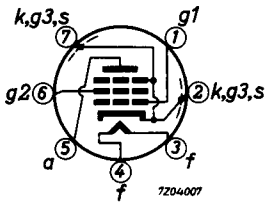
S.Q. TUBE

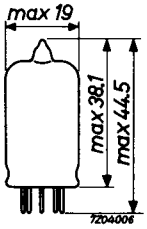
Special quality pentode designed for use as wide-band amplifier.

QUICK REFERENCE DATA			
Life test	1000 hours		
Mechanical quality	Shock and vibration resistant		
Base	Miniature 7 pin		
Heating	Indirect A.C. or D.C.; parallel supply		
Heater voltage	V_f	6.3	V
Heater current	I_f	175	mA
Mutual conductance	S	5	mA/V
Sharp cut off			

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Miniature 7 pin





CHARACTERISTICS

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	175	160 - 190	mA
Anode voltage	V_a	120		V
Grid No.2 voltage	V_{g_2}	120		V
Grid No.1 voltage	$-V_{g_1}$	2		V
Anode current	I_a	7.5	5 - 11	mA
Grid No.2 current	I_{g_2}	2.5	0.8 - 4.0	mA
Mutual conductance	S	5	3.8 - 6.2	mA/V
Internal resistance	R_i	0.34		MΩ
Negative grid current	$-I_{g_1}$		max. 0.1	μA
Anode supply voltage	V_{ba}	120		V
Grid No.2 voltage	V_{g_2}	120		V
Anode resistor	R_a	0.1		MΩ
Grid No.1 voltage	$-V_{g_1}$	10		V
Anode current	I_a		max. 200	μA
Grid No.1 cut off voltage	$-V_{g_1}$	8.5		V
Anode voltage	V_a	120		V
Grid No.2 voltage	V_{g_2}	120		V
Anode current	I_a	10		μA
Leakage current between cathode and heater Voltage between cathode and heater V_{kf} = 100 V	I_{kf}		max. 10	μA
Insulation resistance between two electrodes	R		min. 100	MΩ

CAPACITANCES. With external shield

		I	II	
Grid No.1 to grid No.2, grid No.3 cathode and heater	C_{g_1/g_2g_3kf}	4.0	3.4 - 4.6	pF
Anode to grid No.2, grid No.3 cathode and heater	C_{a/g_2g_3kf}	2.85	2.45 - 3.25	pF
Anode to grid No.1	C_{ag_1}		max. 0.02	pF
Grid No.1 to grid No.2	$C_{g_1g_2}$	1.4		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 50 Hz with an acceleration of 2.5 g.

LIFE

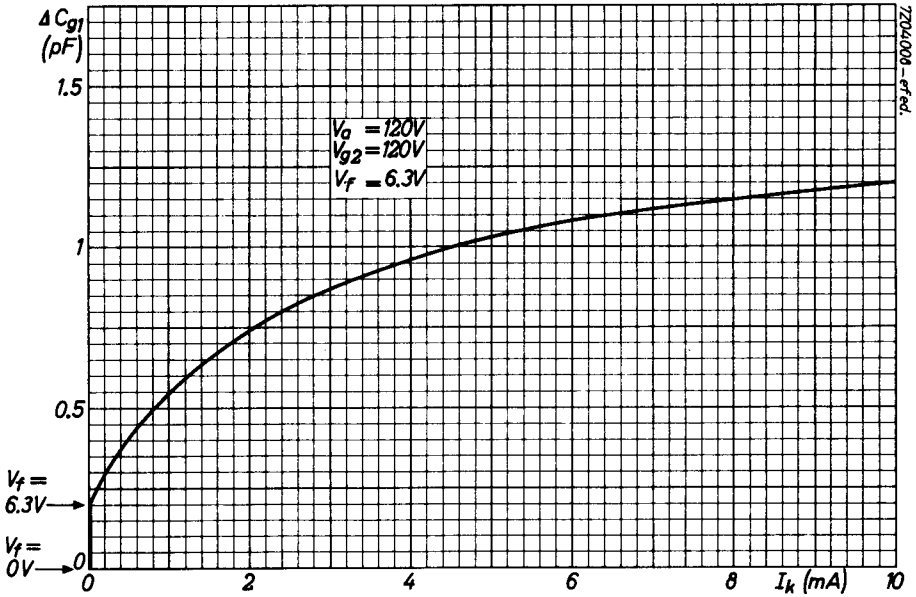
Production samples are tested to be within the end of life values (column III) during 1000 hours.

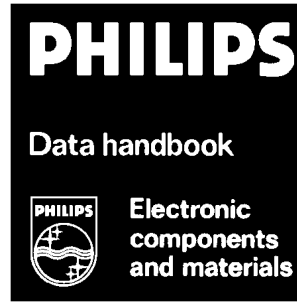
LIMITING VALUES (Absolute max. rating system)

Anode voltage	V_{a_o}	max.	600	V
	V_a	max.	200	V
Grid No.2 voltage	$V_{g_{2o}}$	max.	600	V
	V_{g_2}	max.	155	V
Grid No.1 voltage	$-V_{g_1}$	max.	50	V
	$+V_{g_1}$	max.	0	V
Anode dissipation	W_a	max.	1.65	W
Grid No.2 dissipation	W_{g_2}	max.	0.55	W
Cathode current	I_k	max.	20	mA
Grid No.1 current	I_{g_1}	max.	1	mA
Grid No.1 resistor	R_{g_1}	max.	0.1	MΩ
Voltage between cathode and heater	V_{kf}	max.	135	V
Bulb temperature	t_{bulb}	max.	165	°C [1]

Heater voltage: The average heater voltage should be 6.3 V.
Variations of the heater voltage exceeding the range of 5.7 V to 7.0 V will shorten the tube life.
The tolerance of heater current (column II) should be taken into account.

1) Tube life and reliability of performance will be enhanced by operation at lower temperatures.


ΔCg1 (pF)
1.5
1
0.5
0
Va = 120V
Vg2 = 120V
Vf = 6.3V
Vf = 6.3V
Vf = 0V
0
2
4
6
8
Ik (mA)
10
7204000-ef ed.



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