

## S.Q. TUBE

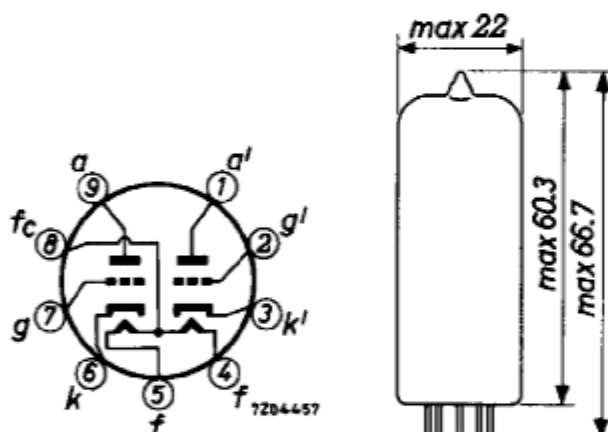
Special quality double triode designed for use in computer circuits.

QUICK REFERENCE DATA		
Life test	10 000 hours	
Low interface resistance		
Base	Noval	
Heating	Indirect A.C. or D.C.; Parallel supply	
Heater voltage	$V_f$	6.3 or 12.6 V
Heater current	$I_f$	640 or 320 mA
Anode current	$I_a$	36 mA
Mutual conductance	S	15 mA/V

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



## CHARACTERISTICS

Column I Nominal value 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 (pin 8 and 4+5)	$V_f$	6.3			V
Heater current	$I_f$	640	605- 675		mA
Heater voltage (pin 4 and 5)	$V_f$	12.6			V
Heater current	$I_f$	320			mA
Anode voltage	$V_a$	120			V
Grid voltage	$-V_g$	2			V
Anode current	$I_a$	36	26- 45		mA
Mutual conductance	S	15			mA/V
Amplification factor	$\mu$	24			
Negative grid current	$-I_g$		max. 0.2	max. 1.0	$\mu$ A
Anode voltage	$V_a$	120			V
Cathode resistor	$R_k$	55			$\Omega$
Mutual conductance	S	15	11.2-18.8	min. 8	mA/V
Anode voltage	$V_a$	90			V
Grid current	$I_g$	250			$\mu$ A
Anode current	$I_a$		41- 62	min. 24	mA
Cut-off voltage	$-V_g$	14			V
Anode voltage	$V_a$	150			V
Anode current	$I_a$		max. 0.2		mA
<u>Leakage current between cathode and heater</u>	$I_{kf}$		max. 15	max. 30	$\mu$ A
Voltage between cathode and heater = 200 V					
<u>Insulation resistance between two electrodes</u>			min. 100	min. 20	M $\Omega$

**CAPACITANCES** Each system if applicable

		I	II	
Anode to cathode and heater	$C_{a/kf}$	1.1	0.75-1.45	pF
	$C_{a'/k'f}$	1.0	0.65-1.35	pF
Grid to cathode and heater	$C_{g/kf}$	6.0	5.3- 6.7	pF
Anode to grid	$C_{ag}$	4.0	3.4- 4.6	pF
	$C_{a'g'}$	4.1	3.4- 4.8	pF
Cathode to heater	$C_{kf}$	4.0		pF
Anode to anode other section	$C_{aa'}$	0.6	max. 0.8	pF
Grid to grid other section	$C_{gg'}$		max. 0.15	pF
Anode to grid other section	$C_{ag'}$		max. 0.1	pF

**LIFE**

Production samples are tested to be within the end of life values (column III) during 10 000 hours under the following conditions.

Anode supply voltage	$V_{ba}$	150 V
Anode resistor	$R_a$	1.5 k $\Omega$
Grid supply voltage	$V_{bg}$	150 V
Grid resistor	$R_g$	62 k $\Omega$
Voltage between cathode and heater (cath. neg.)	$V_{kf}$	120 V

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

Anode voltage	$V_{a0}$	max. 600 V
	$V_a$	max. 300 V
Anode dissipation	$W_a$	max. 4.5 W
Anode dissipation (both sections)	$W_{a+a'}$	max. 8.0 W
Grid voltage	$-V_g$	max. 100 V
	$+V_g$	max. 1 V

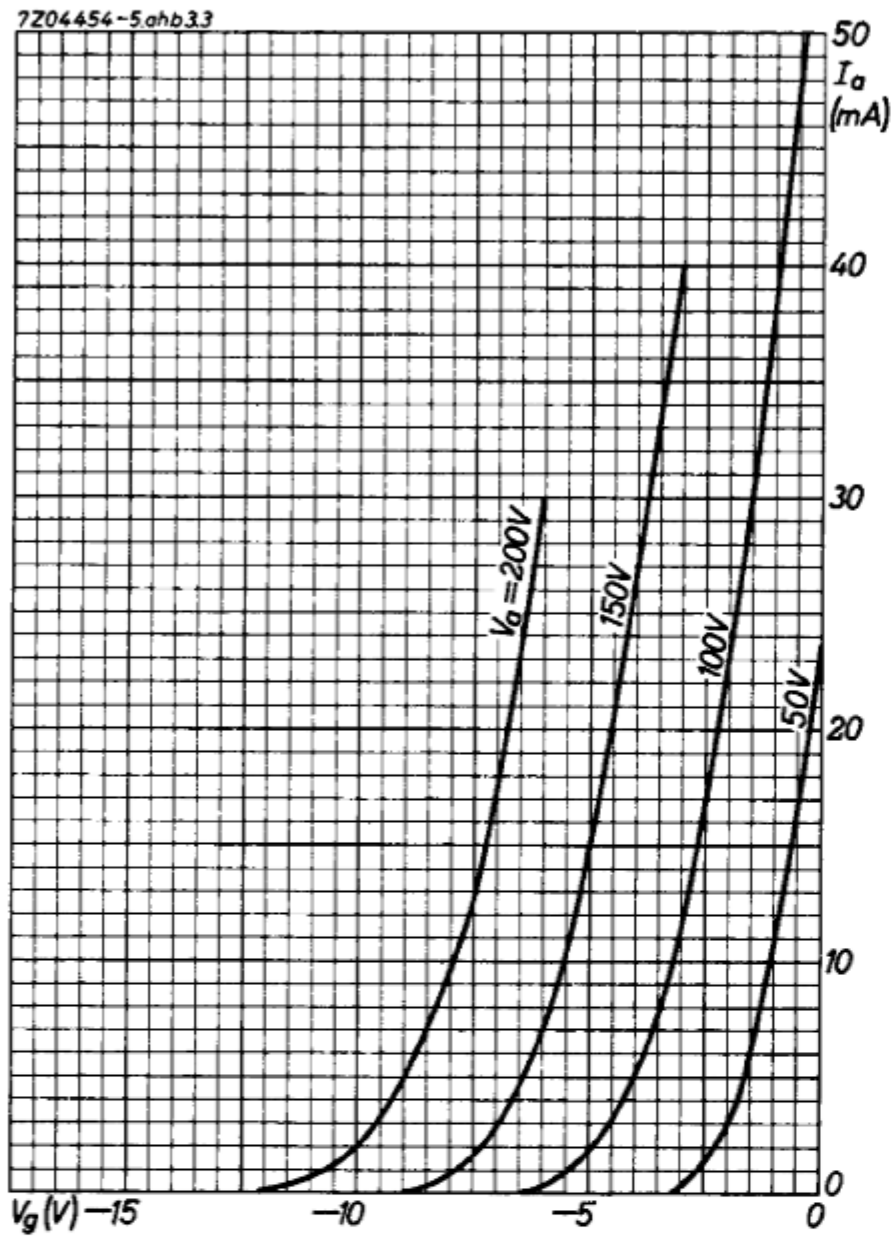
## LIMITING VALUES (continued)

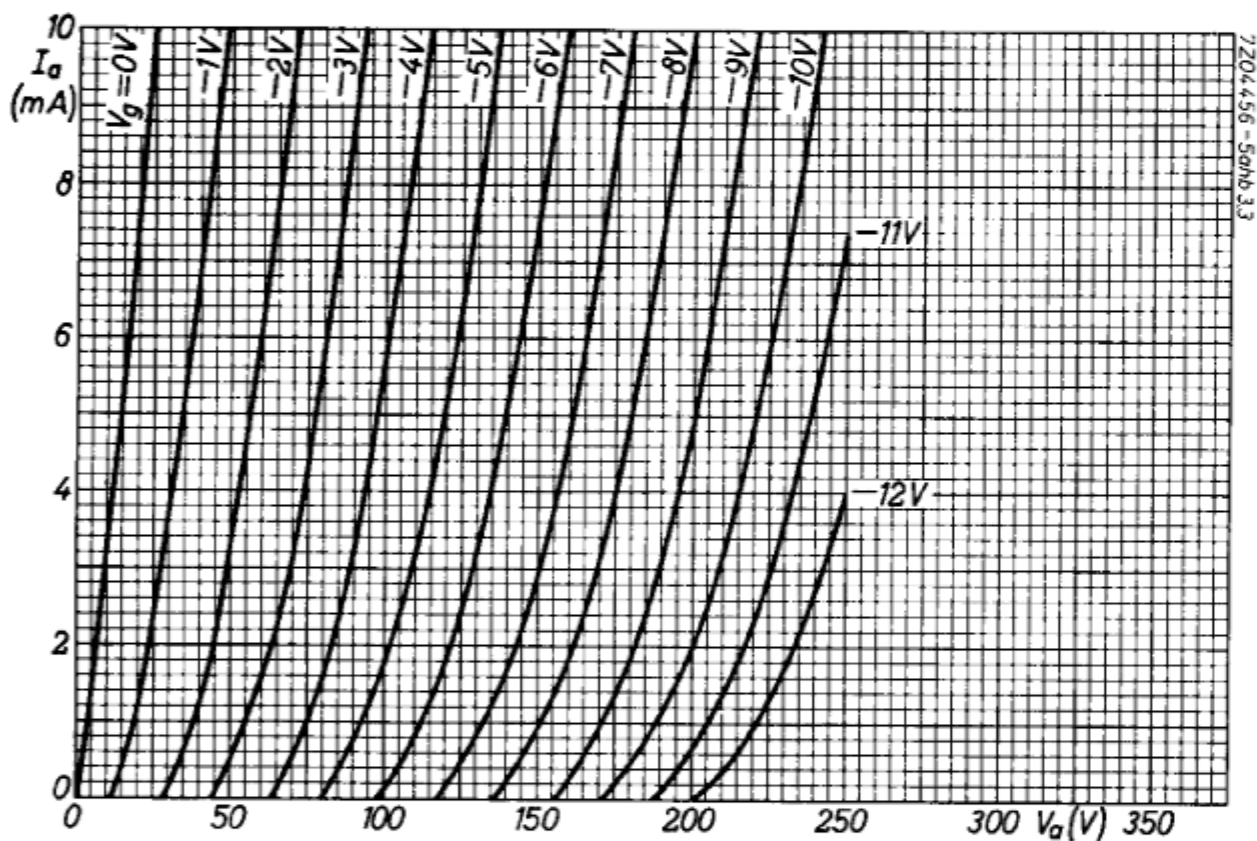
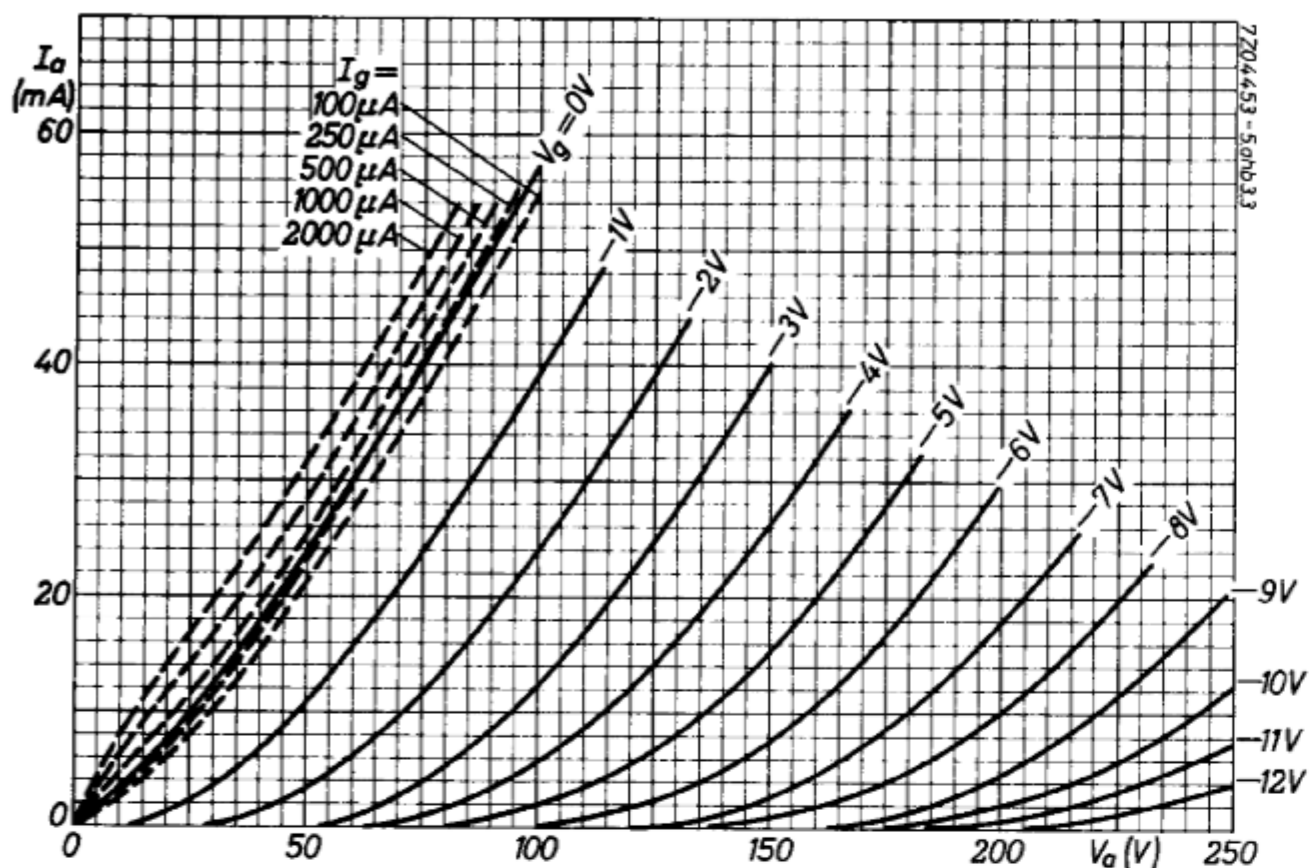
Grid voltage, peak	}	$+V_{gp}$	max.	30	V
		$-V_{gp}$	max.	200	V
Pulse duration max. $10 \mu s$					
Duty factor max. 0.01					
Grid current		$I_g$	max.	8	mA
Grid peak current		$I_{gp}$	max.	200	mA
Pulse duration max. $10 \mu s$					
Duty factor max. 0.01					
Cathode current		$I_k$	max.	60	mA
Cathode peak current		$I_{kp}$	max.	400	mA
Pulse duration max. $10 \mu s$					
Duty factor max. 0.01					
Voltage between cathode and heater d.c. component		$V_{kf}$	max.	200	V
		$V_{kf}$	max.	120	V
Bulb temperature		$t_{bulb}$	max.	160	$^{\circ}C$
Grid resistor with automatic bias		$R_g$	max.	1	$M\Omega$
Grid resistor with fixed bias		$R_g$	max.	0.5	$M\Omega$

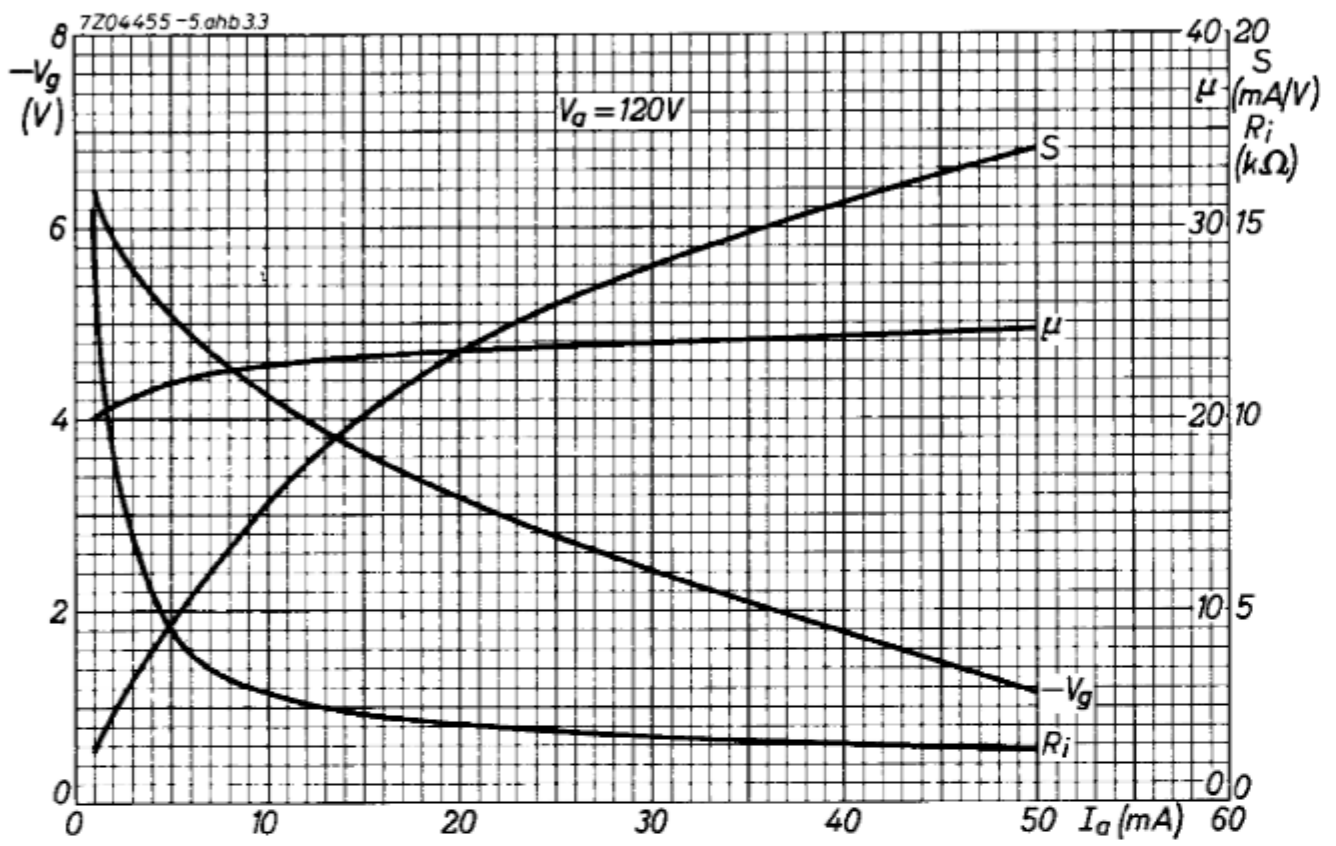
Heater voltage: The average heater voltage should be 6.3/12.6 V.

Variations of the heater voltage exceeding the range of 6.0/12.0 V to 6.6/13.2 V will shorten the tube life.

The tolerance of heater current (column II) should be taken into account.







# PHILIPS

## Data handbook



**Electronic  
components  
and materials**

### E182CC

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