



ELECTRONIC TUBE REFERENCE

ECH35

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

CONSOLIDATED TECHNICAL
DATA

2 SECTIONS
CONSTRUCTION
HEXODE-TRIODE

Triode-hexode frequency changer for superheterodyne receivers. The triode supplies local-oscillator excitation while the hexode performs frequency conversion with reduced interaction between oscillator and signal circuits.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Octal	BASE PINS	8
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.0028 S
AMPLIFICATION FACTOR	24
MAXIMUM PLATE VOLTAGE	100 V
MAXIMUM PLATE DISSIPATION	1.5 W
<i>Published Mullard ratings and characteristics promoted from the supplied source.</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 Mullard ratings and characteristics promoted from the supplied source.</i>	

Triode-hexode frequency changer for AC mains receivers; the hexode section is arranged for automatic gain control.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1951 Mullard Valve and Service Manual

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

1951 MULLARD VALVE AND SERVICE MANUAL

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—

1951 MULLARD VALVE AND SERVICE MANUAL

Section 2 · Hexode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
VariableMuCharacteristic	1 boolean	FrequencyChanger



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Mullard

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

1963 MULLARD

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	300 mA	—
Transconductance	2800 μ S	OscillatorSection

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification Factor	24 ratio	OscillatorSection
Transconductance	2200 uS	OscillatorSection; At250V
Grid-Cathode Capacitance	9 pF	TriodeSection
Plate-Cathode Capacitance	3 pF	TriodeSection
Plate-Grid Capacitance	1.6 pF	TriodeSection

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	100 V	OscillatorSection
Plate Current	10 mA	OscillatorSection
Plate Voltage	250 V	OscillatorSection; With45kPlateResistor
Plate Current	4.5 mA	OscillatorSection; With45kPlateResistor

1963 MULLARD

Section 2 · Hexode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	FrequencyChanger; FixedScreenVoltage
Screen Voltage	100 V	FrequencyChanger; FixedScreenVoltage
Plate Current	3 mA	FrequencyChanger; MaximumGainPoint
Screen Current	3 mA	FrequencyChanger; MaximumGainPoint
Grid Voltage	-2 V	FrequencyChanger; MaximumGainPoint
Grid Voltage	-17 V	FrequencyChanger; ReducedGain
Grid Voltage	-23 V	FrequencyChanger; LowGain
Maximum Plate Voltage	300 V	HexodeSection
Maximum Plate Dissipation	1.2 W	HexodeSection
Maximum Screen Voltage	125 V	HexodeSection

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Conversion Transconductance	650 uS	FrequencyChanger; MaximumGainPoint
Plate Resistance	1300000 ohm	FrequencyChanger
Grid-Cathode Capacitance	5 pF	HexodeSection
Plate-Grid Capacitance	0.008 pF	HexodeSection; Maximum

SOURCE OPERATING CONDITIONS

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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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	250 V	Oscillator
Plate current	3.3 mA	Oscillator
Maximum plate voltage	100 V	—
Maximum plate dissipation	1.5 W	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	—
Plate current	10 mA	V _g =0
Transconductance	2.8 mA/V	V _g =0
Amplification factor	24	V _g =0

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-cathode capacitance	9 pF	—
Anode-to-cathode capacitance	3 pF	—
Anode-to-grid capacitance	1.6 pF	—

1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

Section 2 · Hexode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	FrequencyChanger
Screen-grid voltage	100 V	FrequencyChanger

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control-grid voltage	-2 V	FrequencyChanger
Plate current	3 mA	FrequencyChanger
Screen-grid current	3 mA	FrequencyChanger
Conversion conductance	650 uA/V	FrequencyChanger
Plate resistance	1.3 MOhm	FrequencyChanger
Maximum plate voltage	300 V	—
Maximum plate dissipation	1.2 W	—
Maximum screen-grid voltage	125 V	Ia=4.5mA
Maximum screen-grid dissipation	0.6 W	—
Maximum cathode current	15 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control-grid to cathode capacitance	5 pF	—
Anode-to-cathode capacitance	10 pF	—



SOURCE DATA APPENDIX

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
Chauffage: indirect par C.A. ou C.C.; Ve	6.3 V	Published datasheet value

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cg1	5 pF	Published datasheet value
Cg1 = 5,0 pF cgT	9 pF	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
CaH	10 pF	Published datasheet value
CaH = 10 pF CaT	3 pF	Published datasheet value
CaH-g1 <	0.003 pF	Published datasheet value
CaH-g1 < 0,003 pF caT-gT	1.6 pF	Published datasheet value
Cg1f <	0.001 pF	Published datasheet value
Cg1f < 0,001 pF cgT-g1H <	0.3 pF	Published datasheet value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Vb = 100 150	250 v	Published datasheet value
aT+g3 200 200	200 w	Published datasheet value
Ia = 3,3 8	3.3 mA	Published datasheet value
Vose = 8 8	8 V	Published datasheet value
Vazvb = 100 200	250 v	Published datasheet value
Se = 450 4,5 650 6,5 650	6.5 μ A	Published datasheet value
Vao = max	550 V	Published datasheet value
Vg = max	300 V	Published datasheet value
Vg = max	1.2 W	Published datasheet value
V(go+g4) = max	550 V	Published datasheet value
g?+g43Ia <	0.5 mA	Published datasheet value
g?+g43Ia < 0,5 mA g = max	200 V	Published datasheet value
go+g4{Iy <	4.5 mA	Published datasheet value
go+g4{Iy < 4,5 mA = max	125 V	Published datasheet value
go+ga = max	0.6 W	Published datasheet value
Vg1{Ig1 = +0,3 uh) = max	-1.3 V	Published datasheet value
Vg3(Ig3 = +	0.3 w	Published datasheet value
Vg3(Ig3 = +0,3 wA) = max	-1.3 V	Published datasheet value
I = max	15 mA	Published datasheet value
Vit = max	100 V	Published datasheet value
a = max	150 V	Published datasheet value
Vg(lg = +0,3 pa) = max	-1.3 V	Published datasheet value
Wg = max	1.5 V	Published datasheet value



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