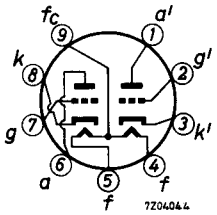
S.Q. TUBE

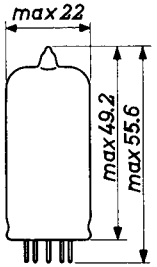
Special quality double triode designed for use as A.F. amplifier, oscillator and multivibrator.

QUICK REFERENCE DATA			
Life test	1000 hours		
Low interface resistance			
Mechanical quality	Shock and vibration resistant		
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	300 or 150	mA
Anode current	I_a	1.2	mA
Mutual conductance	S	1.6	mA/V
Amplification factor	μ	100	

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Noval





CHARACTERISTICS Each system if applicable.

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	V_f	6.3			V
Heater current	I_f	300	276- 324		mA
Anode voltage	V_a	250			V
Grid voltage	$-V_g$	2			V
Anode current	I_a	1.2	0.75-1.75		mA
Mutual conductance	S	1.6	1.25-2.05	min.1.12	mA/V
Amplification factor	μ	100			
Internal resistance	R_i	62.5			kΩ
Difference in anode current of both systems	$\lvert I_a - I_a' \rvert$		max. 0.6		mA
Negative grid current	$-I_g$		max. 0.5	max. 0.5	μA
Vibrational noise output (units connected parallel)	V_o		max. 25		mV_{RMS}
Anode supply voltage V_{ba} = 250 V					
Grid voltage $-V_g$ = 2 V					
Frequency f = 25 Hz					
Acceleration 2.5 g					
Anode resistor R_a = 2 kΩ					
Amplification					
Anode supply voltage	V_{ba}	100			V
Grid voltage	V_g	0			V
Anode resistor	R_a	0.5			MΩ
Grid resistor	R_g	10			MΩ
Input voltage	V_i	0.2			V_{RMS}
Output voltage	V_o		min. 8.4		V_{RMS}

CHARACTERISTICS (continued)		I	II	III	
Anode voltage	V_a	100			V
Grid voltage	$-V_g$	1			V
Anode current	I_a	0.5			mA
Mutual conductance	S	1.25			mA/V
Amplification factor	μ	100			
Internal resistance	R_i	80			kΩ
Insulation resistance between electrodes Voltage between electrodes V = 100 V	R_{ins}		min. 100	min. 50	MΩ
Leakage current between cathode and heater Voltage between cathode and heater V_{kf} = 100 V	I_{kf}		max. 10	max. 20	μA

CAPACITANCES. Without external screen.
Each system if applicable.

Anode to grid, cathode and heater	$C_{a/gkf}$	3.9	pF
Anode to cathode and heater	$C_{a/kf}$	0.4	pF
	$C_{a'/k'f}$	0.3	pF
Grid to anode, cathode and heater	$C_{g/akf}$	3.7	pF
Grid to cathode and heater	$C_{g/kf}$	1.6	pF
Anode to grid	C_{ag}	1.7	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°.

SHOCK AND VIBRATION RESISTANCE (continued)

Vibration

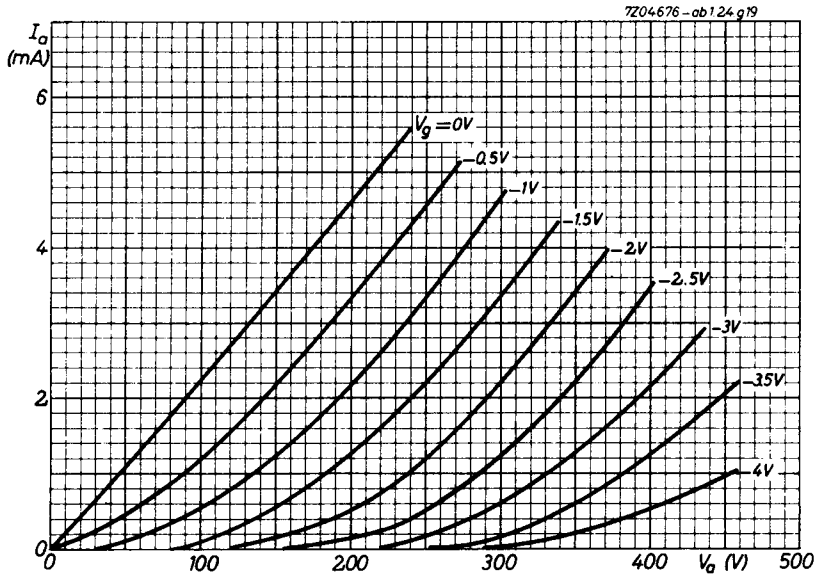
The tube is subjected during 32 hours in each of 3 positions to a vibration frequency of 50 Hz with an acceleration of 2.5 g.

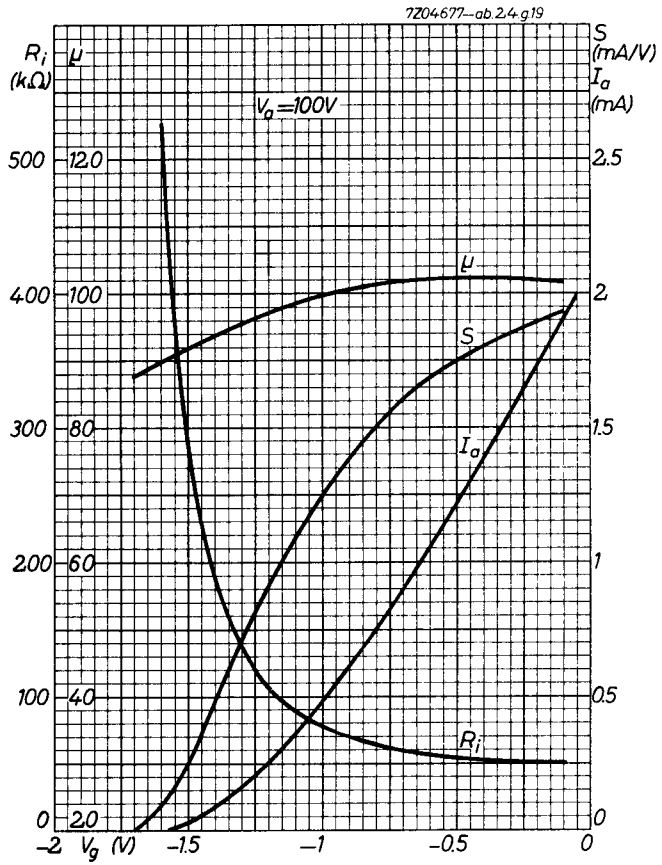
LIFE

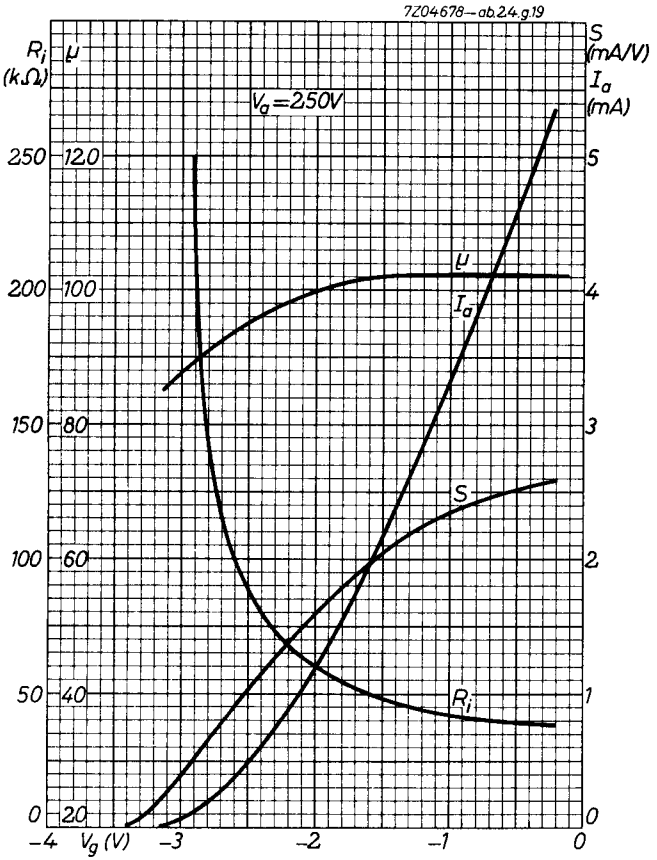
Production samples are tested to be within the end of life values (column III)

LIMITING VALUES (Absolute max. rating system)

Anode voltage	V_a	max.	330	V
Anode dissipation	W_a	max.	1.1	W
Cathode current	I_k	max.	20	mA
Grid resistor with fixed bias	R_g	max.	1	MΩ
Voltage between cathode and heater	V_{kf}	max.	100	V
Bulb temperature	t_{bulb}	max.	165	°C




7Z04677—ab.2.4.g19
R_i (kΩ)
μ
S (mA/V)
I_a (mA)
V_a=100V
500
12.0
2.5
4.00
100
2
300
80
1.5
200
60
1
100
40
0.5
0
20
0
−2
V_g (V)
−1.5
−1
−0.5
0
μ
S
I_a
R_i


7Z04678—ab.2.4.g.19
R_i (kΩ)
μ
S (mA/V)
I_a (mA)
V_g=250V
250
200
150
100
50
0
12.0
100
80
60
40
20
5
4
3
2
1
0
μ
I_a
S
R_i
−4
V_g (V)
−3
−2
−1
0

PHILIPS

Data handbook

Electronic components and materials

12AX7S

page	sheet	date
1	1	1968.12
2	2	1968.12
3	3	1968.12
4	4	1968.12
5	5	1968.12
6	6	1968.12
7	FP	2001.04.19