V. H. F. POWER TETRODE **QY4-500A**

PRELIMINARY DATA

QUICK REFERENCE DATA

Forced-air cooled power tetrode, intended for use as v.h.f. power amplifier or oscillator.

	Class 'B' Television	Class 'C' Telegraphy or F.M. Telephony	
fout	220	186	Mc/s
Pout	1200	630	W
f max.	220	220	Mc/s
Va max.	3.0	4.0	V
pa max.	500	500	W

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

CLASS 'C' TELEGRAPHY OR F.M. TELEPHONY

Absolute maximum ratings

f max.	220	Mc/s
Va max.		
f < 120 Mc/s	4.0	kV
f < 220 Mc/s	3.0	kV
Vg2 max.	500	V
-Vg1 max.	500	V
Ia max.	350	mA
Ig2 max.	60	mA
Ig1 max.	30	mA
pa max.	500	W
pg2 max.	30	W
pg1 max.	10	W

Typical operating conditions

f	110	110	110	186	Mc/s
Va	2.5	3.0	4.0	3.0	kV
Vg2	500	500	500	500	V
-Vg1	150	150	150	150	V
Ia	310	310	315	300	mA
Ig2	26	24	22	22	mA
Ig1	15	16	16	11	mA
vin(pk)	230	230	230	220	V
Pload (driver)	15	15	15	20	W
pa	245	260	330	270	W
Pout	530	670	930	630	W
Pload	475	600	835	570	W
ηa	68.5	72	73.5	70	%

CLASS 'B' TELEVISION SERVICE
Negative modulation, positive synchronisation.

Absolute maximum ratings - each valve

f max.	220	Mc/s
Va max.	3.0	kV
Vg2 max.	500	V
Ia (black) max.	350	mA
Ia (sync) max.	465	mA
pa (sync) max.	500	W
pg2 (sync) max.	30	W
pg1 (sync) max.	10	W

Typical operating conditions - two valves in push-pull.

f	220	220	Mc/s
B (-3.0dB)	5.0	5.0	Mc/s
Va	1.85	2.4	kV
Vg2	500	500	V
-Vg1	100	100	V
vin (g1-g1) pk (sync)	280	370	V
Ia (sync)	2 x 285	2 x 400	mA
Ia (black)	2 x 215	2 x 300	mA
Ig2 (sync)	2 x 20	2 x 35	mA
Ig2 (black)	2 x 2.0	2 x 3.0	mA
Ig1 (sync)	2 x 10	2 x 15	mA
Ig1 (black)	2 x 2.0	2 x 5.0	mA
Pload (driver)	40	75	W
pa (black)	2 x 230	2 x 380	W
Pout (sync)	600	1200	W
Pout (black)	340	680	W
Pload (sync)	480	960	W
Pload (black)	270	560	W

CATHODE

Directly heated, thoriated tungsten

Vf	5.0	V
If	13.5	A

CAPACITANCES

cin	12.8	pF
cout	5.6	pF
ca-g1	0.05	pF

CHARACTERISTICS (measured at Va = 2.5kV, Vg2 = 500V, Ia = 200mA)

gm	5.0	mA/V
μg1-g2	6.0	

COOLING

Tseals max.	150	°C
Tanode max.	150	°C

COOLING

In order to keep within both temperature limits at p_a = 500 W it may be necessary to pass a minimum flow of air of 1.15 m^3/min. (40 ft^3/min.) through the anode cooler. A flow of air must also be directed on the base and screen seals. This cooling should be applied before the application of filament voltage and continued for three minutes after filament voltage has been removed.

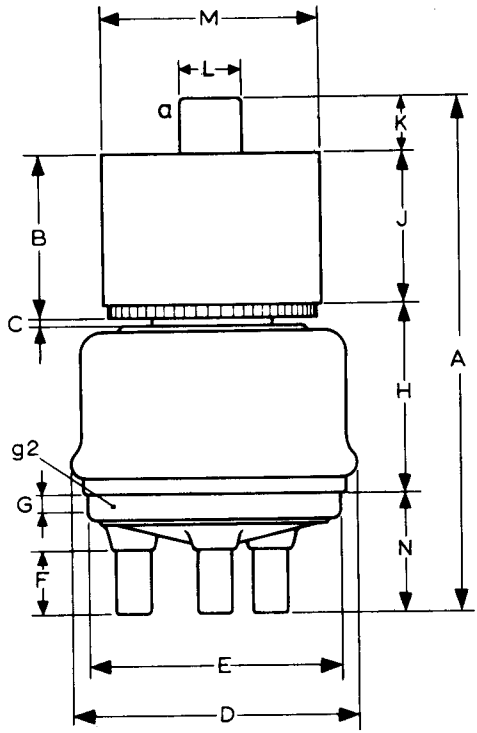
MOUNTING POSITION

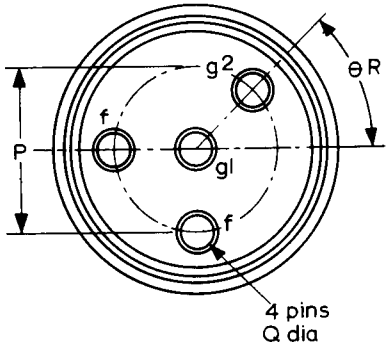
Vertical, base up or down.

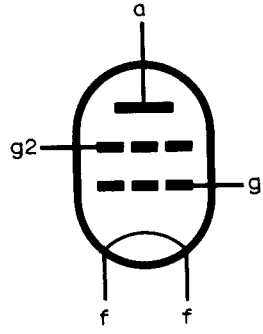
PHYSICAL DATA	oz	g
Weight of valve	17	490
Weight of valve and carton	40	1135

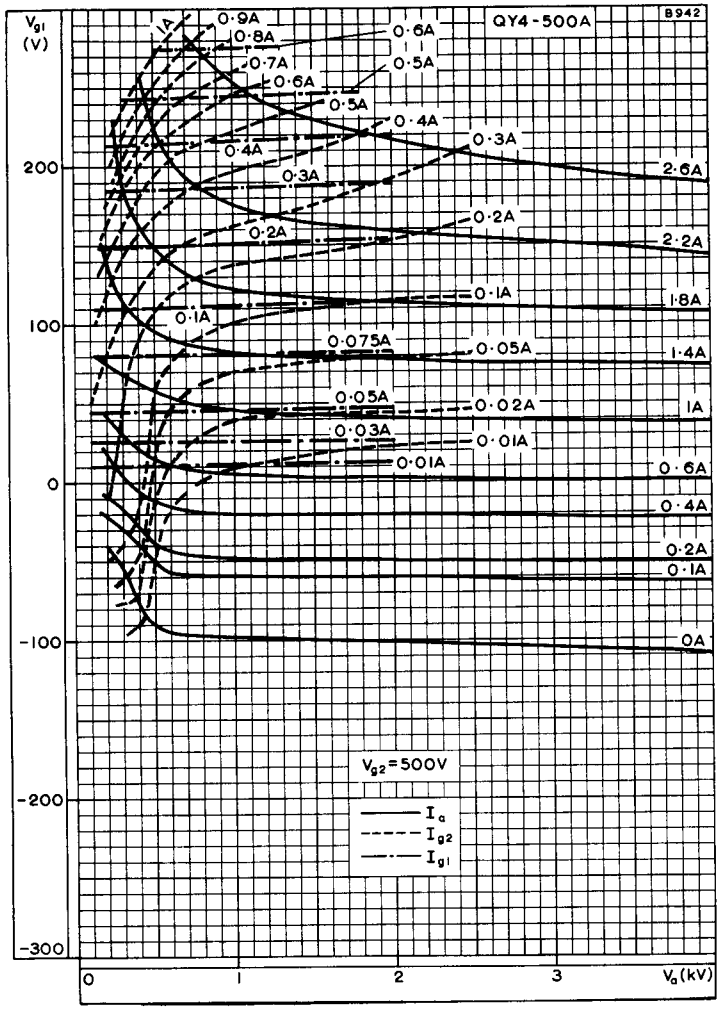
DIMENSIONS

	Inches	Millimetres	
A	4.724	120	
B	1.496	38	
C	0.063	1.6	min.
D	2.638	67	
E	2.374 ± 0.014	60.3 ± 0.35	
F	0.563	14.3	min.
G	0.158	4	
H	1.575	40	
J	1.378	35	
K	0.500	12.7	
L	0.563	14.3	
M	2.008	51	
N	1.000	25.4	
P	1.496	38	
Q	0.315	8	
ΘR	45^{o}		


B1653
M
L
a
K
J
B
C
H
A
g2
G
N
F
E
D


g2
θR
f
P
g1
f
4 pins
Q dia


a
g2
g1
f
f



CONSTANT CURRENT CURVES Vg2 = 500V