



ELECTRONIC TUBE REFERENCE

YD1140

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

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Directly heated thoriated-tungsten very-high-power RF triode for transmitting and industrial service. Rated for approximately 100 kW plate dissipation and 13 kV plate voltage, with exceptionally high transconductance for demanding RF power applications.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	17.5 V / 196 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
TRANSCONDUCTANCE	0.14 S
AMPLIFICATION FACTOR	25
MAXIMUM PLATE VOLTAGE	13000 V
MAXIMUM PLATE DISSIPATION	100000 W
Published electrical data additionally captured in parameter rows.	

Directly heated thoriated-tungsten R.F. power triode. The Philips sheet publishes filament data, interelectrode capacitances, static characteristics, limiting ratings, and operating conditions for R.F. and/or Class B service.

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage V_{ϕ}	17.5 V	Filament voltage $V_{\phi} = 17.5$ V
Filament current I_f	196 A	Filament current $I_f = 196$ A
Anode voltage V_o	10 kV	Anode voltage $V_o = 3$ 10 kV
Anode current I_a	5 A	Anode current $I_a = 50$ 5 A
Amplification factor M	25	Amplification factor $M = 25$ 25
Mutual conductance S	60 mA	Mutual conductance $S = 140$ 60 mA/V
At maximum frequency (30 MHz) and published operating conditions an air flow	30 MHz	At maximum frequency (30 MHz) and published operating conditions an air flow
Frequency f up to	30 MHz	Frequency f up to 4 15 30 MHz
Frequency f	30 MHz	Frequency $f = 30$ 30 MHz
Anode voltage V_a	10 kV	Anode voltage $V_a = 12$ 10 kV
Grid voltage V_g	-800 V	Grid voltage $V_g = -1000$ -800 V
Grid driving voltage V_{gp}	1200 V	Grid driving voltage $V_{gp} = 1500$ 1200 V
Anode current I_a	10 A	Anode current $I_a = 12$ 10 A
Grid current I_g	750 mA	Grid current $I_g = 0.75$ 0.75 A
Anode input power W_{ia}	100 kW	Anode input power $W_{ia} = 144$ 100 kW
Anode dissipation W_a	25 kW	Anode dissipation $W_a = 36$ 25 kW
Output power W_o	75 kW	Output power $W_o = 108$ 75 kW
Efficiency η	75	Efficiency $\eta = 75$ 75 %
Frequency f up to	30 MHz	Frequency f up to 30 MHz
Anode input power $W_{ia} = \max$	110 kW	Anode input power $W_{ia} = \max$ 110 kW
Anode dissipation $W_a = \max$	66 kW	Anode dissipation $W_a = \max$, 66 kW

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage V_a	10 kV	Anode voltage $V_a = 10\ 10\ \text{kV}$
Grid voltage V_g	1	Grid voltage $V_g = -1050\ -1050\ \text{Vv}\ 1)$
Grid driving voltage V_{gp}	1450 V	Grid driving voltage $V_{gp} = 1550\ 1450\ \text{V}$
Anode current I_y	7.4 A	Anode current $I_y = 10.5\ 7.4\ \text{A}$
Grid current I_g	800 mA	Grid current $I_g = 1.1\ 0.8\ \text{A}$
Anode input power W_{ia}	74 kW	Anode input power $W_{ia} = 105\ 74\ \text{kW}$
Anode dissipation w ,	16	Anode dissipation w , = 22 J 16 - kW
Output power W ,	58 kW	Output power W , = 83 58 kW
Efficiency η	7	Efficiency $\eta = 79\ 7\% \%$

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament peak current $pr\ max$	420 A	Filament peak current $pr\ max$. 420 A
Anode voltage V , = max	12.5	Anode voltage V , = max. 15 185 12.5
Anode current I , = max	12.5 A	Anode current I , = max. 12.5 12.5 12.5 A
Anode input power W_i , = max	150 kW	Anode input power W_i , = max. 165 165 150 kW
Anode dissipation W , = max	100 kW	Anode dissipation W , = max. 100 100 100 kW
Negative grid voltage $-V_g = max$	1200	Negative grid voltage $-V_g = max$. 1200 1200 1200
Grid current $I_g = max$	1.2 A	Grid current $I_g = max$. 1.2 1.2 1.2 A
Anode current I , = max	10.5 A	Anode current I , = max. 10.5 A
Negative grid voltage $-V_g = max$	1200 V	Negative grid voltage $-V_g = max$. 1200 V
Grid current $I_g = max$	1.3 A	Grid current $I_g = max$. 1.3 A