ELECTROMETER TUBE

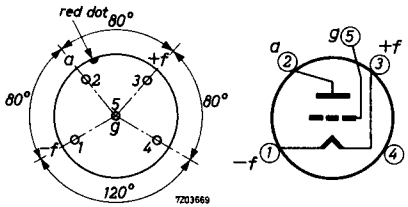
Subminiature electrometer triode for linear and logarithmic use with a controlled logarithmic relationship between positive grid current and anode current.

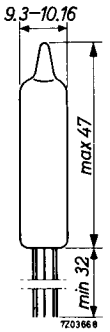
QUICK REFERENCE DATA			
Filament voltage	V_f	1.25	V
Anode voltage	V_a	9.0	V
Anode current	I_a	100	μA
Grid current	$-I_g$	< 10^{-12}	A

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Subminiature





Directly soldered connections to the leads of this tube must be at least 13 mm from the seal and any bending of the leads must be at least 1.5 mm from the seals.

HEATING: direct by D.C.

Filament voltage	V_f	1.25	V
Filament current	I_f	14	mA

CAPACITANCES

Anode to all except grid	$C_{a(g)}$	0.8	pF
Grid to all except anode	$C_{g(a)}$	0.5	pF
Anode to grid	C_{ag}	2.0	pF

CHARACTERISTICS AND RANGE VALUES

Anode voltage	V_a	9.0		V
Grid voltage	V_g	-2.7	-2.0 to 3.75	V
Anode current	I_a	100		μA
Grid current	$-I_g$	1.6×10^{-13}	$< 10^{-12}$	A [1]
Transconductance	S	80	60 to 90	μA/V
Amplification factor	μ	2.0	1.6 to 2.7	
Grid voltage at crossover point [2] (I_a = 145 μA)	V_g	-1.4	< 1.7	V

LIMITING VALUES (Absolute max. rating system)

Anode voltage	V_a	max.	25	V
Anode current	I_a	max.	250	μA
Filament voltage	V_f	max.	1.5	V
		min.	1.1	V

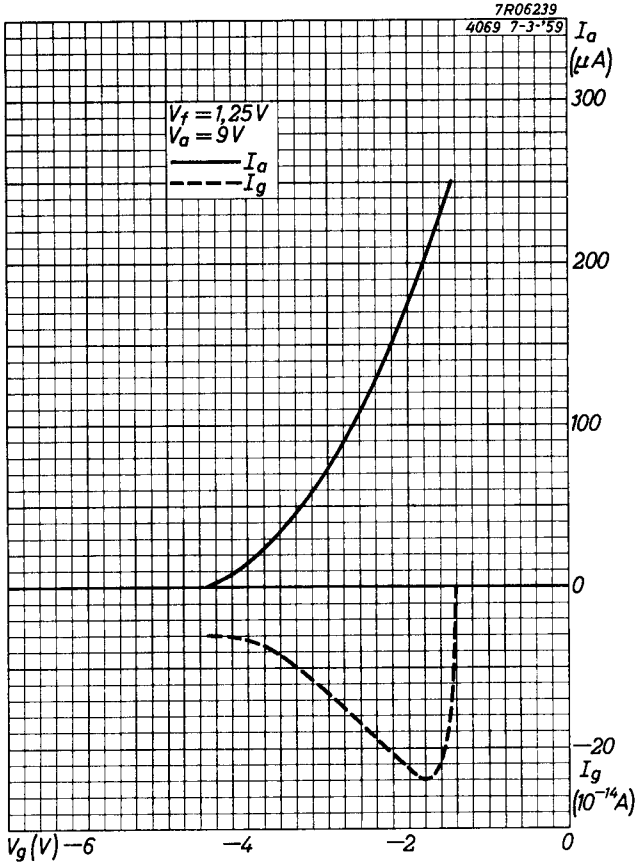
REMARKS

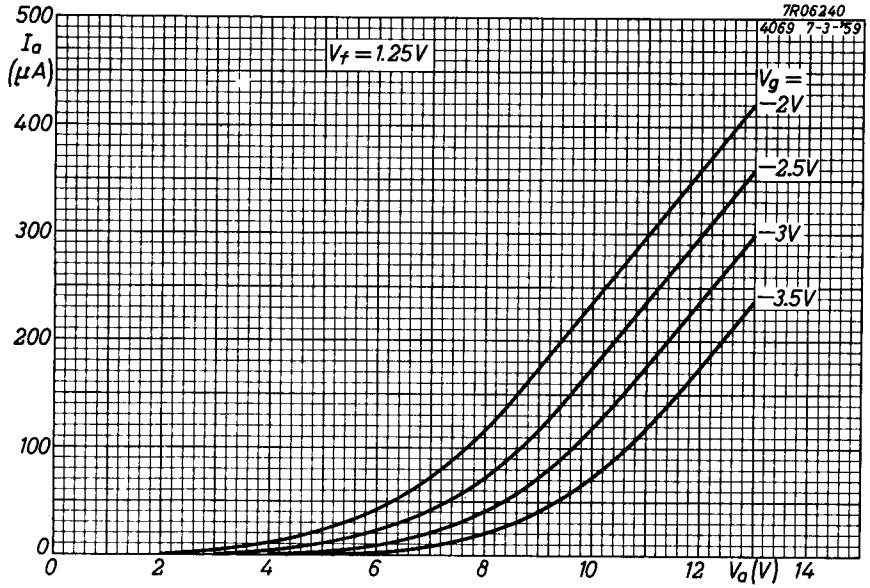
1. In order to avoid excessive drift of the characteristics the filament voltage must be applied before the anode voltage.
2. To avoid contamination of the glass, the tube should not be removed from its protective envelope until it is mounted into the equipment. Great care should be taken not to handle the tube within 13 mm of the base.
3. Operation with logarithmic characteristic.
   The tube has a controlled linear relationship between I_a and the logarithm of the positive I_g, which holds good over a range of I_g from 3×10^{-12} to 3×10^{-9} A. With $+I_g = 3 \times 10^{-9}$ A, V_a can be set to some value within the range from 3 to 6 V (nominal 4.4 V) such that I_a falls by 50 μA when $+I_g$ is reduced to 3×10^{-12} A. The initial value of I_a will be found in the range from 65 to 100 μA.

---

1) Only valid in darkness.

2) The crossover point is the point at which the direction of I_g is reversed.


7R06239
4069 7-3-'59
$V_f = 1,25V$
$V_a = 9V$
I_a
I_g
I_a (μA)
300
200
100
0
−20
I_g (10^{-14}A)
V_g (V) −6
−4
−2
0


7R06240
4069 7-3-59
500
I_a
(μA)
400
300
200
100
0
$V_f = 1.25V$
$V_g =$
−2V
−2.5V
−3V
−3.5V
0
2
4
6
8
10
12
V_a(V)
14

PHILIPS

Data handbook

Electronic components and materials

4069

page	sheet	date
1	1	1968.12
2	2	1968.12
3	3	1968.12
4	4	1968.12
5	FP	2001.05.19