

**S.Q. TUBE**

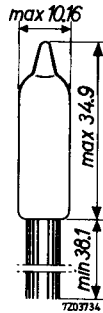
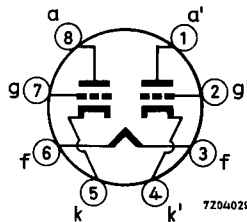
Special quality double triode designed for use as A.F. amplifier and multi-vibrator.

QUICK REFERENCE DATA		
Life test	1000 hours	
Mechanical quality	Shock and vibration resistant	
Base	Subminiature	
Heating	Indirect A.C. or D.C.; parallel supply	
Heater voltage	$V_f$	6.3 V
Heater current	$I_f$	300 mA
Anode current	$I_a$	0.8 mA
Mutual conductance	S	1.8 mA/V

**DIMENSIONS AND CONNECTIONS**

Dimensions in mm

Base: Subminiature



The leads should not be soldered nearer than 5 mm to the seal and should not be bent nearer than 1.5 mm to the seal.

### CHARACTERISTICS

Column I Nominal values or setting of the tube

II Range values for equipment design: Initial spread

III Range values for equipment design: End of life

		I	II	III	
Heater voltage	$V_f$	6.3			V
Heater current	$I_f$	300	280 - 320		mA
Anode voltage	$V_a$	100			V
Grid voltage	$-V_g$	1.2			V
Anode current	$I_a$	0.8			mA
Mutual conductance	S	1.8			mA/V
Amplification factor	$\mu$	70			
Internal resistance	$R_i$	38.8			k $\Omega$
Anode voltage	$V_a$	100			V
Cathode resistor	$R_k$	1500			$\Omega$
Anode current	$I_a$	0.8	0.5 - 1.1		mA
Mutual conductance	S	1.8	1.5 - 2.1		mA/V
Amplification factor	$\mu$	70	60 - 80		
<u>Cut off voltage</u>	$-V_g$	2.8			V
Anode voltage	$V_a$	100			V
Anode current	$I_a$		max. 50		$\mu$ A
<u>Leakage current between cathode and heater</u>	$I_{kf}$		max. 5	max. 10	$\mu$ A
Voltage between cathode and heater $V_{kf} = 100$ V					
<u>Negative grid current</u>	$-I_g$		max. 0.3	max. 0.9	$\mu$ A
Anode voltage	$V_a$	150			V
Cathode resistor	$R_k$	820			$\Omega$

**CHARACTERISTICS (continued)**

		I	II	
<u>Vibrational noise output</u>	$V_o$		max. 25	mV <sub>RMS</sub>
Anode supply voltage $V_{ba} = 100$ V				
Cathode resistor $R_k = 1500$ $\Omega$				
Anode resistor $R_a = 10$ k $\Omega$				
Grid resistor $R_g = 0.1$ M $\Omega$				
Cathode bypass capacitor $C_k = 1000$ $\mu$ F				
Vibration frequency 50 Hz				
Acceleration 15 g				

**CAPACITANCES**

Anode to cathode and heater	$C_{a/kf}$	0.23	0.16 - 0.30	pF
	$C_{a'/k'f}$	0.28	0.21 - 0.35	pF
Grid to cathode and heater	$C_{g/kf}$	1.7	1.3 - 2.1	pF
Anode to anode other section	$C_{aa'}$		max. 0.8	pF
Grid to grid other section	$C_{gg'}$		max. 14.0	mpF
Anode to grid	$C_{ag}$	1.0	0.8 - 1.2	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.

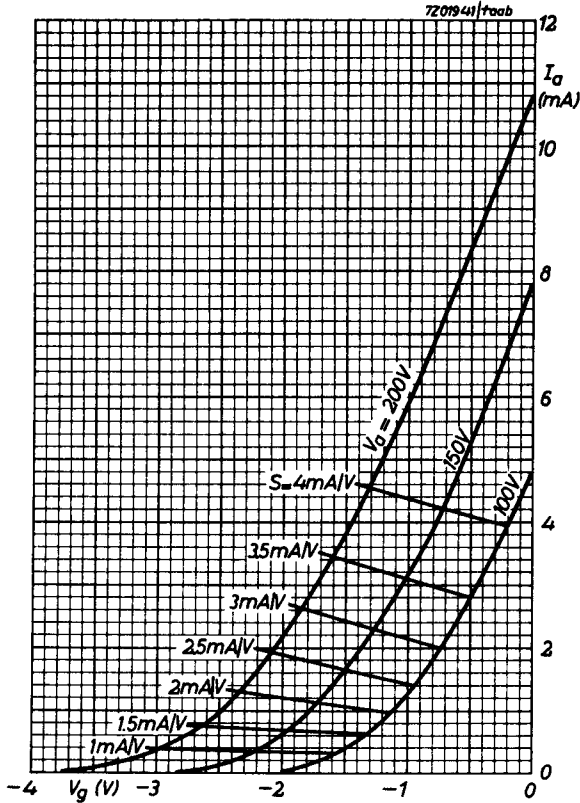
**LIFE**

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

Anode supply voltage	$V_{ba}$	100 V
Cathode resistor	$R_k$	1500 $\Omega$

**LIMITING VALUES** (Absolute max. rating system)

Anode voltage	$V_{a0}$	max.	330 V
	$V_a$	max.	165 V
Grid voltage	$+V_g$	max.	0 V
	$-V_g$	max.	55 V
Anode dissipation	$W_a$	max.	0.55 W
Anode current	$I_a$	max.	3.3 mA
Peak voltage between cathode and heater	$V_{kfP}$	max.	200 V
Grid resistor	$R_g$	max.	1 M $\Omega$
Bulb temperature	$t_{bulb}$	max.	220 °C



# PHILIPS

Data handbook



Electronic  
components  
and materials

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