



ELECTRONIC TUBE REFERENCE

TB3750

Power - Triode (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Directly heated Philips transmitting triode for RF and AF power service. Rated for approximately 250 W plate dissipation and 3 kV plate voltage, with about 5 mS transconductance and amplification factor around 25.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5 V / 14.1 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
TRANSCONDUCTANCE	0.005 S
AMPLIFICATION FACTOR	25
MAXIMUM PLATE VOLTAGE	3000 V
MAXIMUM PLATE DISSIPATION	250 W
MAXIMUM CATHODE CURRENT	400 mA
<i>Published filament, capacitance, typical characteristics, limiting values and RF/AF operating tables reviewed.</i>	

TB3750 is a Philips RF/AF transmitting triode. The supplied datasheet provides direct-filament data, RF/AF ratings, capacitances and high-power operating conditions.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Philips Electron Tubes Handbook V4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 PHILIPS ELECTRON TUBES HANDBOOK V4

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage	5 V	DirectlyHeated
Filament current	14.1 A	DirectlyHeated
Amplification factor	25	Published
Transconductance	5000 μ S	Published

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	3000 V	Published limit
Maximum plate dissipation	250 W	Published limit
Maximum cathode/plate current	400 mA	Published limit
Plate voltage	3000 V	ClassC
Grid bias	-250 V	ClassC
Plate current	363 mA	ClassC
Grid current	69 mA	ClassC

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate capacitance	0.16 pF	Published
Grid capacitance	6.3 pF	Published
Grid-to-plate capacitance	5 pF	Published

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage V_f 5V	5 a	Filament voltage V_f 5V
Filament current I 141 A	141 a	Filament current I 141 A
The filament is designed to accept temporary fluctuations of +5% and --10%	-10 a	The filament is designed to accept temporary fluctuations of +5% and --10%
Anode to all other elements except grid Ca 0,16 pF	160 mA	Anode to all other elements except grid Ca 0,16 pF
Grid to all other elements except anode Cg 6,3 pF	6.3 a	Grid to all other elements except anode Cg 6,3 pF
Anode to grid Cag 5,0 pF	5 A	Anode to grid Cag 5,0 pF
Anode voltage Va 3 kv	3 A	Anode voltage Va 3 kv
Anode current Ia 90 mA	90 A	Anode current Ia 90 mA
Anode connector (clip) 40624 Net mass 190g	190 A	Anode connector (clip) 40624 Net mass 190g
RF power triode TB3/750	750 w	RF power triode TB3/750
Anode voltage 3 2.5 2 1.5	1.5 A	Anode voltage 3 2.5 2 1.5
Grid voltage	120 v	Grid voltage =350 -250 -200 -150 --120
Anode current 380 363 400 400 400	400 A	Anode current 380 363 400 400 400
Driving power 40 27 23.5 23 21.5	21.5 v	Driving power 40 27 23.5 23 21.5
Anode input power 1520 1090 1000 800 600	600 A	Anode input power 1520 1090 1000 800 600
Anode dissipation 320 250 250 215 175	175 A	Anode dissipation 320 250 250 215 175

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Fig. 2 Ground grid configuration	2 nf	Fig. 2 Ground grid configuration.
Frequency f	100 MHz	Frequency f = 100 100 100 100 MHz
Anode voltage V,	1.5 A	Anode voltage V, = 3 2.5 2 1.5 kV
Grid voltage Vg	-120 v	Grid voltage Vg = -250 -200 -150 -120 V
AC voltage Vgp	295 A	AC voltage Vgp = 430 380 320 295 V
Anode current I,	800 A	Anode current I, = 726 800 800 800 mA
Grid current Ig	160 mA	Grid current Ig = 138 138 160 160 mA
Driving power Wdar	233 v	Driving power Wdar = 310 294 250 233 W
Anode input power Wi,	1200 A	Anode input power Wi, = 2180 2000 1600 1200 W
Anode dissipation W,	350 A	Anode dissipation W, = 500 500 430 350 W
1y power transferred from driving stage included	1 w	1y power transferred from driving stage included
RF power triode TB 3/750	750 w	RF power triode TB 3/750
Frequency f 100 100 MHz	100 MHz	Frequency f 100 100 MHz
Anode voltage Va 4 3 kV	3 A	Anode voltage Va 4 3 kV
Anode current I, 760 726 mA	726 A	Anode current I, 760 726 mA
Grid current Ig 160 138 mA	138 mA	Grid current Ig 160 138 mA
Grid resistor Rg 2200 1800 €	1800 s	Grid resistor Rg 2200 1800 €
Driving power War 80 54 W	54 v	Driving power War 80 54 W
Anode input power Wia 3040 2180 W	2180 A	Anode input power Wia 3040 2180 W
Anode dissipation w, 640 500 W	500 A	Anode dissipation w, 640 500 W
Frequency f upto 50 upto 100 upto 150 MHz	150 MHz	Frequency f upto 50 upto 100 upto 150 MHz
Frequency f	50 MHz	Frequency f = 50 50 MHz
Anode voltage vV,	2.25 A	Anode voltage vV, = 3.5 2.25 kV
Anode current I,	340 A	Anode current I, = 325 340 mA
Grid current Ig	60 mA	Grid current Ig = 65 60 mA
Grid resistor Rg	3330 s	Grid resistor Rg = 4500 3330 @
Anode input power Wia	935 A	Anode input power Wia = 1400 935 W
Anode dissipation Wy	250 A	Anode dissipation Wy = 300 250 W

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor μ 25	25 A	Amplification factor μ 25
Bulb temperature T_{bulb} Max. 350 °C	350 a	Bulb temperature T_{bulb} Max. 350 °C
Anode seal temperature T_a max. 220 °C	220 A	Anode seal temperature T_a max. 220 °C
Pin temperature T_{pin} max. 180 °C	180 a	Pin temperature T_{pin} max. 180 °C
Anode voltage V_a	4 A	Anode voltage $V_a = \max 4$
Anode input power W_i ,	1550 A	Anode input power $W_i = \max. 1550$
Anode dissipation W ,	350 A	Anode dissipation $W = \max. 350$
Negative grid voltage $-V_g$	500 a	Negative grid voltage $-V_g = \max. 500$
Grid dissipation W_g	40 s	Grid dissipation $W_g = \max 40$
Grid circuit resistance R_g	100 s	Grid circuit resistance $R_g = \max. 100$
Cathode current I	500 a	Cathode current $I = \max. 500$
Peak grid AC voltage 535 430 380 320 295	295 a	Peak grid AC voltage 535 430 380 320 295
Output power 1200 840 750 585 425	425 w	Output power 1200 840 750 585 425
Output power W_o	1 w	Output power $W_o = 16804236 1500+247 1170+204 850+190 W 1)$
Efficiency η	71 %	Efficiency $\eta = 77 75 73 71 \%$
Output power W , 2320 1626 W	1626 w	Output power W , 2320 1626 W
Efficiency η 77 75 %	75 %	Efficiency η 77 75 %
Anode voltage V , - max. 3.8 max. 2.7 max. 1.8 kV	1.8 A	Anode voltage V , - max. 3.8 max. 2.7 max. 1.8 kV
Anode input power W_{js}	650 A	Anode input power $W_{js} = \max. 1500 \max. 975 \max. 650 W$
Anode dissipation W ,	350 A	Anode dissipation $W = \max. 350 \max. 350 \max. 350 W$
Negative grid voltage $-V_g$	500 a	Negative grid voltage $-V_g = \max. 500 \max. 500 \max. 500 V$
Grid dissipation W_g	40 s	Grid dissipation $W_g = \max. 40 \max. 40 \max. 40 W$
Grid circuit resistance R_y	100 s	Grid circuit resistance $R_y = \max. 100 \max. 100 \max. 100 kQ$

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode current I,	450 a	Cathode current I, = max. 450 max.450 max.450 mA
Output power W,	685 w	Output power W, = 1100 685 W
Efficiency n	73 %	Efficiency n = 78 73 %

TUBE TINKER

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