

# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

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

## CATHODE

Indirectly heated. The heater is centre-tapped and the two sections may be operated in series or parallel with one another.

	Series	Parallel	
$V_h$	12.6	6.3	V
$I_h$	0.65	1.3	A

## MOUNTING POSITION

Fixed station operation

Vertical – base up or down

Horizontal – anode pins in horizontal plane

Mobile operation

Vertical – base up or down

## CAPACITANCES

* $c_{a-g1}$ (each section)	0.04	pF ←
$c_{g1-a11}$ (each section)	7.5	pF
$c_{a-a11}$ (each section)	2.6	pF
$c_{out}$ (two sections in push-pull)	1.6	pF
$c_{in}$ (two sections in push-pull)	4.4	pF

\*Internally neutralised for push-pull operation

## CHARACTERISTICS (each section) measured at $I_a = 20mA$

$g_m$	2.5	mA/V
$\mu_{g1-a2}$	8.0	

## COOLING

Maximum base pin temperature	180	°C
Maximum bulb and anode seal temperature	200	°C

Anode connectors providing a high degree of heat transfer by radiation or by conduction should be used.

Natural cooling is sufficient with—

$V_a = 600V$  at frequencies up to 150Mc/s

$V_a = 500V$  at frequencies up to 200Mc/s

$V_a = 300V$  at frequencies up to 430Mc/s

Above these limits or with high ambient temperatures it may be necessary to direct a flow of air (up to 5cu.ft. per min.) on the top of the bulb to keep the seal temperature within the stated limit.

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

### OPERATING CONDITIONS AS A PUSH-PULL R.F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)

#### Limiting Values

$V_a$ max.	See page 14	
$P_a$ max.	$2 \times 10$	W
$V_{g2(b)}$ max.	600	V
$V_{g2}$ max.	300	V ←
$P_{g2}$ max.	$2 \times 1.5$	W
$P_{g1}$ max.	$2 \times 0.5$	W
$I_{g1}$ max.	$2 \times 2.5$	mA ←
$I_k$ max.	$2 \times 55$	mA
$I_{k(pk)}$ max.	$2 \times 260$	mA
$-V_{g1}$ max.	75	V
$R_{g1-k}$ max. per section (fixed bias)	50	kΩ
$R_{g1-k}$ max. per section (automatic bias)	100	kΩ
$V_{h-k}$ max.	100	V

#### Typical operating conditions

$f$	200	200	200	200	Mc/s
$V_a$	200	300	400	600	V
$V_{g2}$	200	250	250	250	V
$V_{g1}$	-30	-40	-50	-60	V
$I_a$	$2 \times 50$	$2 \times 50$	$2 \times 50$	$2 \times 50$	mA
$I_{g2}$	$2 \times 4.0$	$2 \times 4.5$	$2 \times 4.0$	$2 \times 4.0$	mA
* $I_{g1}$	$2 \times 1.0$	$2 \times 0.7$	$2 \times 0.7$	$2 \times 0.7$	mA
$P_{load(driver)}$	<1.0	<1.0	1.0	1.5	W
$P_a$	$2 \times 3.5$	$2 \times 4.5$	$2 \times 5.0$	$2 \times 6.0$	W
$P_{out}$	13	21	30	48	W
$\eta$	65	70	75	80	%
$P_{load}$	11	18	25	39	W
$f$	400	400	400	600	Mc/s
$V_a$	200	300	400	400	V
$V_{g2}$	200	250	250	250	V
$V_{g1}$	-30	-40	-50	-50	V
$I_a$	$2 \times 50$	$2 \times 50$	$2 \times 50$	$2 \times 50$	mA
$I_{g2}$	$2 \times 3.0$	$2 \times 2.5$	$2 \times 2.5$	$2 \times 2.5$	mA
* $I_{g1}$	$2 \times 0.5$	$2 \times 0.6$	$2 \times 0.7$	$2 \times 0.7$	mA
$P_{load(driver)}$	1.0	1.5	2.0	6.0	W
$P_a$	$2 \times 4.5$	$2 \times 6.5$	$2 \times 7.5$	$2 \times 10$	W
$P_{out}$	11	17	25	20	W
$\eta$	55	57	63	50	%
$P_{load}$	9	14	20	15	W

\* $I_{g1}$  will vary between valves.



# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

## OPERATING CONDITIONS AS ANODE AND SCREEN-GRID MODULATED R.F. POWER AMPLIFIER (CLASS "C" TELEPHONY)

Limiting values (carrier conditions for modulation factor of 1)

$V_a$ max.	See page 16	
$p_a$ max.	$2 \times 6.7$	W
$V_{g2(b)}$ max.	600	V
$V_{g2}$ max.	300	V ←
$p_{g2}$ max.	$2 \times 1.2$	W ←
$p_{g1}$ max.	$2 \times 0.5$	W
$I_{g1}$ max.	$2 \times 2.5$	mA
$I_k$ max.	$2 \times 50$	mA
$i_{k(pk)}$ max.	$2 \times 400$	mA
$-V_{g1}$ max.	100	V
$V_{h-k}$ max.	100	V

Typical operating conditions for unmodulated carrier

$f$	200	200	200	400	Mc/s
$V_a$	300	500	600	300	V
$V_{g2}$	250	250	250	250	V
$V_{g1}$	-50	-80	-80	-50	V
$I_a$	$2 \times 40$	$2 \times 40$	$2 \times 40$	$2 \times 40$	mA
$I_{g2}$	$2 \times 4.0$	$2 \times 4.0$	$2 \times 4.0$	$2 \times 3.0$	mA
* $I_{g1}$	$2 \times 1.0$	$2 \times 1.0$	$2 \times 1.0$	$2 \times 1.0$	mA
$P_{load(driver)}$	1.5	3.0	3.0	2.5	W
$p_a$	$2 \times 3.5$	$2 \times 4.0$	$2 \times 5.0$	$2 \times 4.5$	W
$P_{out}$	17	31	38	15	W ←
$\eta$	71	78	79	63	%
$P_{load}$	14	24	32	12	W ←
For 100% modulation					
$V_{g2(pk)}$	185	185	185	185	V
$P_{mod}$	13	21	25	13	W ←

\* $I_{g1}$  will vary between valves

## OPERATING CONDITIONS AS FREQUENCY TREBLER

Limiting values

$V_a$ max.	600	V
$p_a$ max.	$2 \times 10$	W
$V_{g2(b)}$ max.	600	V
$V_{g2}$ max.	300	V ←
$p_{g2}$ max.	$2 \times 1.5$	W
$-V_{g1}$ max.	200	V
$I_{g1}$ max.	$2 \times 2.5$	mA
$p_{g1}$ max.	$2 \times 0.5$	W
$I_k$ max.	$2 \times 50$	mA
$i_{k(pk)}$ max.	$2 \times 275$	mA
$R_{g1-k}$ max. per section (fixed bias)	50	k $\Omega$
$R_{g1-k}$ max. per section (automatic bias)	100	k $\Omega$
$V_{h-k}$ max.	100	V

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

### Typical operating conditions

$f_{out}$	200	400	Mc's
$V_a$	300	300	V
$V_{g2}$	250	250	V
$V_{g1}$	-175	-175	V
$I_a$	$2 \times 45$	$2 \times 45$	mA
$I_{g2}$	$2 \times 3.0$	$2 \times 2.8$	mA
$I_{g1}$	$2 \times 1.5$	$2 \times 1.2$	mA
$P_{load(driver)}$	4.0	5.0	W
$p_a$	$2 \times 8.5$	$2 \times 9.5$	W
$P_{out}$	10	8.0	W
$\eta$	37	30	%
$P_{load}$	8.0	6.0	W

### OPERATING CONDITIONS AS A.F. POWER AMPLIFIER AND MODULATOR (CLASS "B")

#### Limiting values

$V_a$ max.	600	V
$p_a$ max.	$2 \times 10$	W
$V_{g2(b)}$ max.	600	V
$V_{g2}$ max.	300	V
$p_{g2}$ max.	$2 \times 1.5$	W
$-V_{g1}$ max.	75	V
$p_{g1}$ max.	$2 \times 0.5$	W
$I_k$ max.	$2 \times 55$	mA
$i_{k(pk)}$ max.	$2 \times 120$	mA
$R_{g1-k}$ max. per section (fixed bias)	50	k $\Omega$
$R_{g1-k}$ max. per section (automatic bias)	100	k $\Omega$
$V_{h-k}$ max.	100	V

#### Typical operating conditions

$V_a$	300	500	V
$V_{g2}$	250	250	V
$V_{g1}$	-25	-26	V
$I_{a(o)}$	$2 \times 12.5$	$2 \times 12.5$	mA
$I_a$ (max. sig.)	$2 \times 35$	$2 \times 36.5$	mA
$I_{g2(o)}$	$2 \times 0.6$	$2 \times 0.35$	mA
$I_{g2}$ (max. sig.)	$2 \times 9.5$	$2 \times 8.1$	mA
$P_{a(o)}$	$2 \times 3.75$	$2 \times 6.25$	W
$p_a$ (max. sig.)	$2 \times 3.9$	$2 \times 6.5$	W
$P_{out}$	13.2	23.5	W
$R_{a-a}$	11	20	k $\Omega$
$D_{tot}$	3.5	3.5	%
$V_{In(g1-g1)r.m.s.}$	35	37	V

### ACCESSORIES

Information on these items can be obtained from the Industrial Technical Service Dept., Mullard Ltd.,

### WEIGHT

Valve only

{ 2.0 oz  
53 g

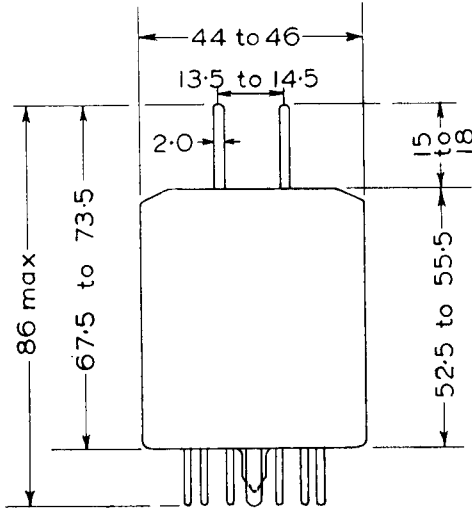


# V.H.F. POWER DOUBLE TETRODE

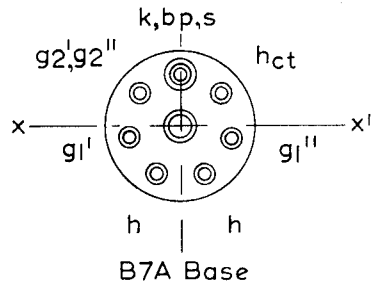
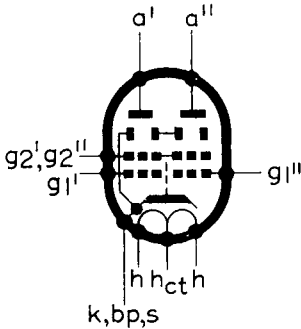
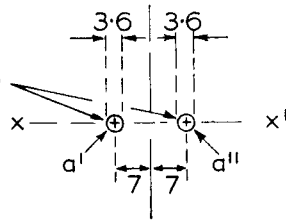
# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

4375



Location of anode pins within circles

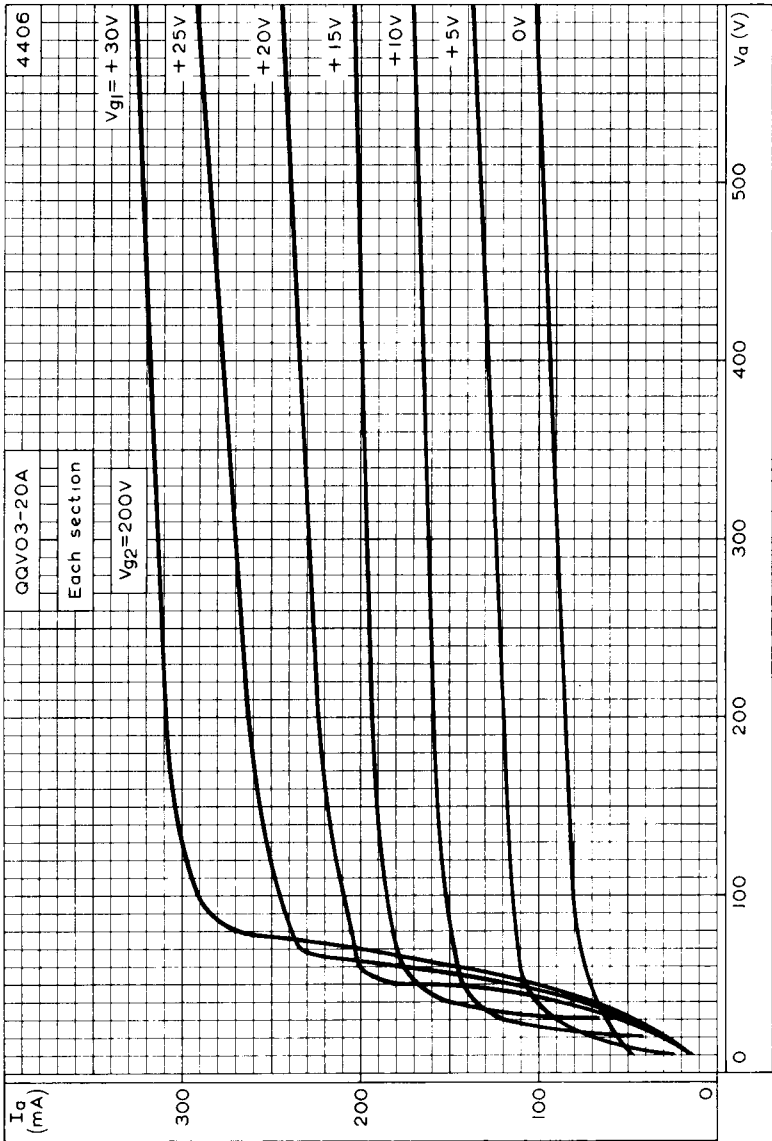


All dimensions in mm

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

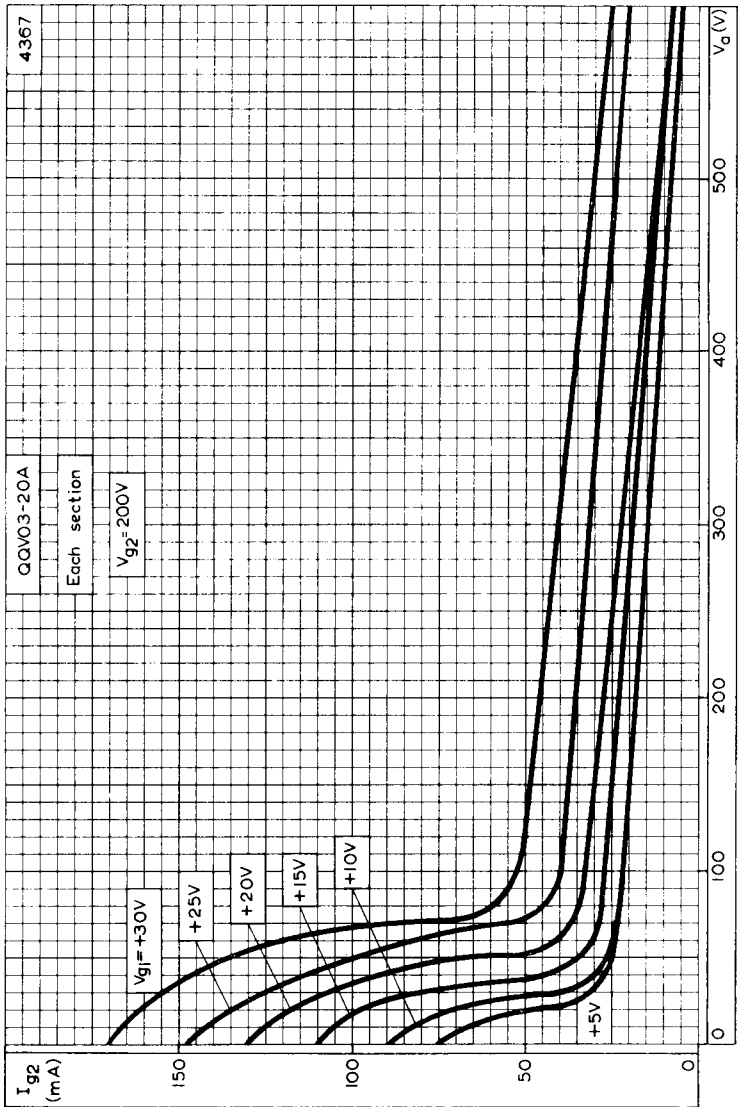


ANODE CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 200V$

# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

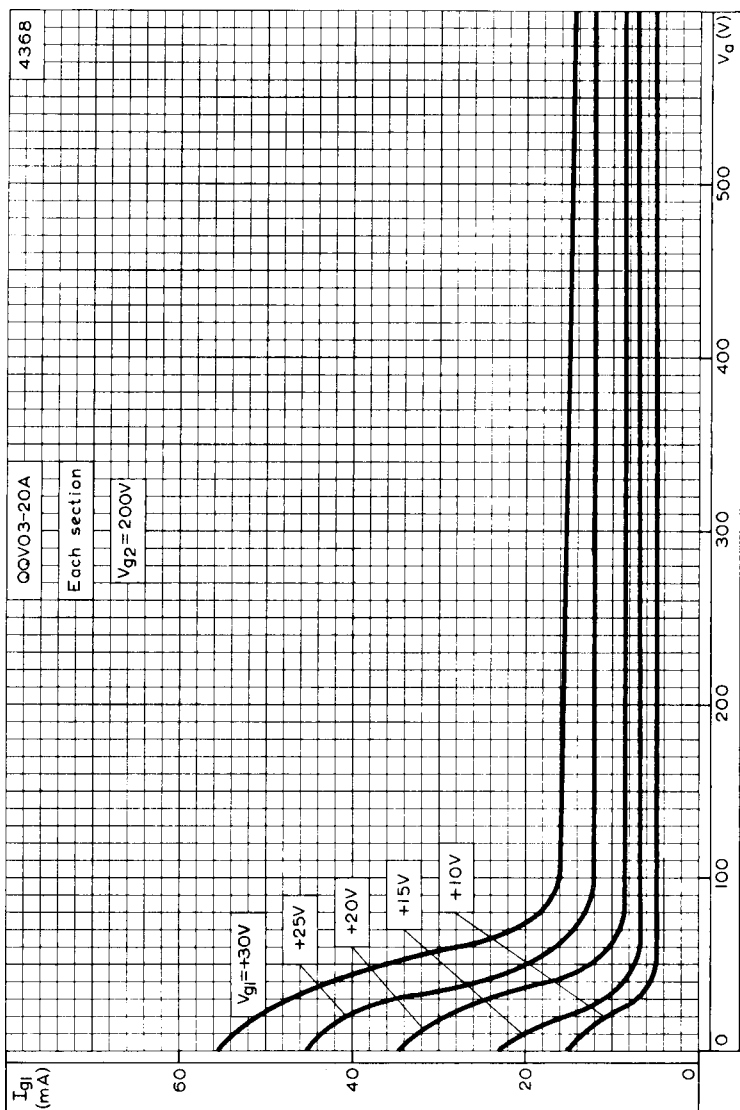


SCREEN-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 200V$

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.



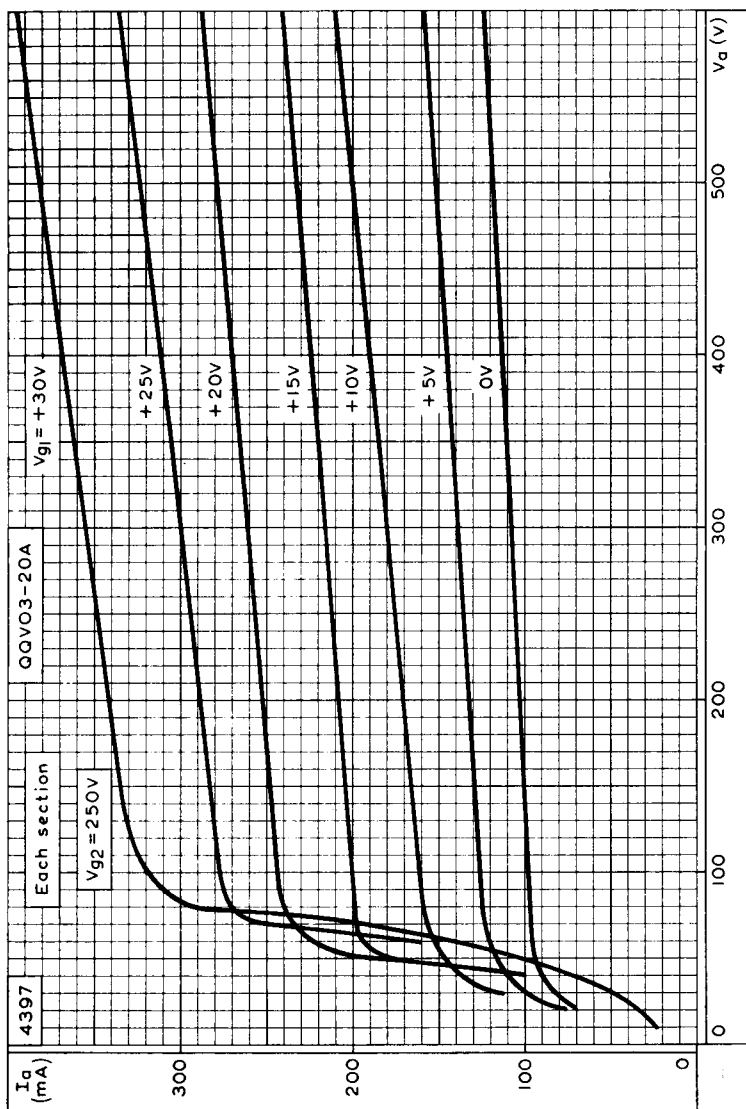
CONTROL-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 200V$



# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

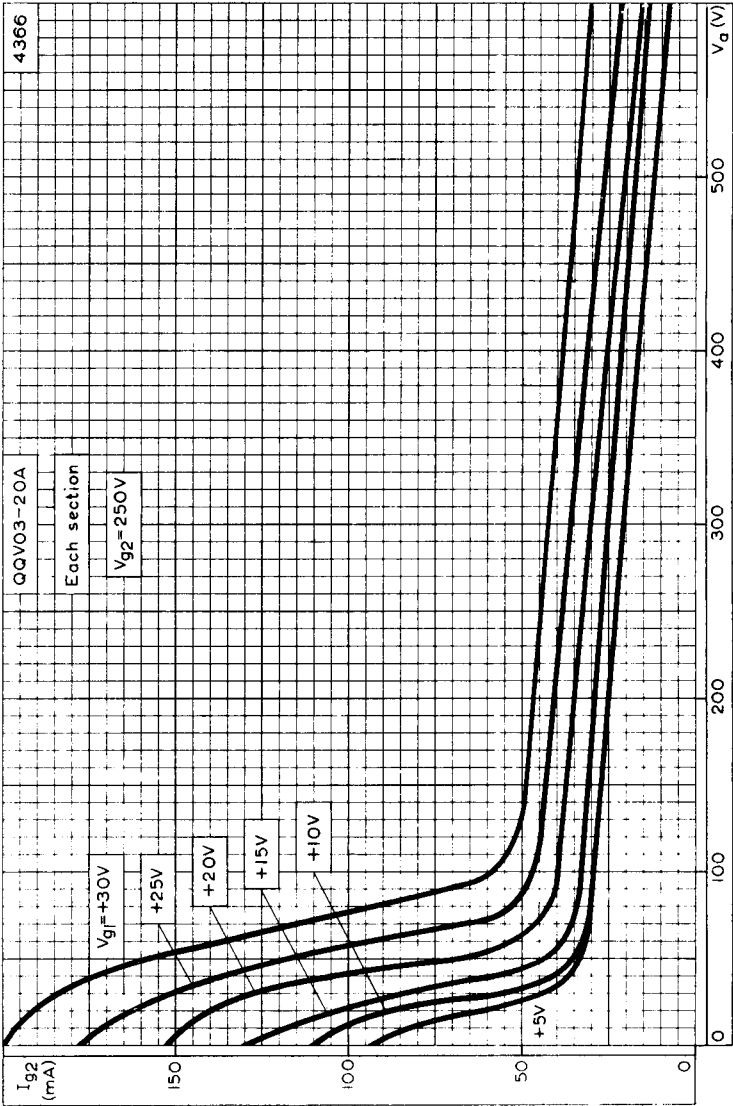


ANODE CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 250V$

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc.s.



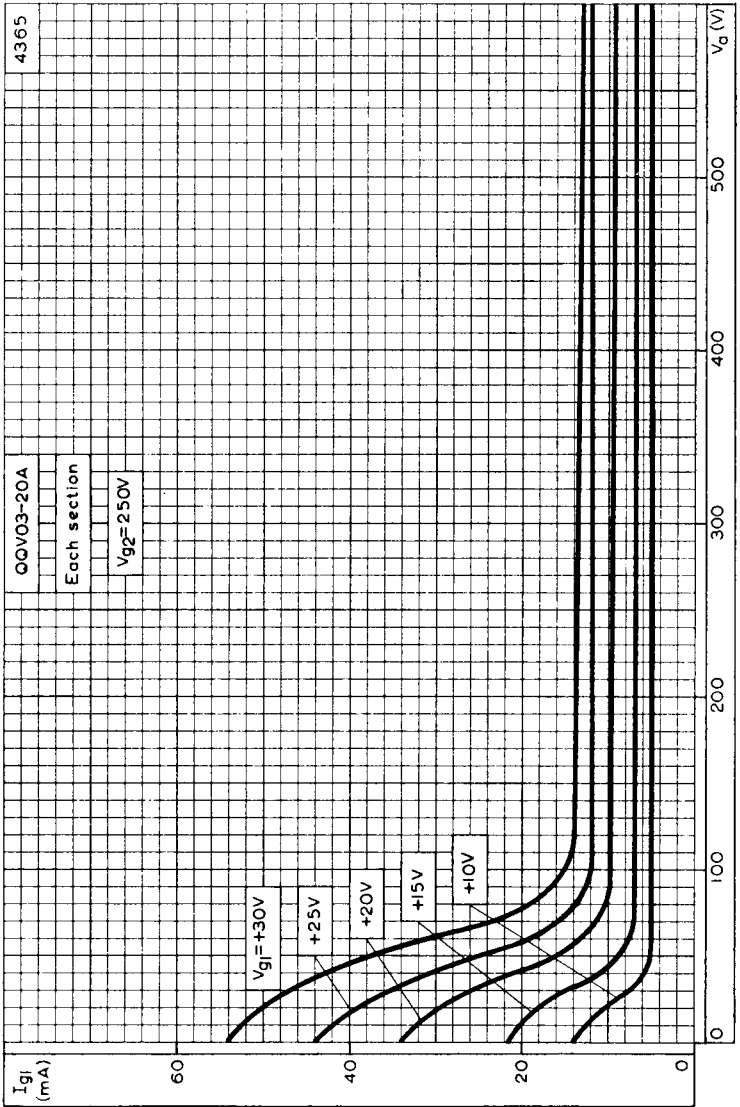
SCREEN-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 250V$



**V.H.F. POWER DOUBLE TETRODE**

# QQV03-20A

*Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.*



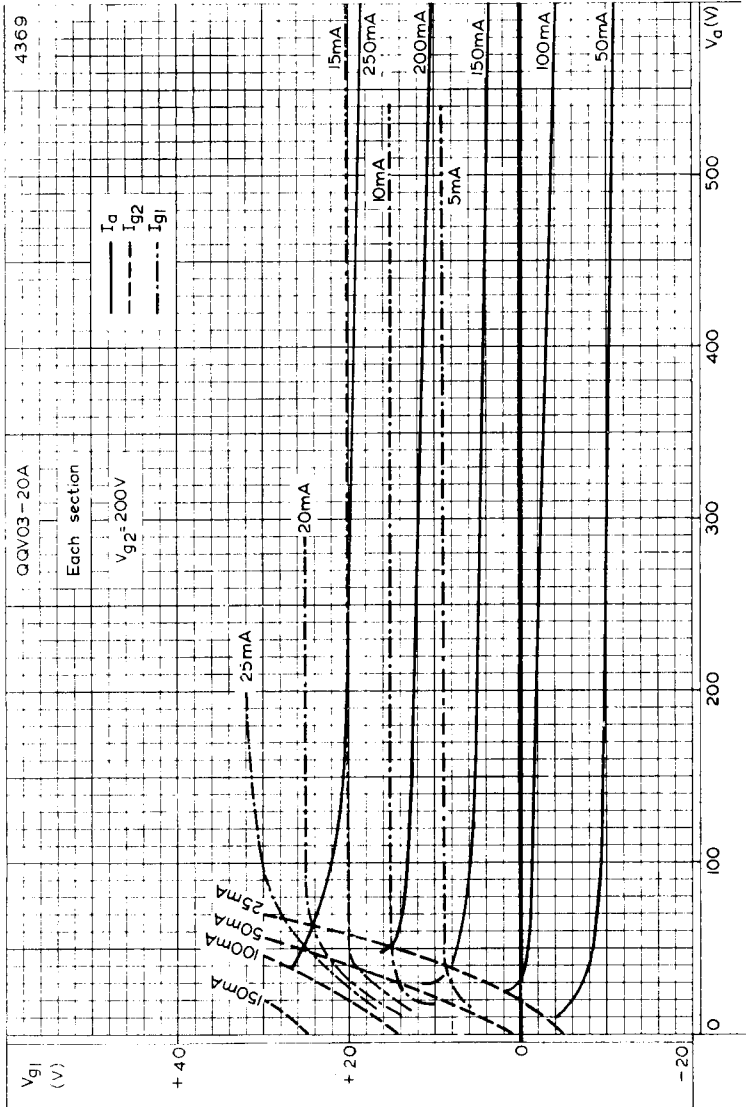
CONTROL-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  
 $V_{g2} = 250V$



# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.



CONSTANT CURRENT CURVES FOR EACH SECTION  $V_{g2} = 200V$



# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

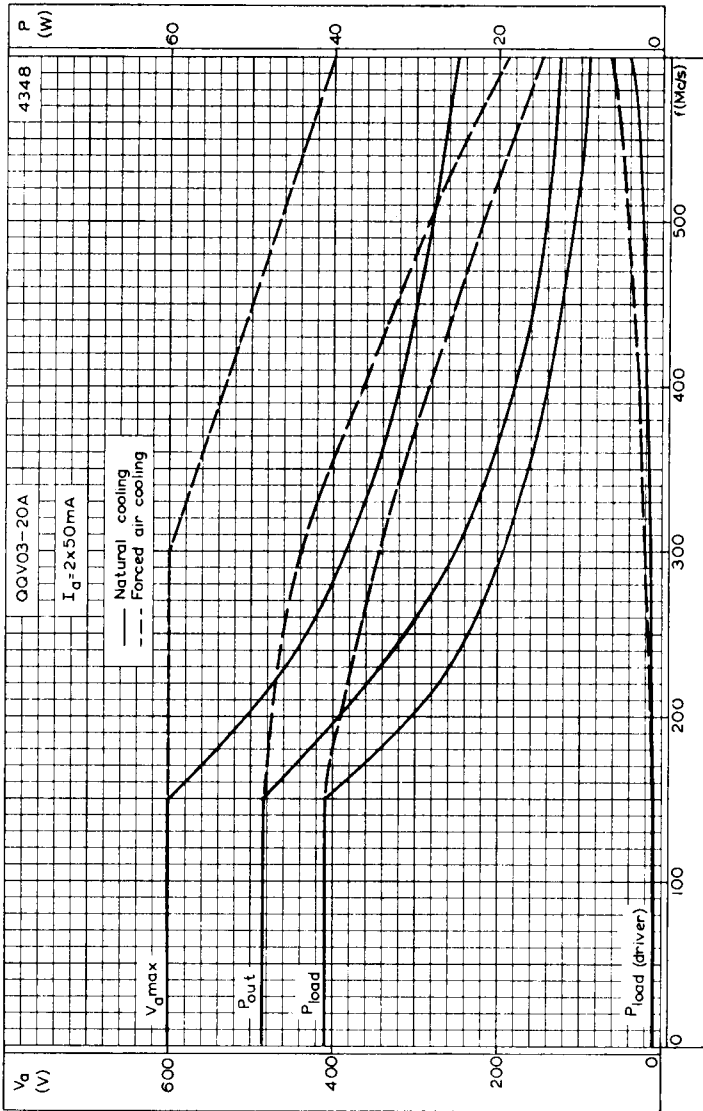


CONSTANT CURRENT CURVES FOR EACH SECTION  $V_{g2} = 250V$

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.



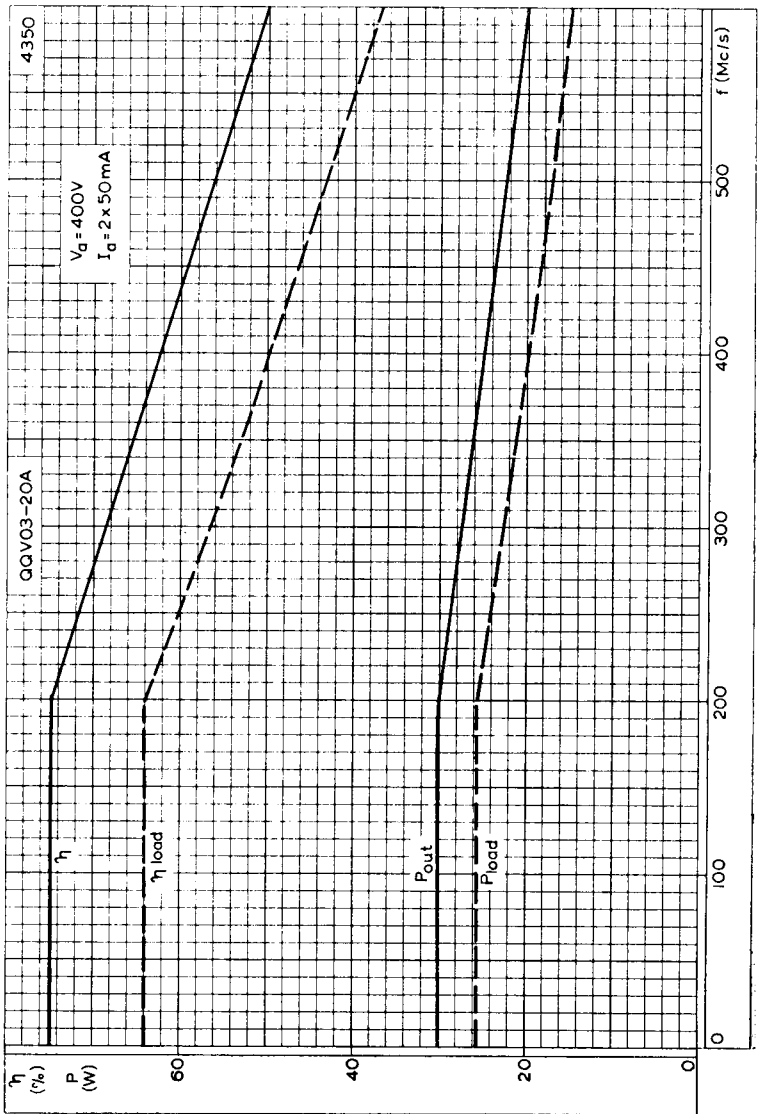
FREQUENCY CHARACTERISTICS FOR OPERATING CONDITIONS AS A PUSH-PULL R.F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)



# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.

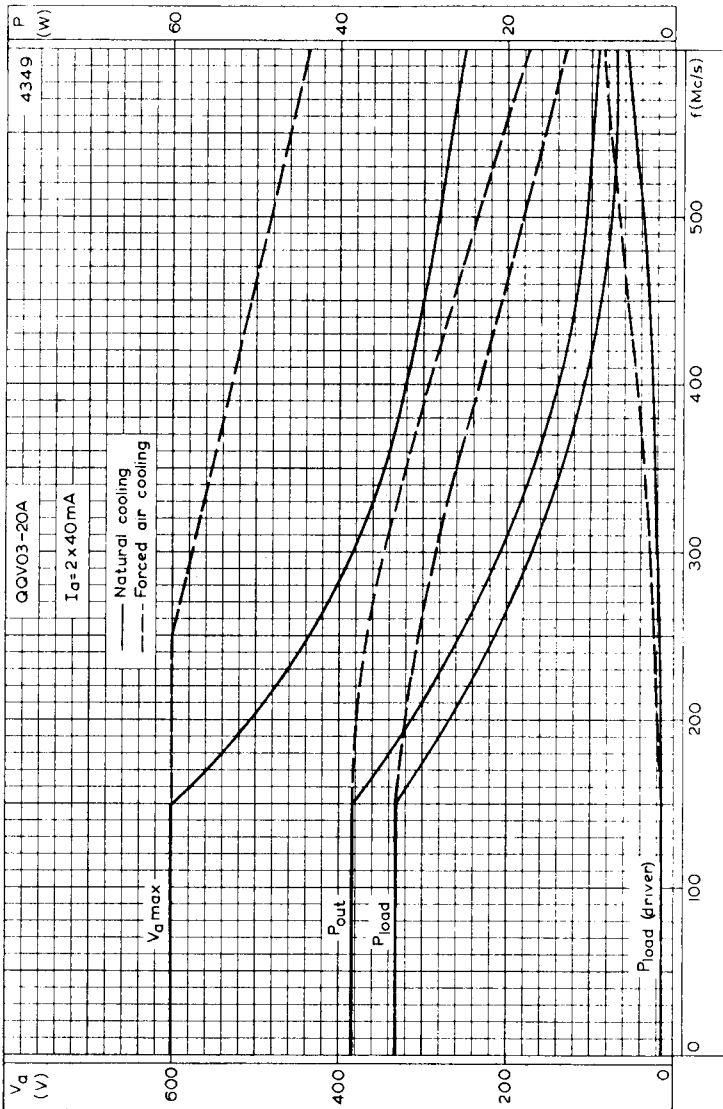


FREQUENCY CHARACTERISTICS FOR OPERATING CONDITIONS AS A PUSH-PULL R.F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)

# QQV03-20A

## V.H.F. POWER DOUBLE TETRODE

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s.



FREQUENCY CHARACTERISTICS FOR OPERATING CONDITIONS AS ANODE AND SCREEN-GRID MODULATED R.F. POWER AMPLIFIER (CLASS "C" TELEPHONY)

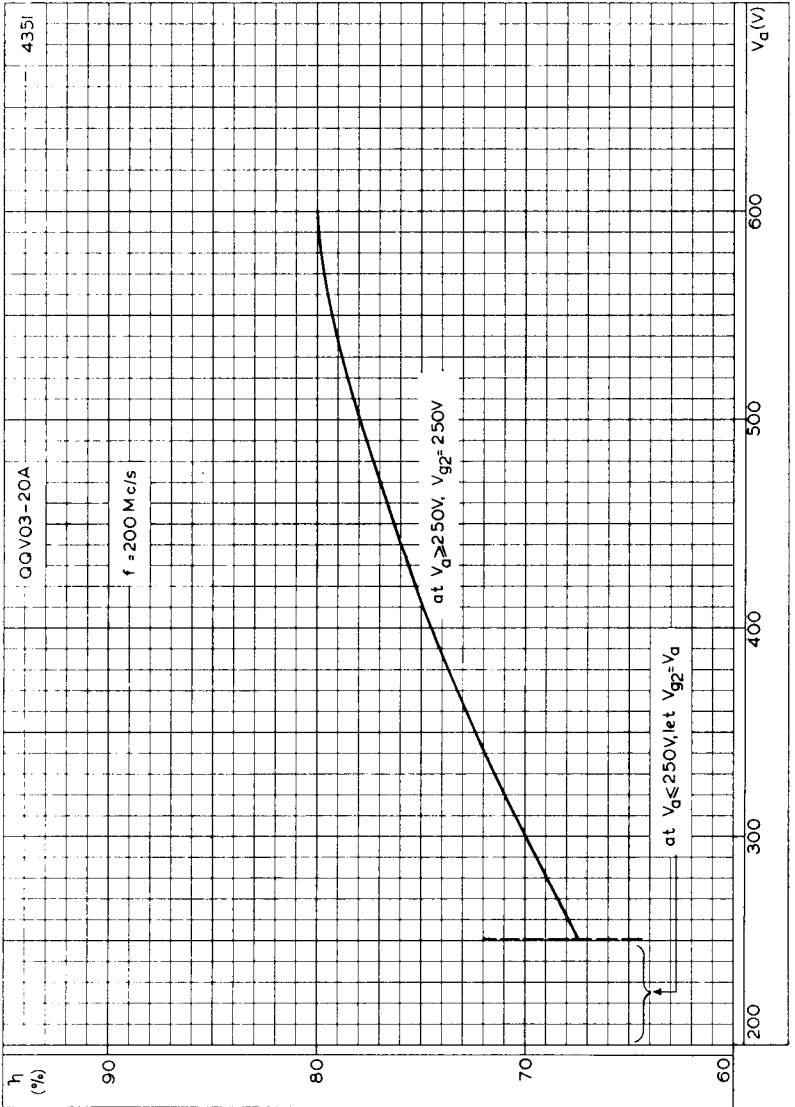




# V.H.F. POWER DOUBLE TETRODE

# QQV03-20A

Beam power double tetrode rated to dissipate 10W at each anode and intended for use at frequencies up to 600Mc/s



ANODE EFFICIENCY PLOTTED AGAINST ANODE VOLTAGE FOR CLASS "C" PUSH-PULL TELEGRAPHY

# U.H.F. POWER DOUBLE TETRODE

# QQV03-20A

## QUICK REFERENCE DATA

Natural or forced-air cooled beam power double tetrode. Intended for use as a U. H. F. power amplifier or frequency multiplier or A. F. power amplifier.

	Frequency Multiplier	Class 'C' Telephony Anode and Screen Modulated	Class 'C' Telegraphy or F. M. Telephony	
<b>Performance</b>				
f out	400	200	200	Mc/s
P out	8	38	48	W
f max.	600	600	600	Mc/s
Va max.	600	600	600	V
pa max.	2 x 10	2 x 6.7	2 x 10	W

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

### OPERATING CONDITIONS AS A PUSH-PULL R. F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F. M. TELEPHONY)

#### Absolute maximum ratings

Va max.	600	V
pa max.	2 x 10	W
Vg2(b) max.	600	V
Vg2 max.	300	V
pg2 max.	2 x 1.5	W
pg1 max.	2 x 0.5	W
Ig1 max.	2 x 2.5	mA
Ik max.	2 x 55	mA
ik(pk) max.	2 x 260	mA
-Vg1 max.	75	V
Rg1-k max. per section (fixed bias)	50	kΩ
Rg1-k max. per section (automatic bias)	100	kΩ
Vh-k max.	100	V

### Typical operating conditions

f	200	200	200	200	Mc/s
Va	200	300	400	600	V
Vg2	200	250	250	250	V
-Vg1	30	40	50	-60	V
Ia	2 x 50	2 x 50	2 x 50	2 x 50	mA
Ig2	2 x 4.0	2 x 4.5	2 x 4.0	2 x 4.0	mA
*Igl	2 x 1.0	2 x 0.7	2 x 0.7	2 x 0.7	mA
Pload (driver)	<1.0	<1.0	1.0	1.5	W
pa	2 x 3.5	2 x 4.5	2 x 5.0	2 x 6.0	W
Pout	13	21	30	48	W
$\eta_a$	65	70	75	80	%
Pload	11	18	25	39	W
f	470	470	470	600	Mc/s ←
Va	200	300	400	400	V
Vg2	200	250	250	250	V
Vg1	-30	-40	-50	-50	V
Ia	2 x 50	2 x 50	2 x 50	2 x 50	mA
Ig2	2 x 3.0	2 x 2.5	2 x 2.5	2 x 2.5	mA
*Igl	2 x 0.5	2 x 0.6	2 x 0.7	2 x 0.7	mA
Pload (driver)	1.0	2.5	3.0	6.0	W ←
pa	2 x 4.5	2 x 7.5	2 x 8.5	2 x 10	W ←
Pout	11	15	23	20	W ←
$\eta_a$	55	50	58	50	% ←
Pload	9	13	18	15	W ←

\*Igl will vary between valves.

### OPERATING CONDITIONS AS ANODE AND SCREEN-GRID MODULATED R. F. POWER AMPLIFIER (CLASS 'C' TELEPHONY)

Carrier conditions for a modulation factor of 1.

Absolute maximum ratings

Va max.	600	V
pa max.	2 x 6.7	W
Vg2(b) max.	600	V
Vg2 max.	300	V
pg2 max.	2 x 1.2	W
pg1 max.	2 x 0.5	W
Igl max.	2 x 2.5	mA
Ik max.	2 x 50	mA
ik(pk) max.	2 x 400	mA
-Vg1 max.	100	V
Vh-k max.	100	V

# U.H.F. POWER DOUBLE TETRODE

# QQV03-20A

f	200	200	470	Mc/s
Va	300	500	300	V
Vg2	250	250	250	V
-Vg1	50	80	50	V
Ia	2 x 40	2 x 40	2 x 40	mA
Ig2	2 x 4.0	2 x 4.0	2 x 3.0	mA
*Ig1	2 x 1.0	2 x 1.0	2 x 1.0	mA
Pload (driver)	1.5	3.0	3.5	W ←
pa	2 x 3.5	2 x 4.0	2 x 5.5	W ←
Pout	17	31	13	W ←
$\eta_a$	71	78	50	% ←
Pload	14	24	11	W ←

For 100% modulation

vg2(pk)	185	185	185	V
Pmod	13	21	13	W

\*Ig1 will vary between valves.

## OPERATING CONDITIONS AS FREQUENCY TREBLER

Absolute maximum ratings

Va max.	600	V
pa max.	2 x 10	W
Vg2(b) max.	600	V
Vg2 max.	300	V
pg2 max.	2 x 1.5	W
-Vg1 max.	200	V
Ig1 max.	2 x 2.5	mA
pg1 max.	2 x 0.5	W
Ik max.	2 x 50	mA
ik(pk) max.	2 x 275	mA
Rg1-k max. per section (fixed bias)	50	k $\Omega$
Rg1-k max. per section (automatic bias)	100	k $\Omega$
Vh-k max.	100	V

### Typical operating conditions

f out	200	470	Mc/s ←
Va	300	300	V
Vg2	250	250	V
Vg1	-175	-175	V
Ia	2 x 45	2 x 45	mA
Ig2	2 x 3.0	2 x 2.8	mA
Ig1	2 x 1.5	2 x 1.2	mA
Pload (driver)	4.0	5.0	W
pa	2 x 8.5	2 x 9.5	W
Pout	10	8.0	W
$\eta_a$	37	30	%
Pload	8.0	6.0	W

### OPERATING CONDITIONS AS A. F. POWER AMPLIFIER AND MODULATOR (CLASS 'B')

#### Absolute maximum ratings

Va max.	600	V
pa max.	2 x 10	W
Vg2(b) max.	600	V
Vg2 max.	300	V
pg2 max.	2 x 1.5	W
-Vg1 max.	75	V
pg1 max.	2 x 0.5	W
Ik max.	2 x 55	mA
ik(pk) max.	2 x 120	mA
Rg1-k max. per section (fixed bias)	50	k $\Omega$
Rg1-k max. per section (automatic bias)	100	k $\Omega$
Vh-k max.	100	V

#### Typical operating conditions

Va	300	500	V
Vg2	250	250	V
-Vg1	25	26	V
Ia(o)	2 x 12.5	2 x 12.5	mA
Ia (max. sig.)	2 x 35	2 x 36.5	mA
Ig2(o)	2 x 0.6	2 x 0.35	mA
Ig2 (max. sig.)	2 x 9.5	2 x 8.1	mA
pa(o)	2 x 3.75	2 x 6.25	W
pa (max. sig.)	2 x 3.9	2 x 6.5	W
Pout	13.2	23.5	W
Ra-a	11	20	k $\Omega$
Dtot	3.5	3.5	%
Vin(g1-g1) r. m. s.	35	37	V

# U.H.F. POWER DOUBLE TETRODE

# QQV03-20A

## CATHODE

Indirectly heated. The heater is centre-tapped and the two sections may be operated in series or parallel.

	Series	Parallel	
V <sub>h</sub>	12.6	6.3	V
I <sub>h</sub>	0.65	1.3	A

## CAPACITANCES

*ca-g1 (each section)	0.04	pF
cg1-all (each section)	6.25	pF
ca-all (each section)	2.2	pF
cout (two sections in push-pull)	1.3	pF
cin (two sections in push-pull)	4.0	pF

\*Internally neutralised for push-pull operation.

## CHARACTERISTICS (each section) measured at I<sub>a</sub> = 40mA

gm	2.5	mA/V
μg <sub>1</sub> -g <sub>2</sub>	8.0	

## MOUNTING POSITION

Any

## COOLING

Maximum base pin temperature	180	°C
Maximum bulb and anode seal temperature	250	°C

Anode connectors providing a high degree of heat transfer by radiation or by conduction should be used.

Natural cooling is sufficient with :-

V<sub>a</sub> = 600V at frequencies up to 150Mc/s

V<sub>a</sub> = 500V at frequencies up to 200Mc/s

V<sub>a</sub> = 300V at frequencies up to 430Mc/s

Above these limits or with high ambient temperatures it may be necessary to direct a flow of air (up to 5 cu. ft. per min.) on the top of the bulb to keep the seal temperature within the stated limit.

## PHYSICAL DATA

Weight of valve only	2.0	oz
	53	g

## ACCESSORIES

Socket	40202
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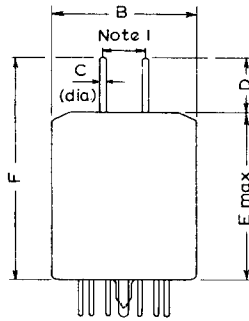
## DIMENSIONS

	Inches	Millimetres
A	$0.551 \pm 0.001$	$14 \pm 0.03$
B	$1.772 \pm 0.039$	$45 \pm 1$
C	$0.079 \pm 0.004$	$2 \pm 0.1$
D	$0.650 \pm 0.059$	$16.5 \pm 1.5$
E	2.165	55
F	$2.677 \pm 0.118$	$68 \pm 3$
G	$0.098 \pm 0.001$	$2.5 \pm 0.03$
H	$0.118 \pm 0.004$	$3 \pm 0.1$

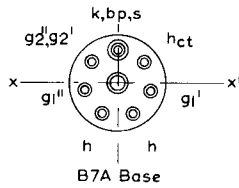
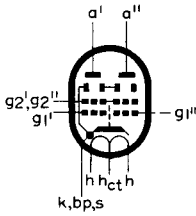
**U.H.F. POWER  
DOUBLE TETRODE**

**QQV03-20A**

B1578



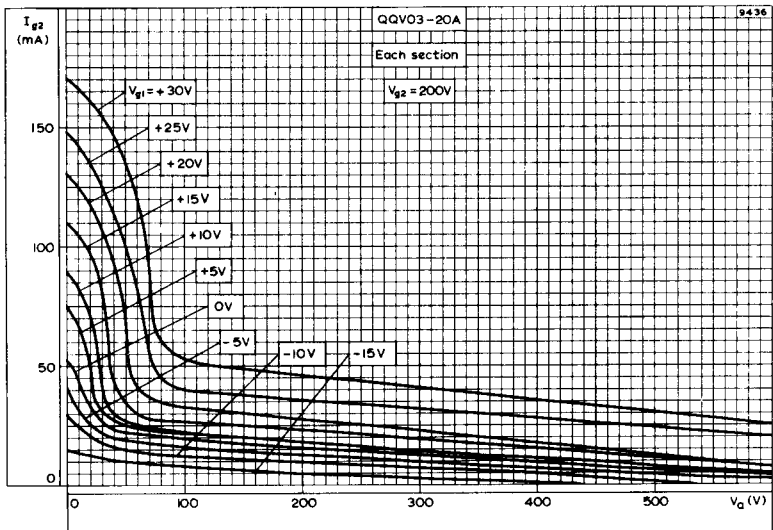
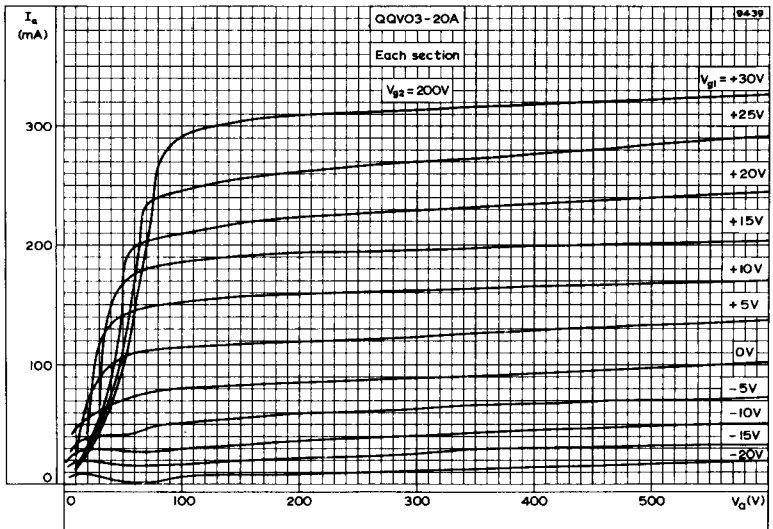
Location of  
anode pins  
within circles  
of dia. G



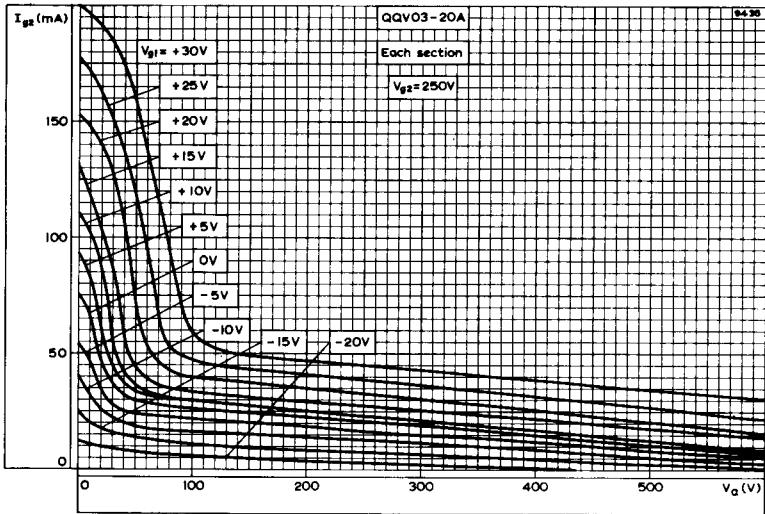
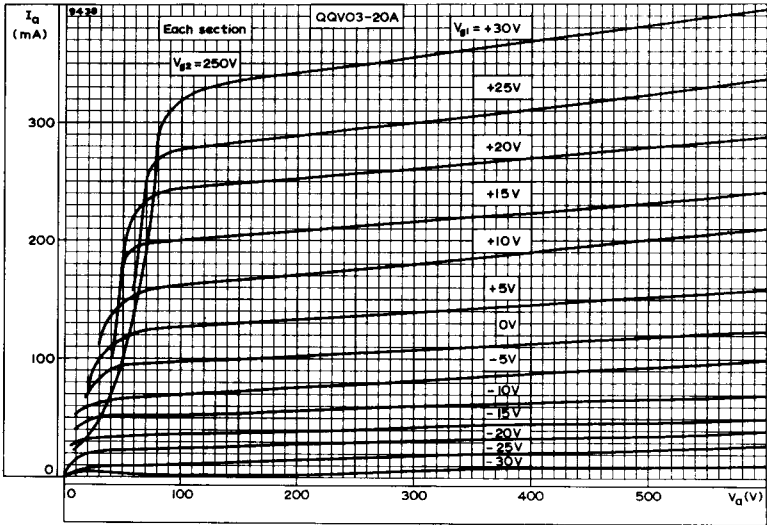


# U.H.F. POWER DOUBLE TETRODE

# QQV03-20A



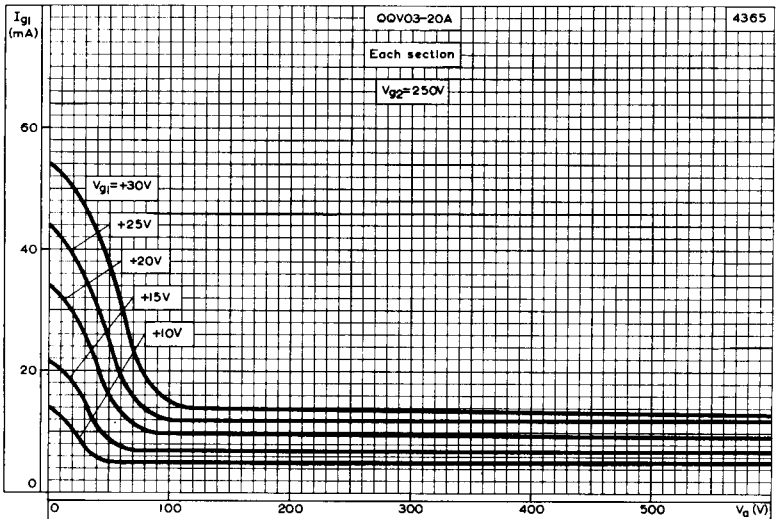
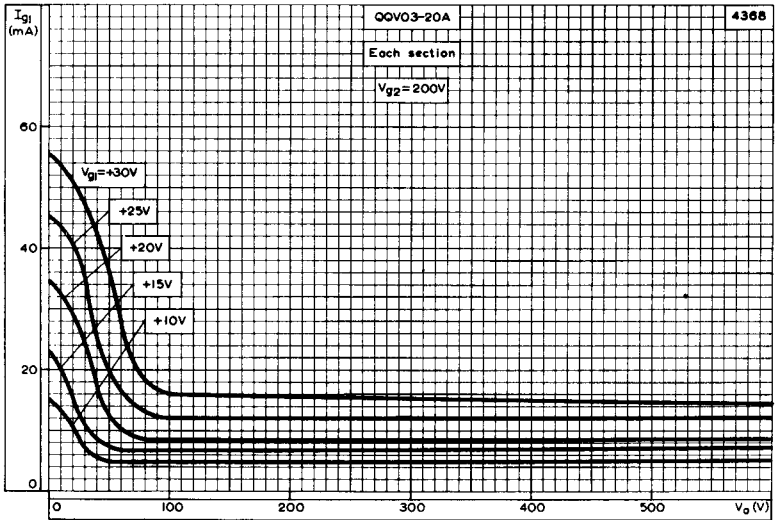
ANODE AND SCREEN-GRID CURRENT FOR EACH SECTION PLOTTED  
 AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS  
 PARAMETER  $V_{g2} = 200V$ .



ANODE AND SCREEN-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER  $V_{g2} = 250V$ .

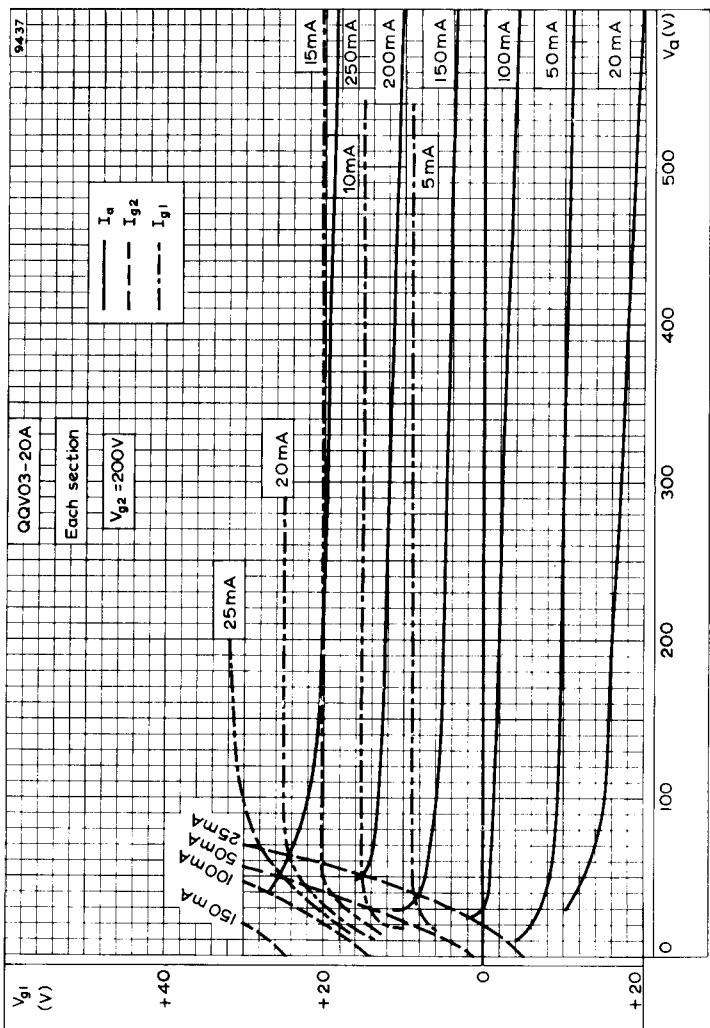
# U.H.F. POWER DOUBLE TETRODE

# QQV03-20A



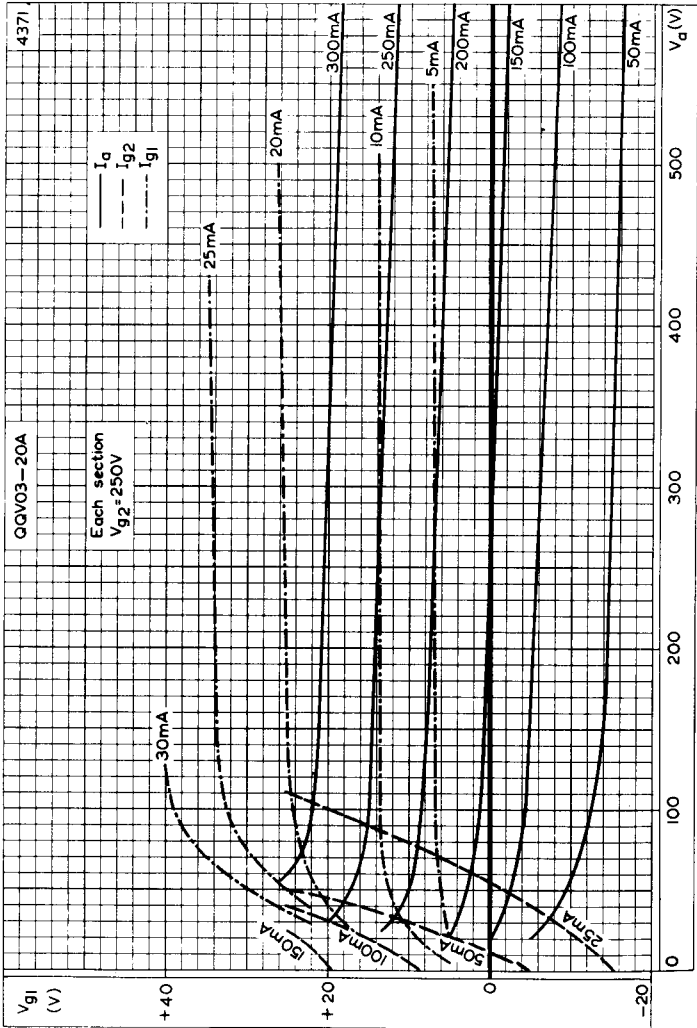
CONTROL-GRID CURRENT FOR EACH SECTION PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER

$$V_{g2} = 200V \text{ AND } V_{g2} = 250V.$$

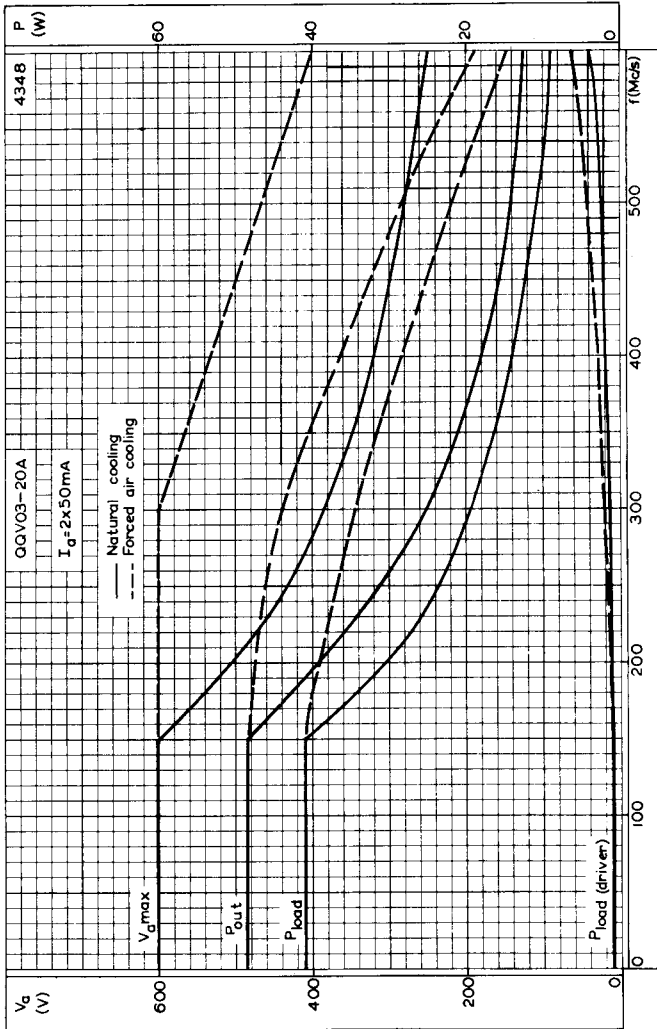


CONSTANT CURRENT CURVES FOR EACH SECTION  $V_{g2} = 200V$ .

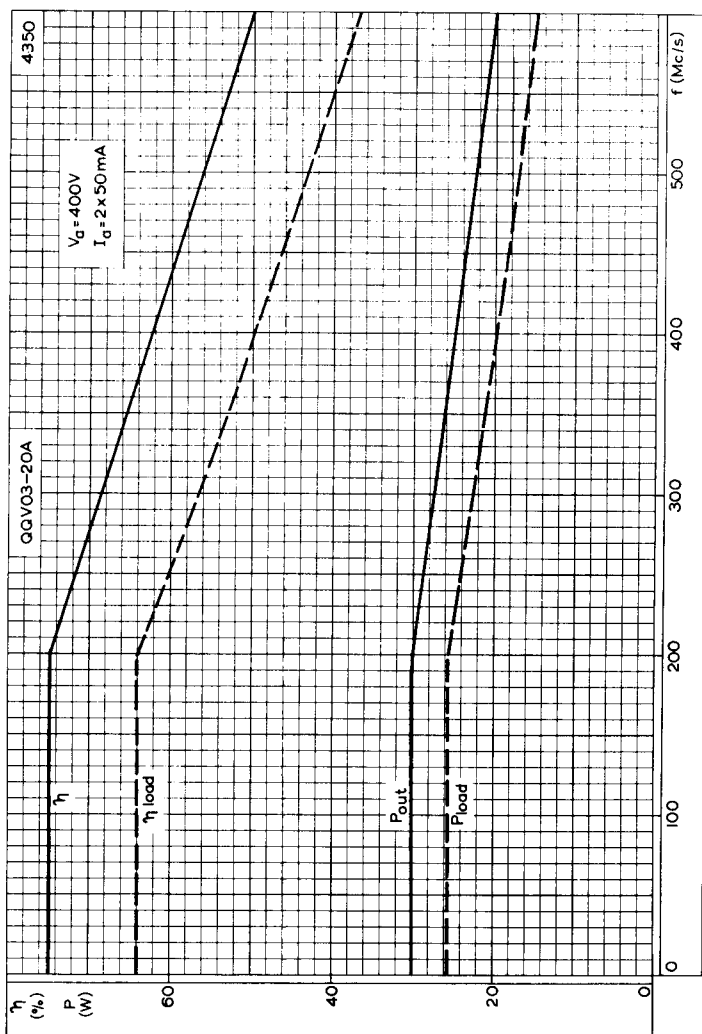




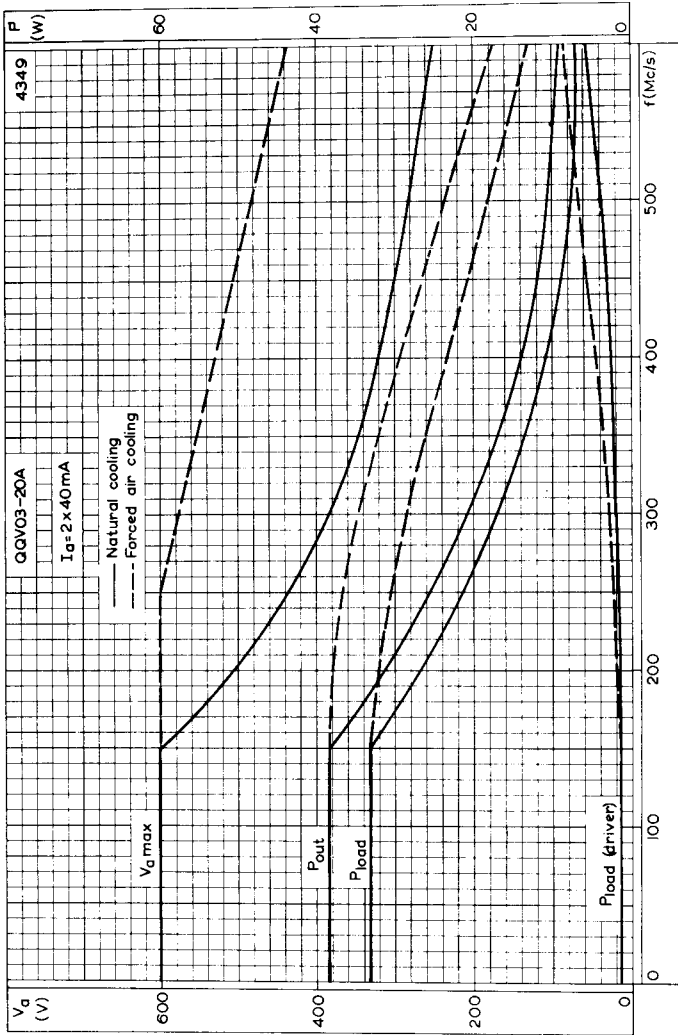
CONSTANT CURRENT CURVES FOR EACH SECTION  $V_{g2} = 250V$ .



MAXIMUM OPERATING CONDITIONS FOR A PUSH-PULL R. F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F. M. TELEPHONY)

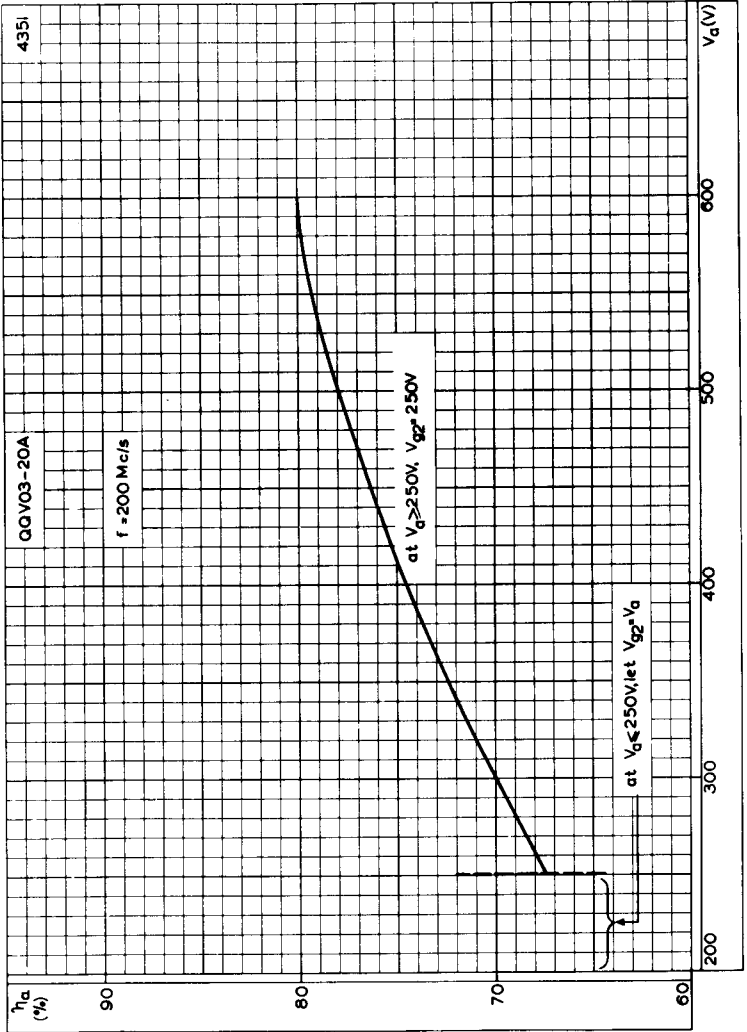


FREQUENCY CHARACTERISTICS FOR OPERATING CONDITIONS AS A  
 PUSH-PULL R. F. POWER AMPLIFIER (CLASS 'C' TELEGRAPHY OR  
 F. M. TELEGRAPHY)



MAXIMUM OPERATING CONDITIONS FOR AN ANODE AND  
 SCREEN-GRID MODULATED R. F. POWER AMPLIFIER  
 (CLASS 'C' TELEPHONY)





ANODE EFFICIENCY PLOTTED AGAINST ANODE VOLTAGE FOR CLASS "C" PUSH-PULL TELEGRAPHY