



ELECTRONIC TUBE REFERENCE

E188CC

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Special-quality high-transconductance double triode for cascode amplifiers and pulse circuits where stable characteristics and long operating life are required.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Noval	BASE PINS	9
NOMINAL HEATER	6.3 V / 335 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	8300 Ω
TRANSCONDUCTANCE	0.0125 S
AMPLIFICATION FACTOR	33
MAXIMUM PLATE VOLTAGE	550 V
MAXIMUM PLATE DISSIPATION	1.65 W
MAXIMUM GRID DISSIPATION	0.03 W
MAXIMUM CATHODE CURRENT	22 mA
Representative row for electrically identical repeated section.	

SECTION2 Triode	
PLATE RESISTANCE	8300 Ω
TRANSCONDUCTANCE	0.0125 S
AMPLIFICATION FACTOR	33
MAXIMUM PLATE VOLTAGE	550 V
MAXIMUM PLATE DISSIPATION	1.65 W
MAXIMUM GRID DISSIPATION	0.03 W
MAXIMUM CATHODE CURRENT	22 mA
<i>Second physical triode section; electrically identical twin section.</i>	

Special-quality double triode for cascode amplifiers and pulse circuits where stability and long life are required.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Amperex Condensed

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

1963 AMPEREX CONDENSED

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published rating
Heater current	335 mA	Published rating
Published characteristic value	1.75	PremiumQuality
Published absolute value	2	PremiumQuality

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	250 V	PremiumQuality
Maximum plate current	22 mA	PremiumQuality



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Philips Electron Tubes Handbook V1a

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

1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	EachUnit
Plate current	15 mA	EachUnit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	12500 μ S	EachUnit
Amplification factor	33	EachUnit



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V3

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1963 PHILIPS ELECTRON TUBES HANDBOOK V3

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Hum voltage Vba	90 V	Hum voltage Vba = 90V
of the input voltage will generally be less than	4 V	of the input voltage will generally be less than 4 V so
Heater voltage	6.3 V	Chauffage: indirect par C.A. ou C.C. Vf = 6.3 V
Heater current	335 mA	Heizung : indirekt durch Wechsel- If=335mA

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.4 pF	Cag = 1.4 1.2-1.6 pF Ca'g' = . 1.4 1.2-1.6 pF
Cathode-heater capacitance	2.6 pF	Ckf = 2.6 pF Ck'f = 2.7 pF
Heater voltage	6.3 V	Vf = 6.3 1 I V
Heater current	335 mA	If = 335 j 318-352 318-352 mA

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	100 V	Vba = 100 V 1)
Cathode resistor	680 ohm	Rk =680 1 Q 1)
Plate current	15 mA	Ia = 15 14.2-15.8 1 13.5 mA
Transconductance	12.5 mA/V	S =12.5 10.5-14.5 9 mA/V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	33	$\mu = 33$ I
Plate supply voltage	901 V	$V_{ba} = 901$ V $V_a = 150$ V
Plate voltage	150 V	$V_{ba} = 901$ V $V_a = 150$ V
Cathode resistor	1201 ohm	$R_k = 1201$ I 4 - $V_g = 15$ I V
Plate current	1.2 mA	$I_a = 1.2$ I I mA I_a (5 μ A
Transconductance	11.51 mA/V	$S = 11.51$ i mA/V
Plate supply voltage	1001 V	$V_{ba} = 1001$ I V
Cathode resistor	6801 ohm	$R_k = 6801$ Q
Cathode-heater voltage	60 V	$V_{ba} = V_{ba'} = 100$ V $V_{kf} = V_{kf} = 60$ V (k neg.)
Plate supply voltage	100 V	$V_{ba} = 100$ 270 V
Load resistance	2 kohm	$R_a = 2$ 18 kQ
Cathode resistor	680 ohm	$R_k = 680$ 180 Q
Plate supply voltage	90 V	Hum voltage $V_{ba} = 90$ V
Cathode resistor	80 ohm	Brummspannung $R_k = 80$ Q
Plate current	15 mA	$I_a = 15$ mA
Plate supply voltage	60 V	$V_{ba} = 60$ 90 150V
Plate current	4.7 mA	$I_a = 4.7$ 7.7 11 mA



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1963 Siemens

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

1963 SIEMENS

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Plate Voltage	100 V	—
Typical Plate Current	15 mA	—
Noise Figure	4.6 dB	200MHz Cascode

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1967 Mullard Receiving Tubes for Maintenance

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

1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
I _h	335 mA	Published in approved E188CC.pdf target datasheet; Section1
The maximum variation of heater current at V _h = 6.3V is	17 mA	Published in approved E188CC.pdf target datasheet; Section1
Anode current 15 14.2 to 15 .8 >	13.5 mA	Published in approved E188CC.pdf target datasheet; Section1
Mutual conductance 12.5 10 .5 to 14 .5 >	9 mA	Published in approved E188CC.pdf target datasheet; Section1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
) * C _a - K 1.2 1.4	1.6 pF	Published in approved E188CC.pdf target datasheet; Section1
* C _a - k 140 180	0.22 pF	Published in approved E188CC.pdf target datasheet; Section1
*C _a - s 1.1 1.3	1.5 pF	Published in approved E188CC.pdf target datasheet; Section1
C _a ' - k ' + h +s 1.55 1.75	1.95 pF	Published in approved E188CC.pdf target datasheet; Section1
C _a ''' - k''' -+ h " s 1.45 1.66	1.85 pF	Published in approved E188CC.pdf target datasheet; Section1
C _a ' - k ' t h 0.4 0.5	0.6 pF	Published in approved E188CC.pdf target datasheet; Section1
C _a " - k " t ll 0.3 0.4	0.5 pF	Published in approved E188CC.pdf target datasheet; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
* Cg-k + h ~S 2.7 3.3	3.9 pF	Published in approved E188CC.pdf target datasheet; Section1
* Cg -k th 2.7 3.3	3.9 pF	Published in approved E188CC.pdf target datasheet; Section1
Ca' - a" 25	0.045 pF	Published in approved E188CC.pdf target datasheet; Section1
Ca ' - g "	0.005 pF	Published in approved E188CC.pdf target datasheet; Section1
Ca" - g '	0.005 pF	Published in approved E188CC.pdf target datasheet; Section1
Cg ' - k '	0.005 pF	Published in approved E188CC.pdf target datasheet; Section1
Cg' - k '	0.005 pF	Published in approved E188CC.pdf target datasheet; Section1
Ck ' - h	2.6 pF	Published in approved E188CC.pdf target datasheet; Section1
Ck ' - h	2.7 pF	Published in approved E188CC.pdf target datasheet; Section1
Ca ' - g ' t h t s 2.7 3.0	3.3 pF	Published in approved E188CC.pdf target datasheet; Section1
c a. . - g..+ h +s 2.6 2.9	3.2 pF	Published in approved E188CC.pdf target datasheet; Section1
* Ck -- g + h +s 5.1 6.9	6.9 pF	Published in approved E188CC.pdf target datasheet; Section1
I. 12	15 mA	Published in approved E188CC.pdf target datasheet; Section1
gm 11.5 12	5 mA	Published in approved E188CC.pdf target datasheet; Section1
gc 2.9 3.5	4.1 mA	Published in approved E188CC.pdf target datasheet; Section1
H eater cu r rent 335 318 t o 352 318 to	352 mA	Published in approved E188CC.pdf target datasheet; Section1
Pg max	30 mW	Published in approved E188CC.pdf target datasheet; Section1
i k ma x	22 mA	Published in approved E188CC.pdf target datasheet; Section1



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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current If	335 mA	Heating
Anode current I	15 mA	Heating
Mutual conductance S	12.5 mA	Heating
Equivalent noise resistance Req	250 Ω	Heating
Noise factor (f =	200 MHz	Heating
Heater voltage Vi	6.3 v	Characteristics
Heater current Iφ	318–352 mA	Characteristics
cathode and heater Ikt max	6 uA	Characteristics
heater Vi =	60 V	Characteristics

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid supply voltage +Vbg	9 v	Characteristics
Cathode resistor Ry	680 Ω	Characteristics
Anode current I	14.2–15.8 mA	Characteristics
Mutual conductance S	10.5–14.5 mA	Characteristics
Negative grid current –Ig max	0.1 uA	Characteristics
Equivalent noise resistance Req	250 Ω	Characteristics
Frequency f =	45 MHz	Characteristics
Frequency f =	200 MHz	Characteristics
Frequency f =	100 MHz	Characteristics
Cut off voltage --Vgl	15 v	Characteristics
Anode voltage Va	150 A	Characteristics
Anode current Ia max.,	5 mA	Characteristics

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode supply voltage V_{ha}	90 V	Characteristics
Cathode resistor R_y	120 Ω	Characteristics
Anode current I_a	12 mA	Characteristics
Mutual conductance S	11.5 mA	Characteristics
Voltage between electrodes $V=200$ V	200 V	Characteristics
Grid resistor $R_{gl} = 0.5$ M Ω	0.5 MΩ	Characteristics
Vibrational noise output $V_{g \max}$	100 mV	Characteristics
Anode supply voltage $V_{pha} =$	100 V	Characteristics

TUBE TINKER

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and their source documents.

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