



ELECTRONIC TUBE REFERENCE

EL509

Power - TV Horizontal Output (sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Heavy-duty power pentode for color-television horizontal-deflection output, combining approximately 35 W plate dissipation, high transconductance, and demanding flyback capability.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9C18	BASE PINS	9
NOMINAL HEATER	6.3 V / 2.5 A	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	8000 Ω
TRANSCONDUCTANCE	0.018 S
MAXIMUM PLATE VOLTAGE	900 V
MAXIMUM SCREEN VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	35 W
MAXIMUM SCREEN DISSIPATION	7 W
MAXIMUM CATHODE CURRENT	500 mA
<i>Published ratings/characteristics promoted where unambiguous.</i>	

Power pentode for color-television line-deflection amplification. Indirectly heated Mazda/Belvu receiving tube; descriptive text translated to English from the French source.

SOURCE OPERATING CONDITIONS

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1968 Mazda Belvu

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

1968 MAZDA BELVU

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tension filament ececisenmereeeensennenesnnnnns VĖ	6.3 V	—
Courant filament..... ... If	2 A	—
Vă bl	700 V	—
Tension d'anode de crête... Vacr 7	0 V	—
Tension de grille n° 3... Ves	50 V	—
Tension de grille n° 2 a courant nul Vg, bl	700 V	—
Tensionh de grille n° 2 Veg,	250 V	—
Dissipation d'anode Pa	30 W	—
dans le système des limites hybrides..... Pa	40 W	—
Courant de cathode ... Ik	500 mA	—
Tension entre le fil&ment etla cathode Vfk	250 V	—
Tension négative de crête de grille n° 1 Vg, er	550 V	—
(2) Dans le système des limites absolues	8 kV	—
(3) Pendant ls penode de chauffage de la cathode	14 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Capacité grille n° 1/anode CE1/8	235 pF	—
Tension d'anode... 160	45 V	—
Tension de grille m3 0	0 v	—
Tension de grille n° 2 ... 160	160 V	—
Courant d'anode... 1 400 1	0 mA	—
Tension d'anode en fin de balayage Va	55 V	—
Tension de grille t° 3..... Ve;	0 V	—
Tension de grille n° 2 Ve,	175 V	—
Courant de crête d'anode la cr	800 mA	—
Courant de crête de grille m2. Ig, cr	70 mA	—
le blocage du tube est de 170 V min. pour Va= 7 000 V, Vg, =	175 V	—
(6) La grille n° 3 peut être portée à une tension positive de	20 V	—
Va =	160 V	—
Vg, =	160 V	—
f -50 -40 -30 -20	-10 S	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1972 Philips Receiving Tubes

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1972 PHILIPS RECEIVING TUBES

Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	2 A	Published nominal value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	40 W	Published or referenced maximum rating
Maximum peak anode voltage	8 kV	Color-TV line-deflection service



SOURCE DATA APPENDIX

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1975 RCA RC30

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1975 RCA RC30

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	10 mA	Published value from supplied target entry
Grid-No	2.8 mA	Published value from supplied target entry
For plate current of	5 volts	Published value from supplied target entry
For plate current of	-3 volts	Published value from supplied target entry
Heater Voltage (ac/dc)	40 volts	Published value from supplied target entry
Heater Current	0.3 amperes	Published value from supplied target entry
Plate Voltage	160 volts	Published value from supplied target entry
Grid-No	0 volts	Published value from supplied target entry
Grid-No	160 volts	Published value from supplied target entry
Grid-No.1 Voltage	0 volts	Published value from supplied target entry
Plate Current*	1400 mA	Published value from supplied target entry
Grid-No	45 mA	Published value from supplied target entry
Plate Supply Voltage	700 volts	Published value from supplied target entry

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Positive-Pulse Plate Voltage*	7000 volts	Published value from supplied target entry
Grid-No	700 volts	Published value from supplied target entry
Grid-No	250 volts	Published value from supplied target entry
Grid-No	7 watts	Published value from supplied target entry
Cathode Current	500 mA	Published value from supplied target entry
Grid-No	1	Published value from supplied target entry
t In horizontal-deflection service,	3	Published value from supplied target entry
Heater Voltage (ac/dc)	22 volts	Published value from supplied target entry
Heater Current	0.45 amperes	Published value from supplied target entry
Heater Warm-up Time	11 seconds	Published value from supplied target entry
Plate Voltage	140 volts	Published value from supplied target entry
Grid-No	30 volts	Published value from supplied target entry
Grid-No	140 volts	Published value from supplied target entry
Grid-No.1 (Control-Grid) Voltage	-24.5 volts	Published value from supplied target entry
Amplification Factor ^f	4	Published value from supplied target entry
Plate Resistance (Approx.)	6000 ohms	Published value from supplied target entry
Transconductance	9500	Published value from supplied target entry
Plate Current	80 mA	Published value from supplied target entry
Grid-No	2.4 mA	Published value from supplied target entry

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to Grid-No.1	2.5 pF	Published value from supplied target entry
Grid-No.1 to Heater	0.2 pF	Published value from supplied target entry
Plate to Cathode, Heater, Grid No	9 PF	Published value from supplied target entry

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Dissipation (Absolute-Maximum Value)	34 watts	Published value from supplied target entry



SOURCE OPERATING CONDITIONS

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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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum cathode-heater voltage, cathode positive	200 V	—
Maximum cathode-heater voltage, cathode negative	200 V	—



SOURCE OPERATING CONDITIONS

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199X JJ

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

199X JJ

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Plate Voltage	160 V	—
Typical Screen Voltage	160 V	—
TypicalControlGridVoltage	-30 V	—
Typical Plate Current	200 mA	—
Typical Screen Current	10 mA	—
MaximumCombinedPlateScreenDissipation	42 W	—

Characteristic		
Parameter	Published Value	Condition / Note
PlateGridCapacitance	3 pF	—



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SOURCE OPERATING CONDITIONS

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199X Svetlana

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199X SVETLANA

Section 1 · Pentode

Characteristic		
Parameter	Published Value	Condition / Note
Voltage (AC or DC) 5.7 6.3	6.9 V	SourcePage1-2
Current @6.3 volts	2.5 A	SourcePage1-2
Plate resistance (nominal)	8000 ohms	SourcePage1-2
Grid to plate	2.5 pF	SourcePage1-2
Grid to cathode	25 pF	SourcePage1-2

Other		
Parameter	Published Value	Condition / Note
DC plate voltage	900 V	SourcePage1-2
DC plate voltage, pulsed	8000 V	SourcePage1-2
DC cathode current	500 mA	SourcePage1-2
DC screen grid voltage	300 V	SourcePage1-2
Screen dissipation	7 W	SourcePage1-2
Plate dissipation	35 W	SourcePage1-2
Plate voltage	500 V	TypicalOperation
Screen voltage	280 V	TypicalOperation
Grid no.1 voltage	-82 V	TypicalOperation
Plate current, no signal	70 mA	TypicalOperation
Plate current, max signal	100 mA	TypicalOperation
Effective load resistance	1650 ohms	TypicalOperation

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Distortion at 1 watt into	8 ohms	TypicalOperation
Power output at 5% distortion	14 W	TypicalOperation
Screen Voltage =	140 V	TypicalOperation
Control Grid Voltage =	0 V	TypicalOperation

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