

---

**QQV  
04-20**

Twin beam tetrode with a maximum rated dissipation of 10 watts at each anode. It is primarily intended for use as a push-pull R.F. power amplifier or oscillator at frequencies up to 200 Mc/s. Arrangements should be made to earth the metal base of the valve by means of spring clips or by some alternative method. The cathode is indirectly heated with centre tapped heater for series or parallel connection.

**HEATER**

	Series	Parallel	
$V_h$	12.6	6.3	V
$I_h$	0.8	1.6	A

Heating time 20 secs.

**MOUNTING POSITION**

Vertical—base down      Horizontal—plane of anodes vertical



## CAPACITANCES

Each section

$C_{in}$	14	$\mu\mu F$
$C_{out}$	8.5	$\mu\mu F$
$C_{a-g1}$	<0.2	$\mu\mu F$

Between sections

$C_{a-a}$	0.8	$\mu\mu F$
-----------	-----	------------

## CHARACTERISTICS

At  $V_a=400$  V  $V_{g2}=200$  V  $I_a=25$  mA

$g_m$	4	mA/V
$\mu_{g1-g2}$	6.5	

## LIMITING VALUES

$V_a$ max.	400	V
$v_a$ (pk) max.	1,400	V
$V_{g2}$ max.	225	V
$V_{g2(b)}$ max.	600	V
$V_{g1}$ max.	-175	V
$I_k$ max.	$2 \times 100$	mA
* $i_k$ (pk) max.	350	mA
$I_{g2}$ max.	$2 \times 18$	mA
$I_{g1}$ max.	$2 \times 7$	mA
* $i_{g1}$ (pk) max.	20	mA
$P_a$ max.	$2 \times 10$	W
$P_{g2}$ max.	$2 \times 2.25$	W
$V_{h-k}$ max.	100	V
* $R_{g1-k}$ max.	30	K $\Omega$

\*Per section

Operating frequency (Mc/s)	Max. anode voltage (V)	Max. anode input power (W)
125	400	60
175	280	42
200	240	36

## OPERATING CONDITIONS

As push-pull Class "C" R.F. power amplifier and oscillator

$V_a$	400	V
* $V_{g2}$	145	V
$R_{g2}$	15	K $\Omega$
** $V_{g1}$	-45	V
$R_{g1}$	10	K $\Omega$
$R_k$	260	$\Omega$
$I_a$	$2 \times 75$	mA
$I_{g2}$	$2 \times 8.5$	mA
$I_{g1}$	$2 \times 2.25$	mA
$V_{in}$ (pk)	$2 \times 58$	V
$P_{drive}$	0.23	W
$P_{out}$	44	W

\*May be obtained from a separate supply or from the anode supply through series resistor of value shown, in which case provision must be made to ensure that  $V_{g2(b)}$  does not exceed 600 V.

\*\*May be obtained from a separate supply or by a grid or cathode resistor of value shown, or by a combination of these methods.



QQV  
04-20  
(contd.)

**QQV**  
**04-20**  
(contd.)

**OPERATING CONDITIONS (contd.)**

As push-pull R.F. power amplifier, Class "B" telephony

$V_a$	400	V
$V_{g2}$	125	V
$V_{g1}$	-25	V
$I_a$	$2 \times 37.5$	mA
$I_{g2}$	$2 \times 2.0$	mA
$V_{in(pk)}$	$2 \times 25$	V
$P_{drive}$	0.8	W
$P_{out}$	10.5	W

As push-pull grid-modulated Class "C" R.F. power amplifier

$V_a$	400	V
$V_{g2}$	125	V
$V_{g1}$	-40	V
$I_a$	$2 \times 37.5$	mA
$I_{g2}$	$2 \times 1.5$	mA
$I_{g1}$	$2 \times 0.2$	mA
$V_{in(pk)}$ R.F.	$2 \times 40$	V
$\dagger V_{mod(pk)}$ A.F.	19	V
$P_{drive}$	0.32	W
$P_{out}$	10.5	W

As push-pull anode-modulated Class "C" R.F. power amplifier

$V_a$	325	V
* $V_{g1}$	165	V
$R_{g2}$	10	K $\Omega$
$V_{g1}$	-45	V
** $R_{g1}$	11.25	K $\Omega$
$I_a$	$2 \times 62$	mA
$I_{g2}$	$2 \times 8$	mA
$I_{g1}$	$2 \times 2$	mA
$V_{in(pk)}$	$2 \times 56$	V
$P_{drive}$	0.2	W
$P_{out}$	30	W

$\dagger$ For 100% modulation.

\*May be obtained from a fixed supply or by a grid resistor of value shown.

\*\*May be obtained from a separate supply or by a grid or cathode resistor of value shown, or by a combination of these methods.

As Class "AB<sub>1</sub>" A.F. power amplifier or modulator

$V_a$	400	V
$V_{g2}$	125	V
$V_{g1}$	-15	V
$I_{a0}$	$2 \times 10$	mA
$I_a$ (max. sig.)	$2 \times 75$	mA
$I_{g2}$ (max. sig.)	$2 \times 16$	mA
$V_{in(pk)}$	$2 \times 30$	V
$R_{a-s}$	6.2	K $\Omega$
* $P_{drive}$	0.36	W
$P_{out}$	42	W

\*The effective resistance in the grid circuit should be below 500  $\Omega$  and the effective impedance should not exceed 700  $\Omega$  at the highest response frequency required.



**BASE :**  
Octal

**DIMENSIONS :**  
L=115 mm  
D=59 mm

