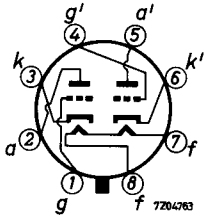
S.Q. TUBE

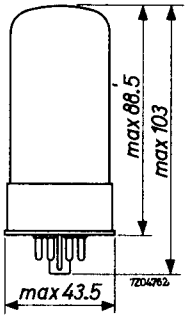
Special quality double triode designed for use as series regulator tube in d.c. power supplies, in servo application and as booster triode.

QUICK REFERENCE DATA			
Life test	500 hours		
Mechanical quality	Shock and vibration resistant		
Base	Octal		
Heating	Indirect A.C. or D.C.; parallel supply		
Heater voltage	V_f	6.3	V
Heater current	I_f	2.5	A
Anode current	I_a	100	mA (each section)
Mutual conductance	S	6.5	mA/V
Internal resistance	R_i	300	Ω

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Octal





CHARACTERISTICS Each section if applicable

Column I Nominal value or setting of the tube
II Range values for equipment design: Initial spread

		I	II	
Heater voltage	V_f	6.3		V
Heater current	I_f	2.5	2.26 - 2.74	A
Anode voltage	V_a	100		V
Cathode resistor	R_k	300		Ω
Anode current	I_a	100		mA
Mutual conductance	S	6.5		mA/V
Amplification factor	μ	2		
Internal resistance	R_i	300		Ω
Anode supply voltage	V_{ba}	135		V
Cathode resistor	R_k	250		Ω
Anode current [1]	I_a	125	100 - 150	mA
Mutual conductance	S	7.0	5.8 - 8.2	mA/V
Amplification factor	μ	2.0	1.4 - 2.6	
Internal resistance	R_i	280		Ω
Negative grid current (g connected to g')	$-I_g$		max. 4.0	μA

[1]) Max. duration 1 s
Operation with W_a and I_a at the absolute maximum limiting values.

CHARACTERISTICS (continued)		I	II	
Vibrational noise output	V_o		max. 0.2	V_{RMS}
Two sections in parallel				
Anode supply voltage V_{ba} = 135 V				
Grid voltage $-V_g$ = 7 V				
Anode resistor R_a = 2 kΩ				
Vibration frequency = 25 Hz				
Acceleration = 2.5 g				

CAPACITANCES Each system if applicable				
Anode to grid	C_{ag}	8.6		pF
Anode to cathode and heater	$C_{a/kf}$	2.5		pF
Grid to cathode and heater	$C_{g/kf}$	5.5		pF
Cathode to heater	C_{kf}	7		pF
Anode to anode other section	$C_{aa'}$	2.2		pF
Grid to grid other section	$C_{gg'}$	0.5		pF

SHOCK AND VIBRATION RESISTANCE

The following test conditions are applied to assess the mechanical quality of the tube. These conditions are not intended to be used as normal operating conditions.

Shock

The tube is subjected 5 times in each of 4 positions to an acceleration of 500 g supplied by an NRL shock machine with the hammer lifted over an angle of 30°.

Vibration

The tube is subjected during 32 hours in each of 3 positions to a vibration frequency of 25 Hz with an acceleration of 2.5 g.

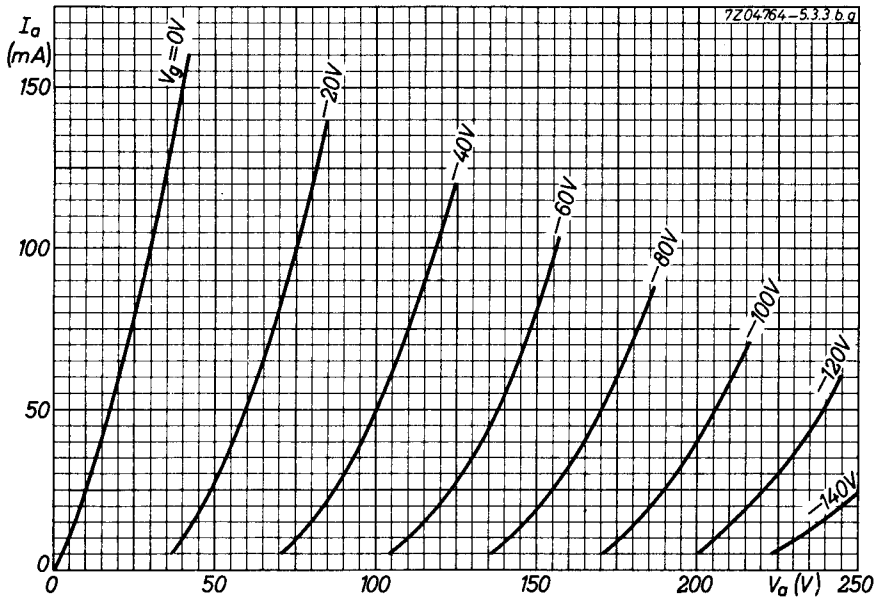
LIFE

Production samples are tested during 500 hours.

LIMITING VALUES (Absolute max. rating system)

Anode voltage	V_{a_o}	max. 550	V
	V_a	max. 250	V
Anode inverse peak voltage	$V_{a\ inv_p}$	max. 3	kV
Duty factor max. 0.15			
Pulse duration max. 10 μsec			
Cathode current	I_k	max. 125	mA
Grid peak voltage	$-V_{g_p}$	max. 2.3	kV
Duty factor max. 0.15			
Pulse duration max. 10 μsec			
Anode dissipation	W_a	max. 13	W
Voltage between cathode and heater, peak	V_{kf_p}	max. 300	V
Grid resistor Automatic bias	R_g	max. 1.0	MΩ
Fixed bias	R_g	max. 0.1	MΩ [1]
Bulb temperature	t_{bulb}	max. 260	°C

[1]) With fixed bias the anode circuit should contain a protective resistance to provide a minimum drop of 15 V d.c. at the normal operating conditions. When two or more sections are used in parallel at dissipations approaching the rated maximum, separate anode and cathode resistors must be used to assist load sharing.
When combined fixed and automatic bias is used, the cathode bias portion should have a minimum value of 7.5 V d.c. at the normal operating conditions. R_g should then not exceed 0.1 MΩ.


7Z04764-5.3.3 b.g
I_a (mA)
150
100
50
0
V_g = 0V
-20V
-40V
-60V
-80V
-100V
-120V
-140V
0
50
100
150
200
V_a (V)
250

PHILIPS

Data handbook

Electronic components and materials

6080

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1	1	1968.12
2	2	1968.12
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5	5	1968.12
6	FP	1999.06.06