



ELECTRONIC TUBE REFERENCE

YL1520

Power - Tetrode (NOT beam) (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL
DATA

1 SECTION
CONSTRUCTION
TETRODE

Large forced-air-cooled metal-ceramic VHF tetrode for high-power television, AM/FM broadcast, transposer, and modulation service. High transconductance and approximately 18 kW plate dissipation support demanding professional transmitter output stages.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	11.5 V / 120 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Tetrode	
TRANSCONDUCTANCE	0.06 S
AMPLIFICATION FACTOR	8.5
MAXIMUM PLATE VOLTAGE	9500 V
MAXIMUM SCREEN VOLTAGE	1000 V
MAXIMUM PLATE DISSIPATION	18000 W
MAXIMUM SCREEN DISSIPATION	100 W
MAXIMUM GRID DISSIPATION	50 W
MAXIMUM CATHODE CURRENT	9 A
<i>VHF RF power tetrode</i>	

Forced-air-cooled metal-ceramic VHF power tetrode for high-power television transmitters, AM/FM

broadcast, modulation, and transposer applications.

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 · Tetrode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage V_i	8 kV	ClassAB
Output power in load W_y	27.5 kW	ClassAB
Anode voltage V_i ,	8.5 kV	ClassC
Output power In load W_y	25 kW	ClassC
Frequency I	175 to 225 MHz	Transposer
Anode voltage V_i	3 kV	Transposer
Output power in load W	10.5 kW	Transposer
Filament current I_y	120 A	—
Filament peak starting current pr max	750 A	—
Waiting time T_y min	1 s	—
Absolute max. envelope temperature teny Max	240 °C	—
Recommended max. seal temperature t max	200 °C	—
Frequency f	260 MHz	—
Anode voltage V_a	9 kv	—
Grid no. 2 voltage V_{g2}	1 kV	—
Grid no. 1 voltage V_{g1}	500 V	—
Anode current, black I_a black	7 A	—
Anode input power, black W_{ia} plack	40 kW	—
Anode dissipation W_y	18 kW	—
Grid no. 2 dissipation W_{go}	100 W	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid no. 1 dissipation Weq	50 W	—
Cathode current Ik	9 A	—
Frequency of vision carrier f	175.25 MHz	—
Bandwidth ([1]	-1 dB	—
Bandwidth ([2]	7.5 MHz	—
Anode voltage Va	8 kv	—
Grid no. 2 voltage Vgo	700 V	—
Grid no. 1 voltage Vg1	-84 v	—
Anode current, no-signal condition Iy	900 mA	—
Anode current, black I3 plack	3.9 A	—
Grid no. 2 current, black Ig2 black	55 mA	—
Grid no. 1 current, black Ig1 plack	180 mA	—
Output power in load, sync Wy sync	27.5 W	—
black Wy black	16.5 kW	—
Anode dissipation, black Wa black	14 kW	—
Driving power, sync Wdrgync	965 W	—
Differential gain	285 %	—
Frequency of vision carrier f 83,25	55.25 MHz	—
Bandwidth ([2]	7 MHz	—
Anode voltage Vg 6,5	6.5 kV	—
Grid no. 2 voltage Vgg 700	700 V	—
Grid no. 1 voltage Vgl -88	~88 V	—
Anode current, no signal condition Iy 900	900 mA	—
Anode current, black 14 plack 4, 1	4.5 A	—
Grid no. 2 current, black Ig black 55	45 mA	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid no.1 current, black Ig1 black 160	175 mA	—
Output power in load. sync Wy svne 20	20 kW	—
Anode dissipation, black Wa black 14,6	17.2 kW	—
Driving power, sync Wdr 835	910 W	—
black Wdrpl ek 144	520 W	—
with superimposed a 4,	43 MHz	—
7y Three-tone test method (vision carrier [1])	-8 dB	—
7y Three-tone test method (vision carrier [2])	-7 dB	—
6) At $\phi.w$, output power = 10,35 kW, [1]	-17 dB	—
6) At $\phi.w$, output power = 10,35 kW, [2]	0 dB	—
Frequency f	175 to 225 MHz	—
Bandwidth ([2])	8 MHz	—
Anode voltage Vi	8 kV	—
Grid no. 2 voltage Voo	200 V	—
Anode current, no signal condition Ia	1.8 A	—
Anode current 6) Ia	3.3 A	—
Grid no. 2 current 6) Ig2	35 mA	—
Grid no. 1 current 6) Ig1	20 mA	—
Driving power, sync Wdr	250 W	—
Output power in load, sync Wy	10.5 kW	—
Intermodulation products 7) d	-55 dB	—
Anode voltage Vi, max	9.5 kV	—
Grid no. 1 voltage -Vgl max	500 V	—
Anode current Iy max	7 A	—
Anode input power Wia max	42 kW	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode dissipation W_a , max	18 kW	—
Grid no. 2 dissipation W_{g2} , max	100 W	—
Grid no. 1 dissipation W_{g1} , max	50 W	—
Cathode current I_y , max	9 A	—
Anode voltage V_a	8.5 kV	—
Grid no. 2 voltage V_{g2}	700 V	—
Grid no. 1 voltage V_{g1}	~106 V	—
Anode current, no signal condition 1,	300 mA	—
Anode current 1	4.6 A	—
Grid no. 2 current I_{g2}	100 mA	—
Grid no. 1 current I_{g1}	325 mA	—
Anode input power W_{in}	39.1 kW	—
Anode dissipation W_a	14 kW	—
Output power in load W_o	25 kW	—
Driving power W_{dr}	800 W	—
1 WEASAA'EAY A_{i2}	0 mA	—
AY X_{hY} LAVEVEAV h_Y	100 °C	—
t_{ra} \ AY	25 s	—
$t_a = 130$ °C—++120	0 °C	—
14	16 W	—
I_y \	< 1 A	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid no. 2 voltage V_{g2}	700 V	—
Anode current I_a ,	2.4 A	—
Transconductance S	60 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input $C_{gl(a)}$ 135 $C_{f(a)}$	69 pF	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode to filament Cat	0.25 pF	—

TUBE TINKER

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