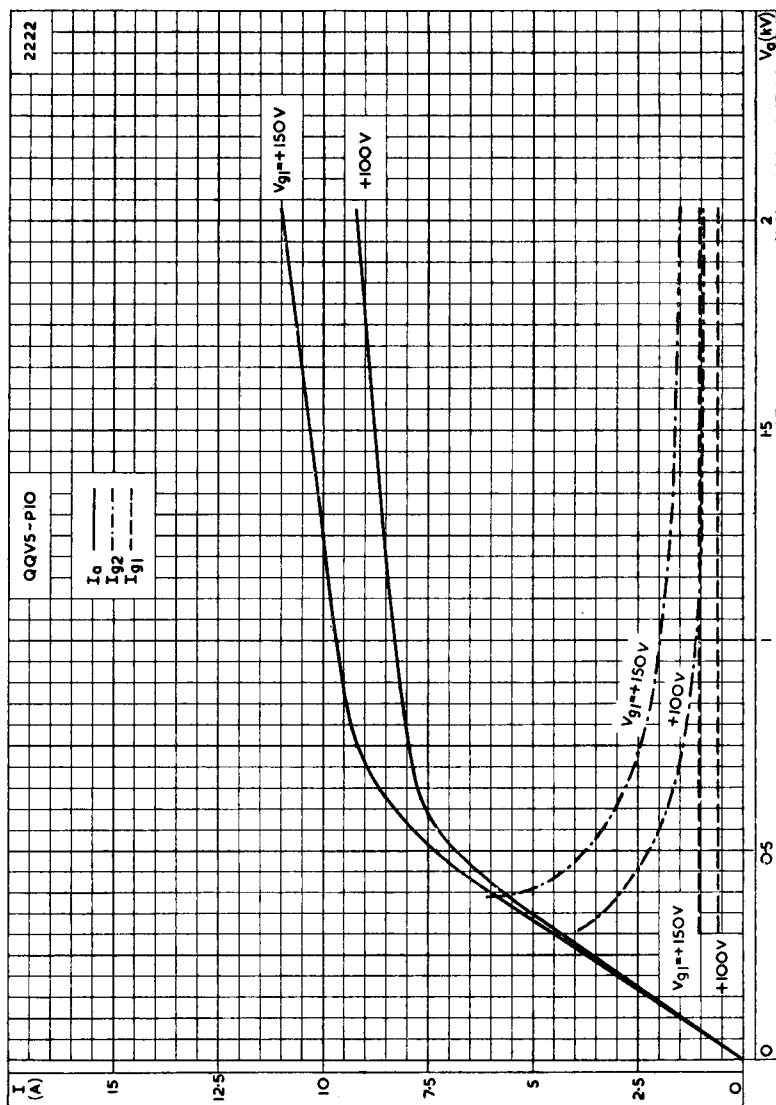
- Top width: 52mm max
- Top pin spacing: 21.5mm
- Top pin diameter: 1.5mm
- Top pin height: 12.5 ± 3mm
- Main body height: 77.5 ± 4mm
- Total height: 105 ± 4mm
- Base width: 60mm max
- Base pin spacing: 13mm max
- Base pin height: 11mm
- Base pins: 21-31 mm



QQV5-P10

DOUBLE TETRODE PULSE MODULATOR

Double tetrode for pulsed applications having
ratings of 5kV and 10A.

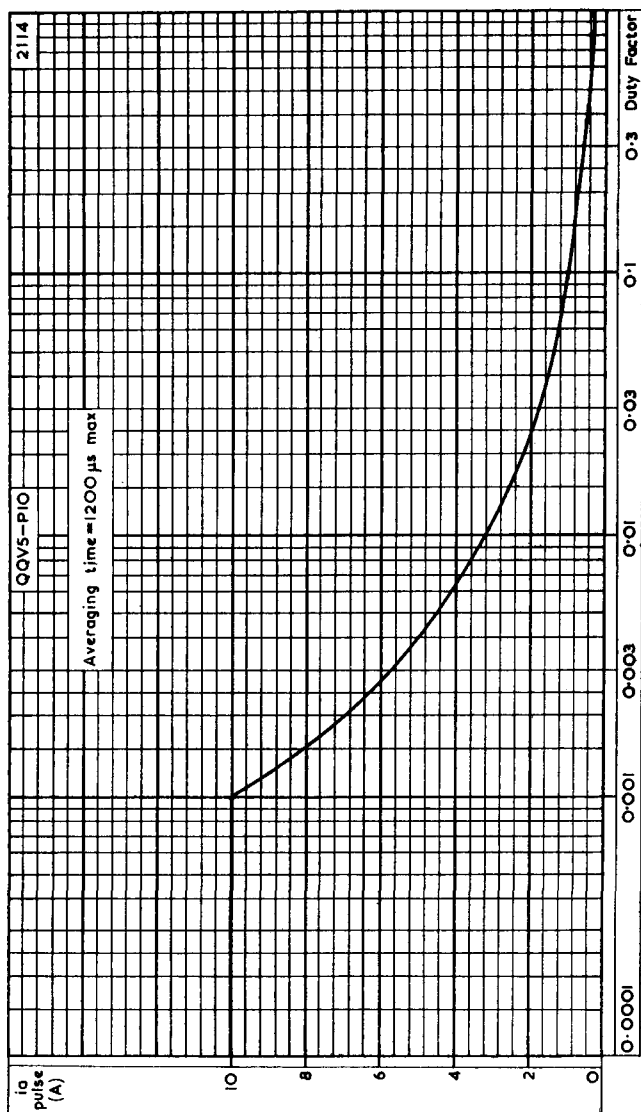


ANODE, SCREEN-GRID AND CONTROL-GRID CURRENTS PLOTTED
AGAINST ANODE VOLTAGE

DOUBLE TETRODE PULSE MODULATOR

QQV5-P10

Double tetrode for pulsed applications having
ratings of 5kV and 10A.



MAXIMUM PULSE ANODE CURRENT PLOTTED AGAINST DUTY FACTOR

DOUBLE TETRODE PULSE MODULATOR

QQV5-PI0

QUICK REFERENCE DATA

Double tetrode for pulsed applications

Performance

$i_a(\text{pulse})$	10	A
V_a	5.0	kV
t_p	1.0	μs
$i_a(\text{pulse})$ max.	10	A
V_a max.	5.0	kV

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS - TRANSMITTING VALVES which precede this section of the handbook.

OPERATION AS PULSE MODULATOR

Design centre maximum operating conditions

	*				
t_p	0.1	1.0	3.0	1.0	μs
P. R. F.	1200	1200	330	1000	p/s
D. F.	0.00012	0.0012	0.001	0.001	
V_a	4.5	4.5	4.5	5.0	kV
V_{g2}	800	800	800	850	V
$-V_{g1}$	200	200	200	200	V
$v_{g1}(\text{pulse})$	350	300	350	350	V
$i_a(\text{pulse})$	9.0	8.0	9.0	10	A
I_a	1.1	9.6	9.0	10	mA
I_{g2}	0.25	1.5	2.0	2.0	mA
I_{g1}	0.125	0.625	1.0	1.0	mA
R_a	400	450	400	400	Ω

*This condition includes some of the absolute maximum ratings and therefore assumes protective conditions of operation.

ABSOLUTE MAXIMUM RATINGS

(Two sections in parallel)

V_a max.	5.0	kV
$v_a(\text{pulse})$ max.	5.75	kV
V_{g2} max.	850	V
$-V_{g1}$ max.	225	V
$-v_{g1}(\text{pulse})$ max.	600	V
$+v_{g1}(\text{pulse})$ max.	250	V
$i_a(\text{pulse})$ max.	See curve on page C2	
$i_{g2}(\text{pulse})$ max.	3.5	A
$i_{g1}(\text{pulse})$ max.	4.0	A
p_a max.	15	W
$p_{in}(\text{mean})$ max.	85	W
$p_{g2}(\text{mean})$ max.	3.0	W
$p_{g1}(\text{mean})$ max.	1.0	W
V_{h-k} max.	100	V

CATHODE

Indirectly heated for series or parallel operation.

	Series	Parallel	
V_h	12.6	6.3	V
I_h	1.2	2.4	A

CAPACITANCES (each section)

c_{out}	7.0	pF
c_{in}	14.0	pF

CHARACTERISTICS (measured at $I_a = 60\text{mA}$) (each section)

gm	8.5	mA/V
μ_{g1-g2}	9.0	

MOUNTING POSITION

- Vertical - Base up or down.
- Horizontal - Anode pins in horizontal plane.

DOUBLE TETRODE PULSE MODULATOR

QQV5-P10

COOLING

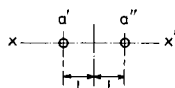
Natural

PHYSICAL DATA

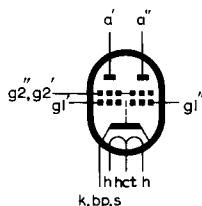
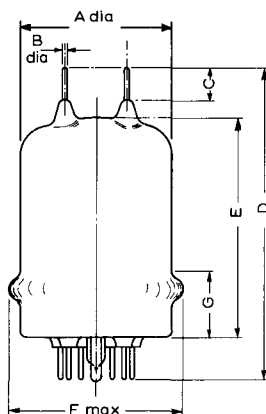
	oz	g
Weight of valve	4.00	110
Weight of valve and carton	9.25	270

DIMENSIONS

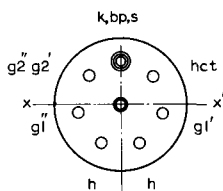
A	2.00	50.80
B	0.056 ± 0.004	1.42 ± 0.10
C	0.500 ± 0.125	12.70 ± 3.18
D	4.121 ± 0.191	104.68 ± 4.86
E	3.062 ± 0.187	77.78 ± 4.74
F	2.376	60.35
G	1.031 ± 0.188	26.19 ± 4.77
H	0.120 ± 0.001	3.05 ± 0.025
J	0.424 ± 0.001	10.77 ± 0.025



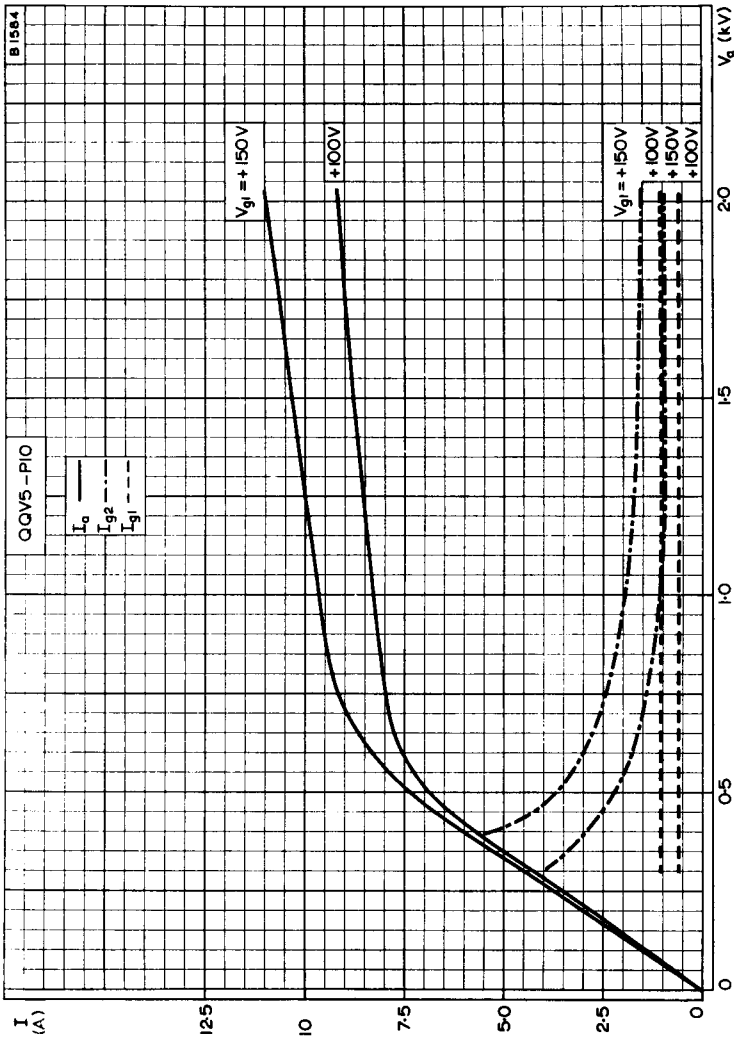
location of anode pins within circles of diameter "H"



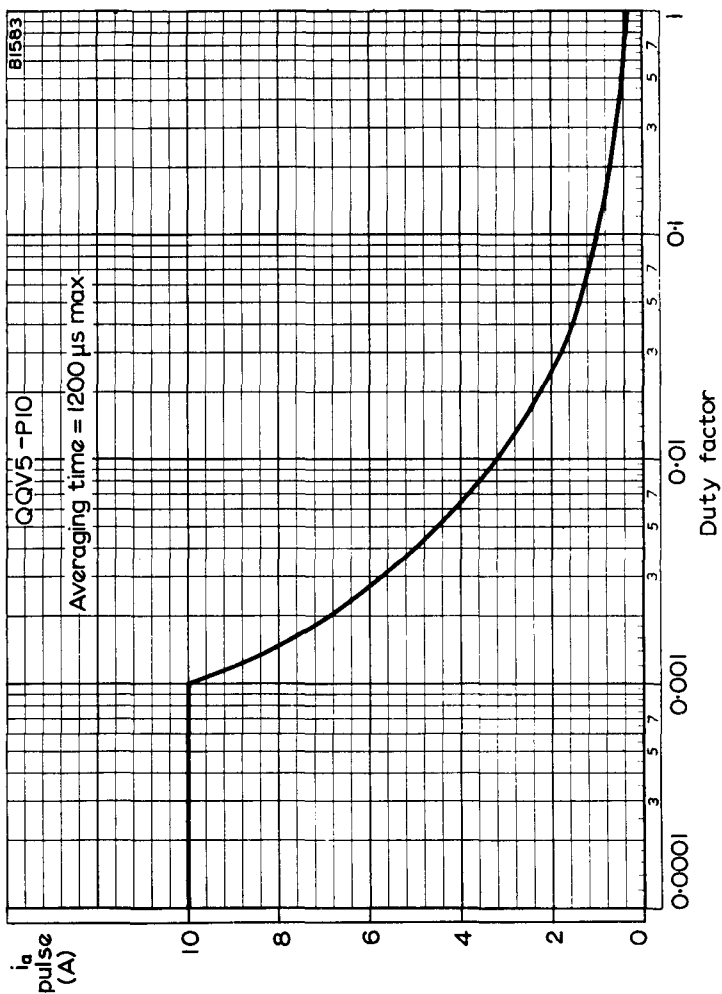
61585



B7A base



ANODE, SCREEN-GRID AND CONTROL-GRID CURRENTS PLOTTED
AGAINST ANODE VOLTAGE



MAXIMUM PULSE ANODE CURRENT PLOTTED AGAINST DUTY FACTOR