

# R.F. POWER DOUBLE TETRODE

# QQV03-10

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225 Mc/s.

## CATHODE

Indirectly heated

	Series	Parallel	
* $V_h$	12.6	6.3	V
$I_h$	0.42	0.83	A
$t_{h-k}$		22	sec ←

\*Emergency operation of the heater down to 5.3V (10.6V) and up to 7.8V (15.6V) is permissible.

## MOUNTING POSITION

Any

When the valve is mounted in a horizontal position it is essential that pins 2 and 7 are placed in a vertical plane.

For reasons of cooling and the performance of the valve at v.h.f. the use of a closed screening can is not permissible.

## CAPACITANCES

* $c_{a-g1}$ (each section)	<0.1	pF
$c_{g1-all}$ (each section)	6.2	pF
$c_{a-all}$ (each section)	2.6	pF
$c_{out}$ (two sections in push-pull)	1.5	pF
$c_{in}$ (two sections in push-pull)	5.0	pF

\*Internally neutralised for push-pull operation.

## CHARACTERISTICS (each section) measured at $I_a=30mA$

$g_m$	3.3	mA/V
$\mu_{g1-R2}$	7.5	

## COOLING

Radiation and convection

$T_{bulb}$ max.	225	°C
$T_{pin}$ max.	120	°C ←

# QQV03-10 R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225 Mc/s.

## OPERATION AS SINGLE VALVE R.F. POWER AMPLIFIER OR OSCILLATOR (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)

### Limiting Values

$V_a$ max.	300	V
$p_a$ max.	$2 \times 5.0$	W
$V_{g2}$ max.	200	V
$p_{g2}$ max.	$2 \times 1.0$	W
$I_{g1}$ max.	$2 \times 3.0$	mA
$p_{g1}$ max.	200	mW
$I_k$ max.	$2 \times 50$	mA
$i_{k(pk)}$ max.	$2 \times 225$	mA
$-V_{g1}$ max.	150	V
$V_{h-k}$ max.	100	V

### Typical Operating Conditions

$f$	100	175	175	200	Mc/s
$V_a$	300	200	250	300	V
* $V_{g2}$	175	150	175	175	V
* $V_{g1}$	-40	-40	-40	-40	V
$I_a$	$2 \times 38$	$2 \times 35$	$2 \times 35$	$2 \times 38$	mA
$I_{g2}$	$2 \times 2.5$	$2 \times 1.5$	$2 \times 1.5$	$2 \times 1.5$	mA
$I_{g1}$	$2 \times 2.0$	$2 \times 1.8$	$2 \times 1.5$	$2 \times 1.5$	mA
$P_{load}$ (driver)	250	500	400	500	mW
$V_{in(g1-g1)pk}$	110	115	105	110	V
$p_a$	$2 \times 3.4$	$2 \times 3.0$	$2 \times 3.0$	$2 \times 4.5$	W
$P_{out}$	16	8.5	11	14	W
$P_{load}$	14	7.0	8.5	10	W

\*When  $V_{g2}$  and/or  $V_{g1}$  are obtained by means of resistors ( $R_{g2}$  and  $R_{g1}$ ) the anode input power and therefore the output power is likely to vary considerably from valve to valve. For optimum operating conditions it will be necessary therefore to make  $R_{g2}$  adjustable.

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225 Mc/s.

### OPERATION AS SINGLE VALVE R.F. AMPLIFIER (CLASS "C" ANODE AND SCREEN-GRID MODULATION)

Limiting Values (carrier condition for use with modulation factor of 1) ←

$V_a$ max.	250	V
$p_a$ max.	$2 \times 3.3$	W
$V_{g2}$ max.	200	V
$p_{g2}$ max.	$2 \times 650$	mW
$p_{g1}$ max.	$2 \times 200$	mW
$I_k$ max.	$2 \times 35$	mA
$i_{k(pk)}$ max.	$2 \times 180$	mA
$-V_{g1}$ max.	150	V
$I_{g1}$ max.	$2 \times 3.0$	mA
$V_{h-k}$ max.	100	V

### Typical Operating Conditions ←

f	175	Mc/s
$V_a$	200	V
$V_{g2}$	175	V
$V_{g1}$	-60	V
$I_a$	$2 \times 34$	mA
$I_{g2}$	$2 \times 1.5$	mA
$I_{g1}$	$2 \times 1.2$	mA
$V_{In(g1-g1)pk}$	150	V
$P_{load}$ (driver)	1.0	W
$p_a$	$2 \times 2.4$	W
$p_{out}$	9.0	W
$P_{load}$	7.0	W
<i>For 100% modulation</i>		
$*V_{g2(pk)mod}$	125	V
$P_{mod}$	6.8	W

\*Conveniently obtained from potential divider consisting of a 12k $\Omega$  and 39k $\Omega$  resistors across the secondary of the modulation transformer.

# QQV03-10

## R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225 Mc/s.

### OPERATION AS A FREQUENCY TREBLER

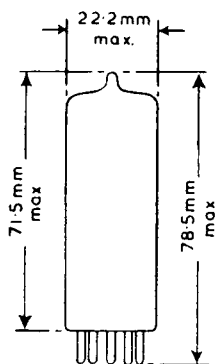
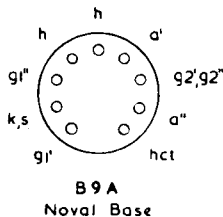
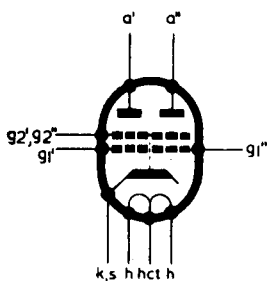
#### Limiting Values

$V_a$ max.	300	V
$p_a$ max.	$2 \times 5.0$	W
$V_{g2}$ max.	200	V
$p_{g2}$ max.	$2 \times 1.0$	W
$-V_{g1}$ max.	150	V
$p_{g1}$ max.	$2 \times 200$	mW
$I_{g1}$ max.	$2 \times 2.0$	mA
$I_k$ max.	$2 \times 35$	mA
$i_{k(pk)}$ max.	$2 \times 225$	mA
$V_{h-k}$ max.	100	V

#### Typical Operating Conditions

$f_{out}$	175	175	Mc/s
$V_a$	200	300	V
$V_{g2}$	150	150	V
$V_{g1}$	-100	-125	V
$I_a$	$2 \times 15$	$2 \times 24$	mA
$I_{g2}$	$2 \times 0.5$	$2 \times 1.3$	mA
$I_{g1}$	$2 \times 0.5$	$2 \times 1.3$	mA
$V_{in(g1-g1)pk}$	210	250	V
$P_{load}$ (driver)	300	500	mW
$p_a$	$2 \times 2.0$	$2 \times 4.5$	W
$P_{out}$	2.0	5.5	W
$P_{load}$	1.5	3.5	W

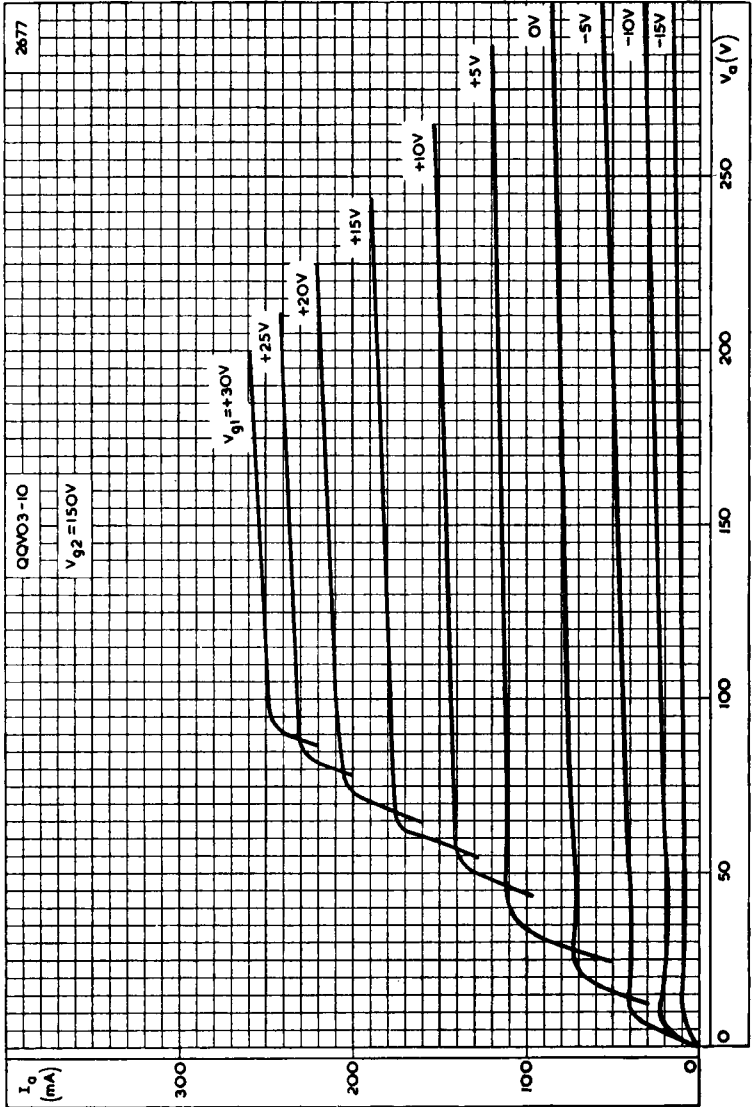
[1738]



# R.F. POWER DOUBLE TETRODE

# QQV03-10

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.

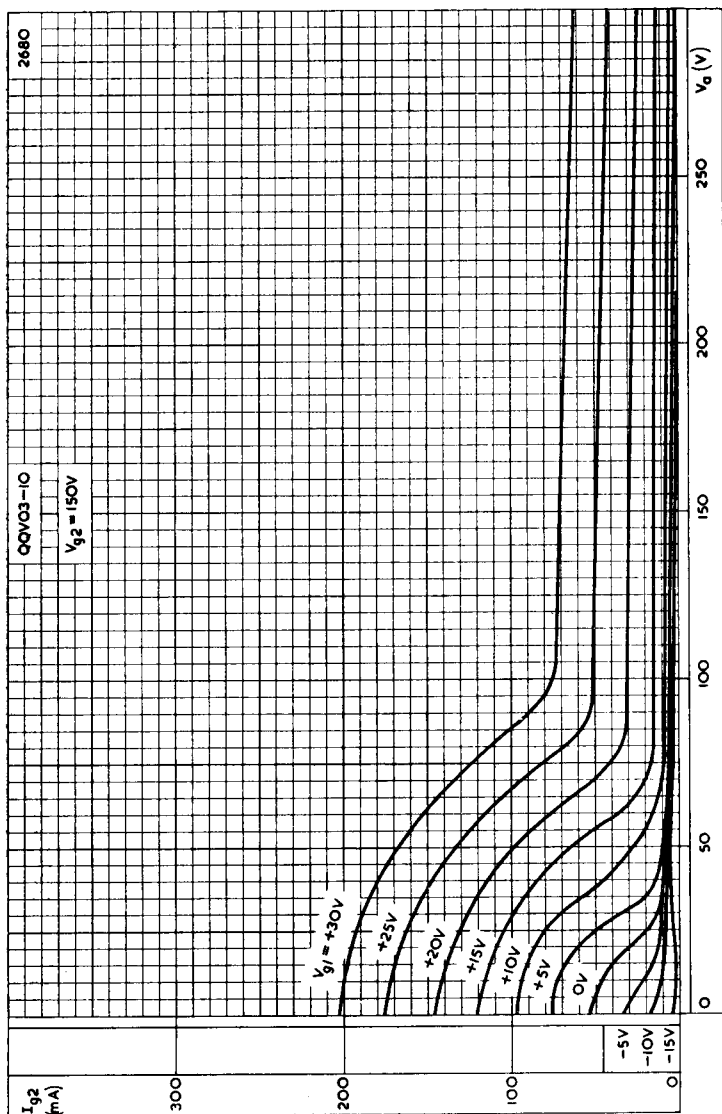


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{g2} = 150V$

# QQV03-10

## R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.

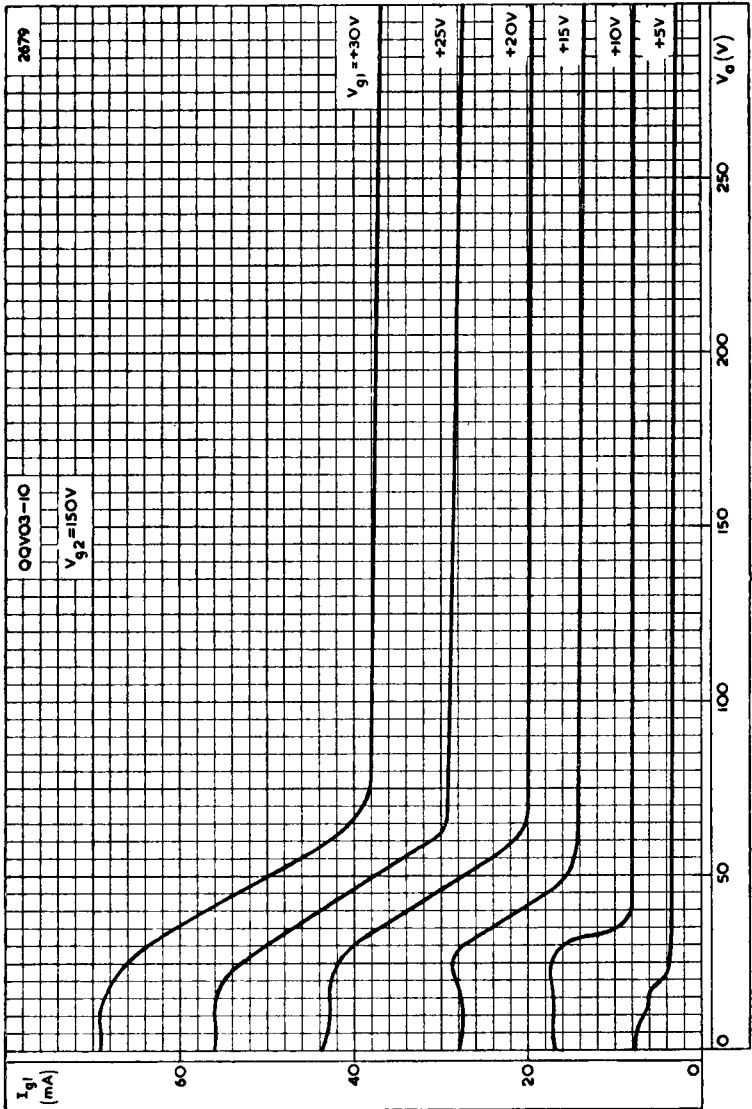


SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{g2} = 150V$

# R.F. POWER DOUBLE TETRODE

# QQV03-10

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



CONTROL-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  
 $V_{g2} = 150V$

# QQV03-10

## R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



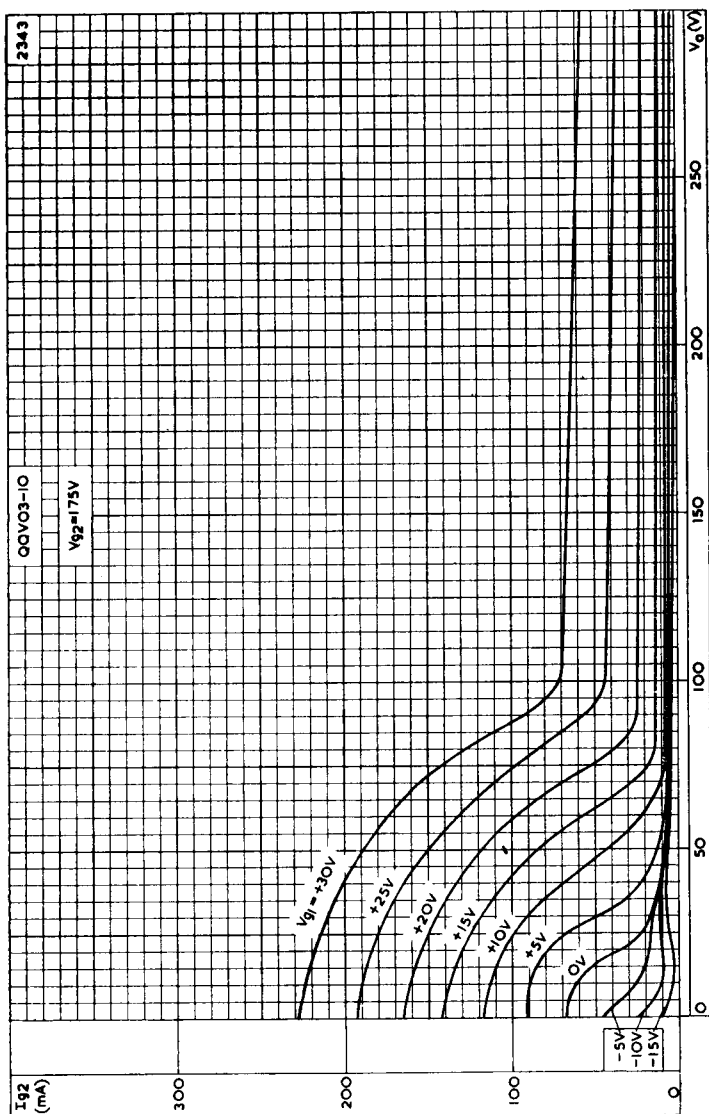
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{g2} = 175V$



# R.F. POWER DOUBLE TETRODE

# QQV03-10

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



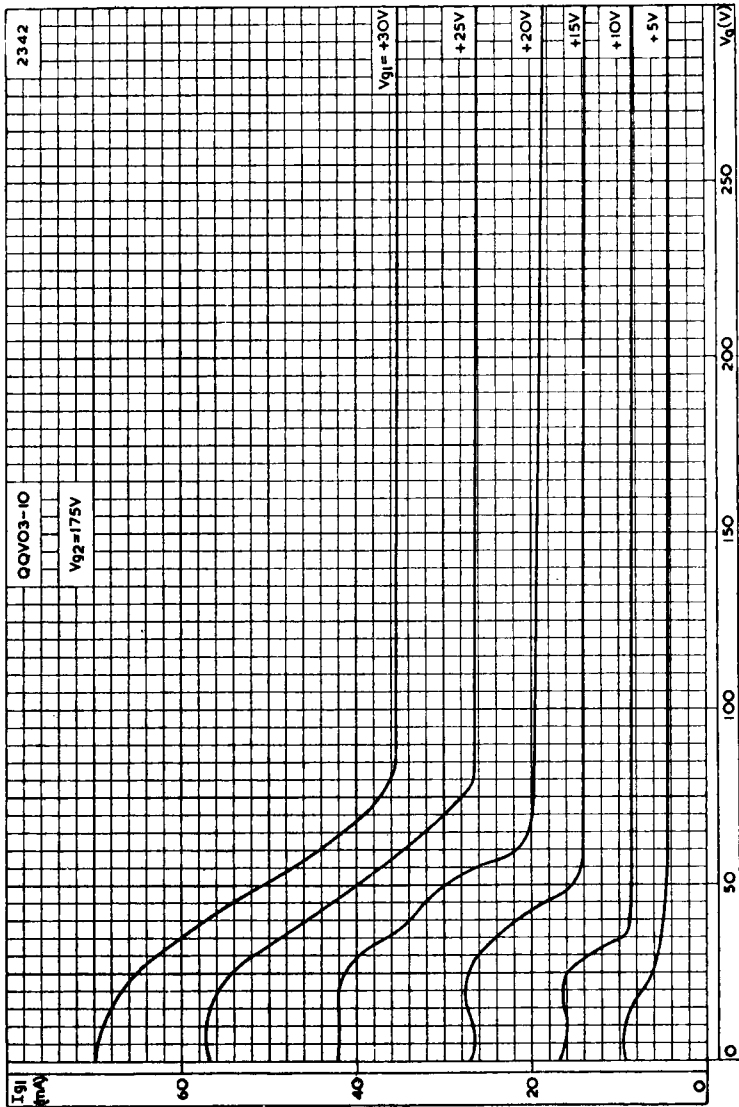
SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{g2} = 175V$



# QQV03-10

## R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



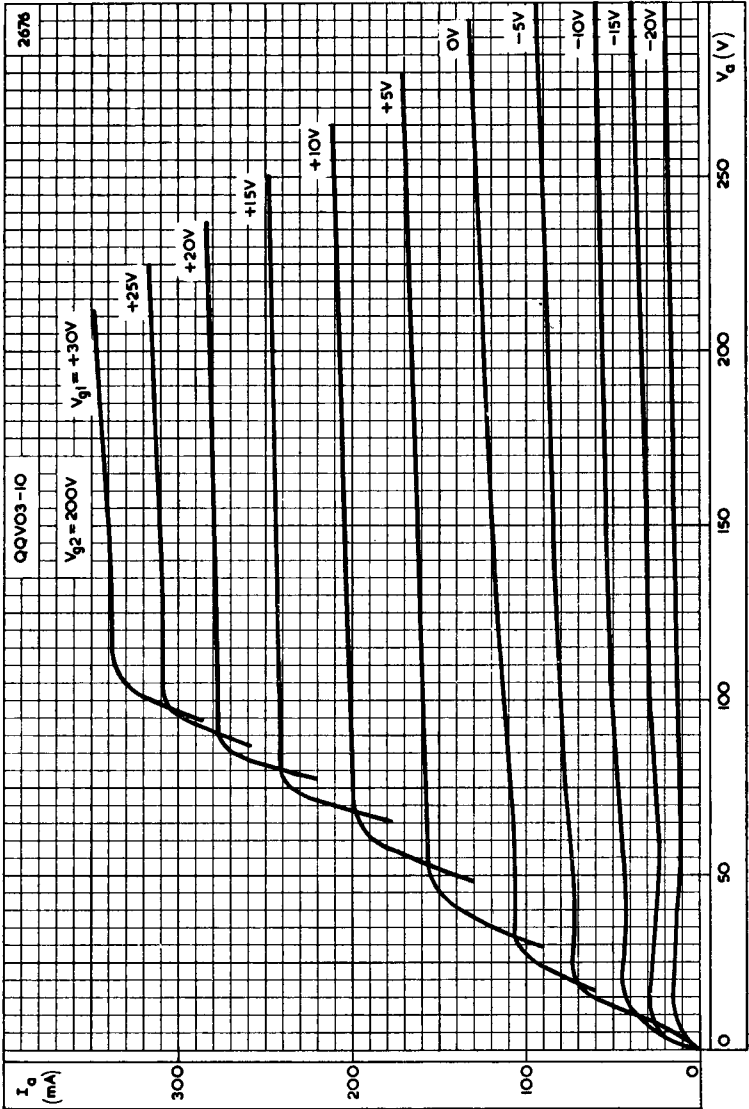
CONTROL-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  
 $V_{g2} = 175V$



# R.F. POWER DOUBLE TETRODE

# QQV03-10

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.

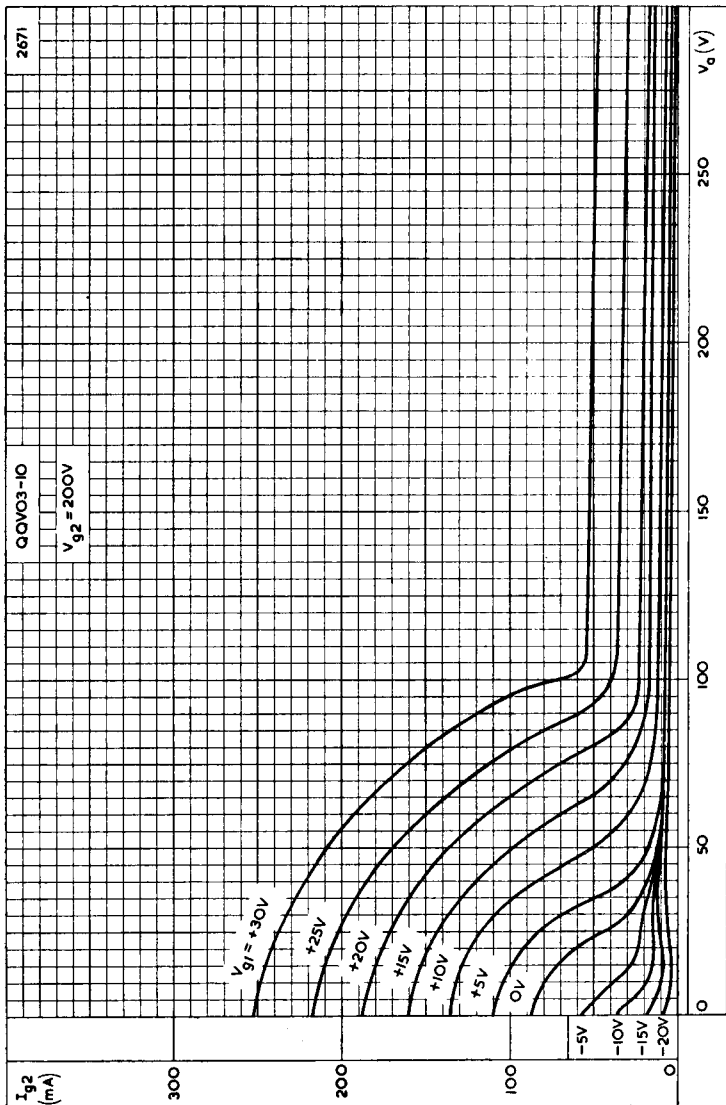


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{g2}=200V$

# QQV03-10

## R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.

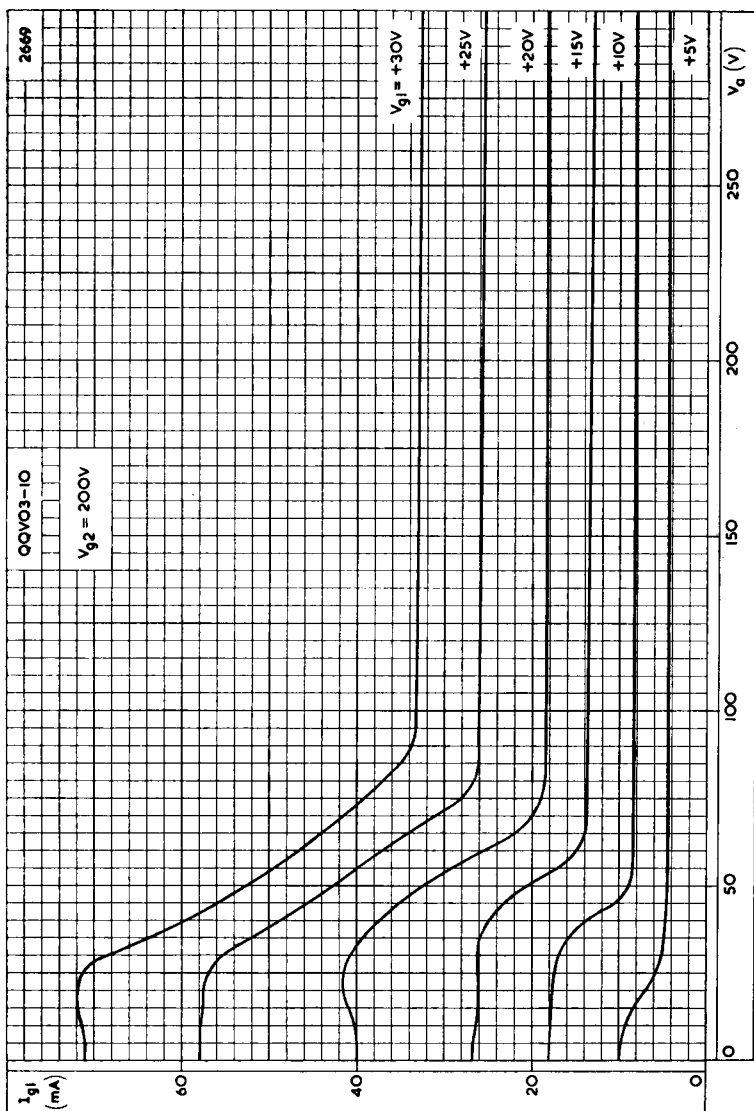


SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  $V_{R2}$ —200V

# R.F. POWER DOUBLE TETRODE

# QQV03-10

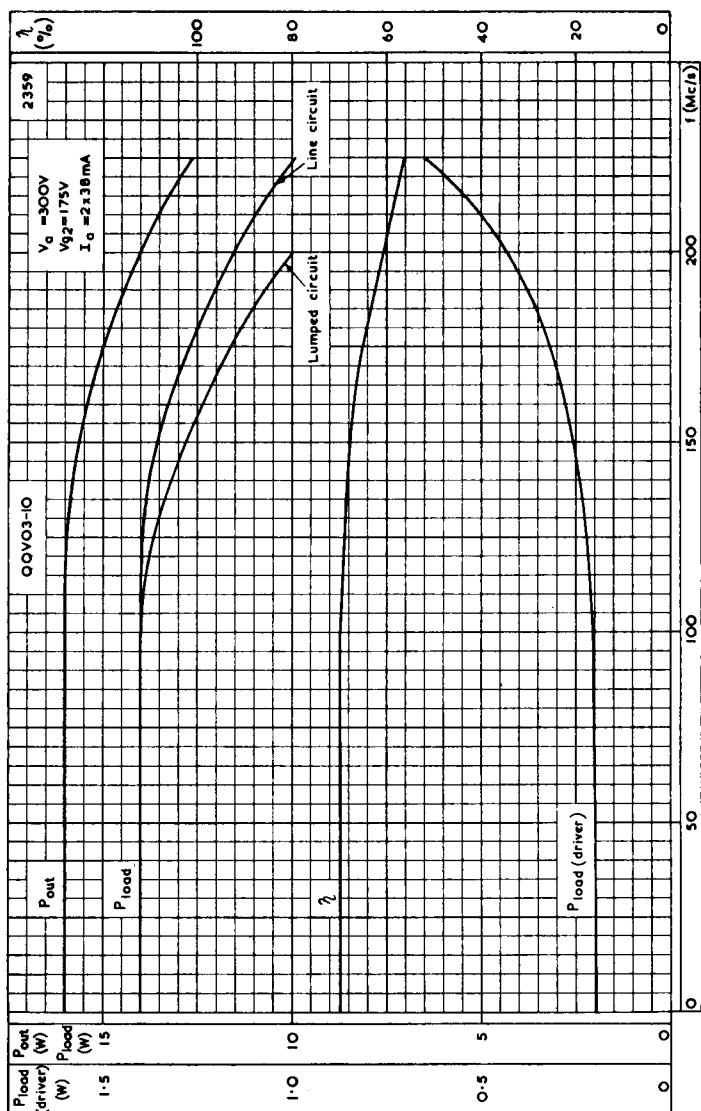
Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



CONTROL-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE  
 $V_{g2} = 200V$

# QQV03-10 R.F. POWER DOUBLE TETRODE

Miniature r.f. double tetrode rated to dissipate 5W at each anode and intended for use at frequencies up to 225Mc/s.



FREQUENCY CHARACTERISTICS. SINGLE VALVE CLASS "C" TELEGRAPHY