TETRODE

QYS50-P40

Application: *Pulse Modulator*
Ratings: *50kV, 40A*
Construction: *Silica envelope*

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

FILAMENT Thoriated tungsten

V_f	$11.5^{+0.5}_{-0.2}$	V
I_f	64	A

The filament current must never exceed a surge value of 100A at any time during the warming-up period.

MOUNTING

Position — Vertical, anode terminal uppermost

The valve may be supported by a semi-rigid, or cushioned, insulating clamp around the silica envelope. Alternatively, it may be purchased already fitted in a holder with plug-in contacts.

CAPACITANCES

C_{a-g1}	3.0	pF
C_{g1-all}	45	pF
C_{a-all}	31	pF

CHARACTERISTICS

g_m (V_a = 10kV, I_a = 30A)	38	mA/V
μ_{g1-g2} (V_a = 10kV, I_a = 80mA)	4.0	
$-V_{g1}$ (I_a = 1mA at V_a = 55kV, V_{g2} = 5.0kV)	<3.4	kV

COOLING

Natural cooling

T_{seals} max.	260	°C
T_{anode} max.	810	°C

RADIATION HAZARD

There is considerable X-radiation from this valve and equipment should incorporate adequate shielding for the safety of operator. Lead sheet of 1mm thickness is satisfactory but it must extend far enough to stop reflections through small gaps and holes as well as the direct radiation from the valve.

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PULSE MODULATOR

Limiting values (absolute ratings)

$v_{a(pk)}$ max.	55	kV
V_a max.	50	kV
$V_{g2(b)}$ max.	6.0	kV
V_{g2} max.	5.5	kV
$-V_{g1}$ max.	7.0	kV
I_k(pulse) max. for $t_p < 5\mu s$	50	A
Duty factor max.	0.001	
p_a max.	700	W
p_{g2} max.	250	W

Operating conditions

t_p	5.0	1.0	μs
Duty factor	0.0005	0.0005	
V_a	50	45	kV
V_{g2}	5.0	5.0	kV
V_{g1}	–4.0	–3.2	kV
V_{g1}(pulse)	4.3	3.8	kV
I_a(pulse)	30	40	A
I_a	15	20	mA
I_{g2}	1.0	1.0	mA
I_{g1}	*	*	
R_a	6.0	20	kΩ
I_{Ra}(pulse)	7.0	2.0	A
R_{load}(effective)	1.8	1.0	kΩ
I_{load}(pulse)	23	38	A
V_{load}(pulse)	43	37	kV

*The grid current is negative and the power supply should have an impedance of approximately 300Ω.

QYS50-P40

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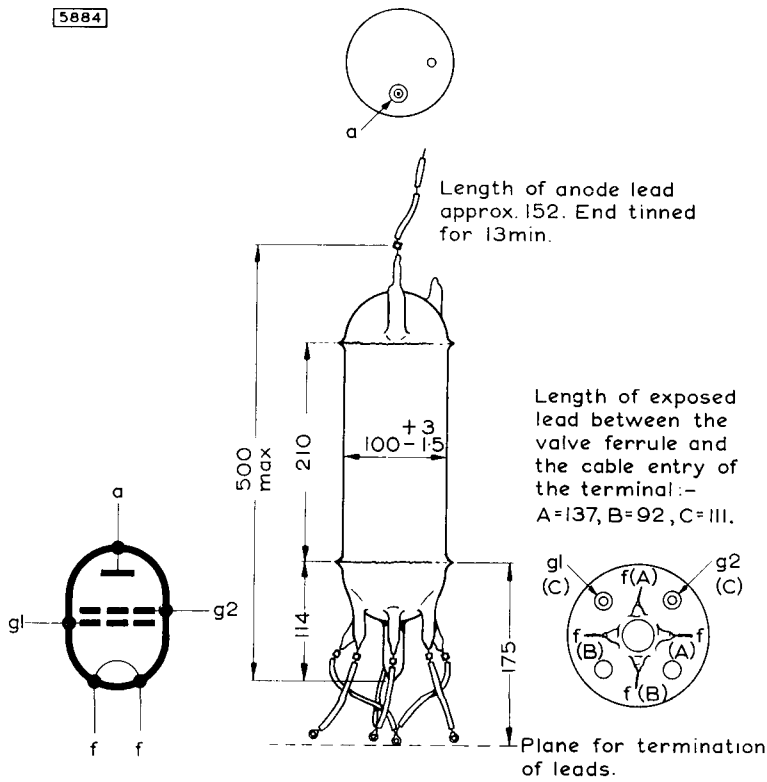
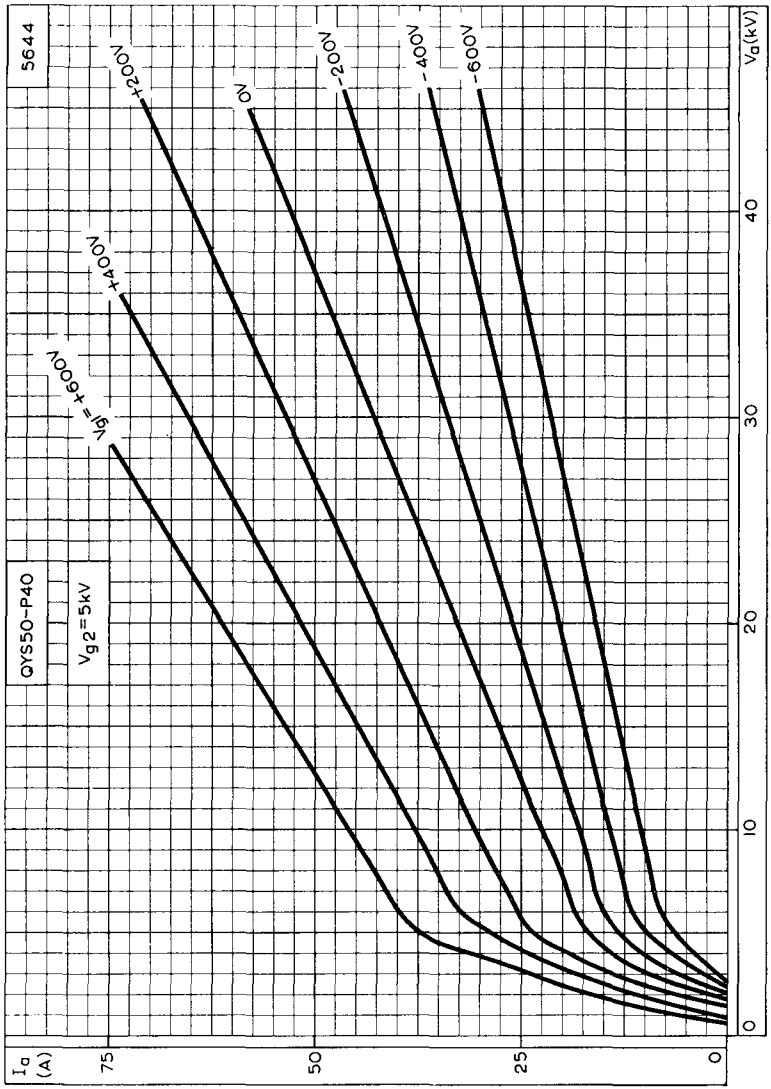


All dimensions in mm

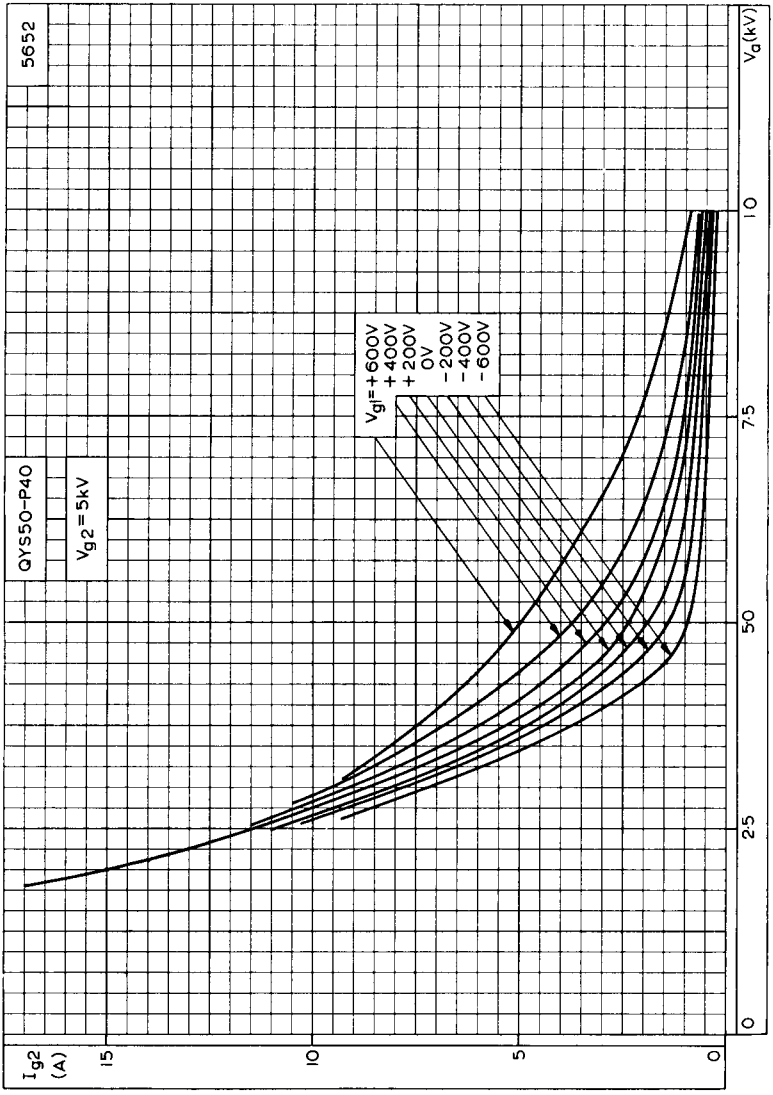
QYS50-P40



ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE FOR SCREEN-GRID VOLTAGE = 5kV

QYS50-P40

TETRODE



SCREEN-GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE FOR SCREEN-GRID VOLTAGE = 5kV