

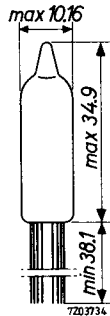
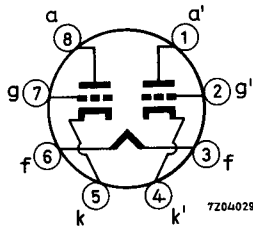
### S.Q. TUBE

Special quality double triode designed for use as amplifier mixer and oscillator.

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	$I_a$ 8.5 mA
Mutual conductance	S 5 mA/V

#### DIMENSIONS AND CONNECTIONS

Dimensions in mm



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** (Each system if applicable)

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	$-V_g$	1.9			V
Anode current	$I_a$	8.5			mA
Mutual conductance	S	5			mA/V
Amplification factor	$\mu$	20	17 - 23		
Internal resistance	$R_i$	4			k $\Omega$
Anode voltage	$V_a$	100			V
Cathode resistor	$R_k$	220			$\Omega$
Anode current	$I_a$	8.5	6.0 - 11		mA
Difference in anode current of two sections	$ I_a - I_a' $		max. 2		mA
Mutual conductance	S	5	4.1 - 5.9	min. 3.5	mA/V
<u>Negative grid current</u>	$-I_g$		max. 0.3	max. 1.0	$\mu$ A
<u>Cut-off voltage</u>	$-V_g$	9			V
Anode voltage	$V_a$	100			V
Anode current	$I_a$		max. 100		$\mu$ 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

**CHARACTERISTICS** (continued)

		I	II	
<u>Vibrational noise output</u>	$V_o$		max. 50	mV <sub>RMS</sub>
Anode supply voltage $V_{ba} = 100$ V				
Cathode resistor $R_k = 220 \Omega$				
Anode resistor $R_a = 10$ k $\Omega$				
Grid resistor $R_g = 0.1$ M $\Omega$				
Cathode by-pass capacitor $C_k = 1000 \mu$ F				
Vibration frequency = 50 Hz				
Acceleration = 15 g				

**CAPACITANCES**

Anode to cathode and heater	$C_{a/kf}$	0.28	0.2-0.36	pF
	$C_{a'/k'f}$	0.32	0.22-0.42	pF
Grid to cathode and heater	$C_{g/kf}$	1.9	1.4- 2.4	pF
Anode to grid	$C_{ag}$	1.5	1.2- 1.8	pF
Grid to grid other section	$C_{gg'}$		max. 13.0	mpF
Anode to anode other section	$C_{aa'}$		max. 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 50 Hz with an acceleration of 2.5 g.

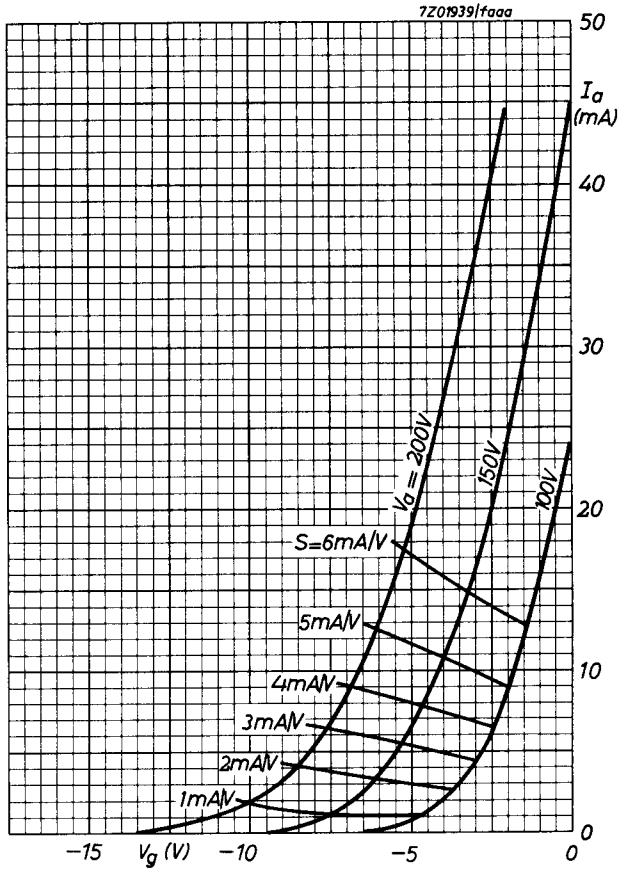
**LIFE**

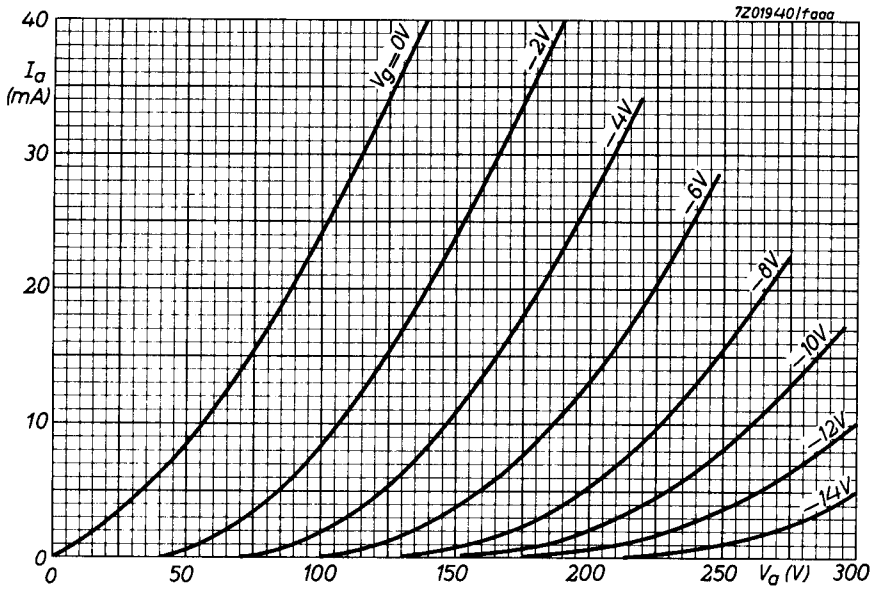
Production samples are tested to be within the end of life values (column III) under the following conditions during 1000 hours.

Anode voltage	$V_a$	100	V
Cathode resistor	$R_k$	220	$\Omega$

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

Anode voltage	$V_{a_0}$	max. 330 V
	$V_a$	max. 165 V
Grid voltage	$+V_g$	max. 0 V
	$-V_g$	max. 55 V
Grid current	$I_g$	max. 5.5 mA
Anode dissipation	$W_a$	max. 1.1 W
Cathode current	$I_k$	max. 22 mA
Peak voltage between cathode and heater	$V_{kf_p}$	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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