



ELECTRONIC TUBE REFERENCE

ECH3

Voltage - Triode (with diode, heptode or hexode) electronic tube

CONSOLIDATED TECHNICAL
DATA

2 SECTIONS
CONSTRUCTION
HEXODE-TRIODE

Triode-hexode frequency changer for radio receiver oscillator and mixing service. The triode provides local oscillation while the hexode performs frequency conversion to the receiver intermediate frequency.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6.3 V / 200 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.0028 S
AMPLIFICATION FACTOR	24
MAXIMUM PLATE VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	1.5 W
<i>Published ratings and characteristics extracted from supplied datasheet. Philips ECH3 common-cathode oscillator triode. Maximum continuous anode voltage 150 V and plate dissipation 1.5 W; 550 V is only the cold-anode withstand limit, not continuous operation. Typical oscillator-triode characteristics include transconductance 2.8 mA/V and amplification factor 24. Published interelectrode capacitances.</i>	

SECTION2 Hexode	
PLATE RESISTANCE	1300000 Ω
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	125 V
MAXIMUM PLATE DISSIPATION	1.2 W
MAXIMUM SCREEN DISSIPATION	0.6 W
MAXIMUM CATHODE CURRENT	15 mA
<i>Published ratings and characteristics extracted from supplied datasheet. Philips ECH3 variable-mu hexode converter on a common cathode with oscillator triode. Maximum continuous anode voltage 300 V, plate dissipation 1.2 W, screen dissipation 0.6 W and cathode current 15 mA. 550 V is a cold-anode/screen withstand limit, not continuous operation. Screen limit 125 V is conditional at specified anode current, with up to 200 V permissible at very low current. Plate resistance 1.3 MΩ is an operating-point characteristic, not an absolute maximum; capacitances documented.</i>	

Triode-heptode/hexode frequency-converter tube for oscillator, mixer, and amplifier service. The supplied manufacturer datasheet provides heater data, electrical characteristics, ratings, capacitances, operating conditions, and application information where 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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
liche Kathode, deren Heizleistung	1.26 W	Published datasheet value
ist bei	6.3 V	Published datasheet value
ist bei 6,3 V Spannung	200 mA	Published datasheet value
bei	200 mA	Published datasheet value
Mischverstärkung. Bei	250 V	Published datasheet value
Mischverstärkung. Bei 250 V Anodenspannung und	100 V	Published datasheet value
weniger als	1 kHz	Published datasheet value
unterregelung weniger als	2 kHz	Published datasheet value
torfrequenz von etwa	0.5 V	Published datasheet value
males Arbeiten beträgt nur	8 V	Published datasheet value
Mischsteilheit noch sehr hoch (bei	5 V	Published datasheet value
viel größeren Oszillatorspannungen als	8 V	Published datasheet value
schwankt. Die Oszillatorspannung von	8 V	Published datasheet value
schwankt. Die Oszillatorspannung von 8 V (	200 µA	Published datasheet value
durch den Gitterableitwiderstand von	50 Ω	Published datasheet value
Die ECH	3 w	Published datasheet value
LD F	1514 v	Published datasheet value
1U Vb	250 V	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
BEEEN j RIS Va-t	0 v	Published datasheet value
nung von 200 bis	250 V	Published datasheet value
nung von 200 bis 250 V. spannung von	100 V	Published datasheet value
Heizspannung « « « « « 0« v v o v oo V	63 V	Published datasheet value
Vo	200 V	Published datasheet value
von 200 bis	250 V	Published datasheet value
von 200 bis 250 V. von	100 V	Published datasheet value
2	200 V	Published datasheet value
2 = 200 V	250 V	Published datasheet value
B201	100 V	Published datasheet value
B201 = 100 V	100 V	Published datasheet value
21 = –	2 V	Published datasheet value
21 = –2V}YH –	17 V	Published datasheet value
21 = –2V}YH –17V2) –	23 V	Published datasheet value
I,	3 mA	Published datasheet value
I, = 3 mA – –	3 mA	Published datasheet value
Iy + Iy	3 mA	Published datasheet value
Iy + Iy 3 mA – –	3 mA	Published datasheet value
–	650 µA	Published datasheet value
– 650uA/V 6,5 pA/V L5 AV	650 µA	Published datasheet value
05 0	20044 V	Published datasheet value
Ohm, ¥Va	250 V	Published datasheet value
Ohm, ¥Va = 250 V und einer festen Schirmgitter	50 Ω	Published datasheet value
Ohm, ¥Va = 250 V und einer festen Schirmgitter- = 50.000 Ohm, Va	250 V	Published datasheet value
spannung von	100 V	Published datasheet value
+	33 Ω	Published datasheet value
Verhiltnisse) (Eigenverbrauch des Spannungsteilers	3 mA	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anodenspannung bzw. Speisespannung $V_p = V$,	250 V	Published datasheet value
Neg. Vorspannung an Gitter 1. . . . V_y ; = --	2 V	Published datasheet value
Neg. Vorspannung an Gitter 1. . . . V_y ; = --2V1)	235 V	Published datasheet value
Neg. Vorspannung an Gitter 1. . . . V_y ; = --2V1) 235V	-31 V	Published datasheet value
Schirmgitterspannung V_g ,	100 V	Published datasheet value
Schirmgitterspannung V_g , = 100V –	145 V	Published datasheet value
Anodenstrom I ,	3 mA	Published datasheet value
Schirmgitterstrom $I_p + I$	3 mA	Published datasheet value
R_g ,	50 Ω	Published datasheet value
R_g , = 50.000 Ohm, V_a	250 V	Published datasheet value
R_g , = 50.000 Ohm, V_a = 250 V und Schirm- V_a	250 V	Published datasheet value
47.000 4	33 Ω	Published datasheet value
(Eigenverbrauch des Spannungsteilers	2.1 mA	Published datasheet value
Anodenspannung bzw. Speisespannung $V_i = V_o$	250 V	Published datasheet value
Neg. Vorspannung an Gitter 1 . V_e = –	2 V	Published datasheet value
Neg. Vorspannung an Gitter 1 . V_e = –2V1)	19 V	Published datasheet value
Neg. Vorspannung an Gitter 1 . V_e = –2V1) 19 V%) –	23 V	Published datasheet value
Schirmgitterspannung . Vigos	0 V	Published datasheet value
Schirmgitterspannung . Vigos = 0V –	100 V	Published datasheet value
Anodenstrom . I ,	1.5 mA	Published datasheet value
Schirmgitterstrom $I_y + I$,	1.6 mA	Published datasheet value
Mischsteilheit . S ,	450 μA	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Mischsteilheit . S, = 450 uA/V	4.5 μ A	Published datasheet value
Rl BEETA _Va	200 V	Published datasheet value
e	2 w	Published datasheet value
Rg, = 50.000 Ohm, Va	200 V	Published datasheet value
Rg, = 50.000 Ohm, Va = 200 V und Schirm- 50.000 Ohm, Va	100 V	Published datasheet value
19.000 +	54 Ω	Published datasheet value
19.000 + 54.000 Ohm (fiir umschaltbare G/W	54 Ω	Published datasheet value
(Eigenverbrauch des Spannungsteilers	1.5 mA	Published datasheet value
Neg. Vorspannung an Gitter 1 Vg, = -	2 V	Published datasheet value
Neg. Vorspannung an Gitter 1 Vg, = -2VI) -	28.5 V	Published datasheet value
Neg. Vorspannung an Gitter 1 Vg, = -2VI) -28.5V2) -	40 V	Published datasheet value
Schirmgitterspannung Vg	125 V	Published datasheet value
Schirmgitterspannung Vg = 125V -	200 V	Published datasheet value
Anodenstrom I4	4.5 mA	Published datasheet value
Schirmgitterstrom Ip + I	43 mA	Published datasheet value
Mischsteitheit S = 800pA/V	8 μ A	Published datasheet value
7 Tve - - vanzs	0 v	Published datasheet value
Bei Va	250 V	Published datasheet value
Bei Va = 250 V und einer festen Schirmgitter- Bei $\forall$ a	250 V	Published datasheet value
Obere Kurven: Fiir	1 %	Published datasheet value
spannung und fir	1 %	Published datasheet value
(mb = 19,) zuldssige Wechselspannung des Stor- spannung und fir	1 %	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
signals am Gitter als Funktion der Mischsteilheit. (mb	1 %	Published datasheet value
Published value	200 V	Published datasheet value
200 V	1.85 mA	Published datasheet value
200 V 1,85 mA und bei V3	100 V	Published datasheet value
Published value	1 mA	Published datasheet value
$V_e = V_o$	100 V	Published datasheet value
$V_e = V_o = 100 V$	200 V	Published datasheet value
–	1.25 V	Published datasheet value
–1,25V!) –	13.5 V	Published datasheet value
–1,25V!) –13,5V?) –	16.5 V	Published datasheet value
22	55 V	Published datasheet value