

ELECTRONIC TUBE REFERENCE

12BN6

Hexode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
HEXODE

Gated-beam hexode designed as a combined limiter, discriminator, and audio-voltage amplifier in intercarrier television and FM receivers.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7DF	BASE PINS	7
NOMINAL HEATER	12.6 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

7DF - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – IS	A	IS – Internal Screen	CONNECTED
PIN1 – K	A	K – Cathode	CONNECTED
PIN2 – G1	A	G1 – Control Grid	CONNECTED
PIN3 – H	–	H – Heater	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – G2	A	G2 – Screen Grid	CONNECTED
PIN6 – G3	A	G3 – Suppressor Grid	CONNECTED
PIN7 – P	A	P – Plate (Anode)	CONNECTED

SECTION RATINGS

SECTION1 Hexode	
PLATE RESISTANCE	500000 Ω
TRANSCONDUCTANCE	0.0022 S
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	11.5 mA
<i>Gated-beam discriminator; no non-heater electrical values copied from external 6BN6 sheet.</i>	

Miniature type used as combined limiter, discriminator, and audio-voltage amplifier in intercarrier television and FM receivers. Outlines section, 5D; requires miniature 7-contact socket. Types 3BN6 and 4BN6 are identical with type 6BN6/6KS6 except for heater ratings. 7DF 3BN6 4BN6 6BN6/6KS6 12BN6



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Hexode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	12.6 V	Nominal
Heater current	150 mA	Nominal
Plate voltage	63122121 V	Typical operating conditions



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Westinghouse Data Book

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

1965 WESTINGHOUSE DATA BOOK

Section 1 · Hexode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—
Grid1 To All Capacitance	4.2 pF	—
Grid2 To All Capacitance	3.3 pF	—
Grid1ToGrid3CapacitanceMaximum	0.004 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Supply Voltage Maximum	300 V	—
AcceleratorVoltageMaximum	100 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PeakPositiveLimiterGridVoltageMaximum	55 V	—
Total Cathode Current Maximum	11.5 mA	—
Plate Supply Voltage	285 V	—
Plate Voltage	122 V	—
AcceleratorVoltage	100 V	—
Cathode Bias Resistance	200 to 400 ohm	—
Plate Load Resistance	330000 ohm	—
MinimumSignalVoltageForLimiting	1.25 V	—
AverageDCPlateCurrent	0.44 mA	—
AcceleratorCurrent	10 mA	—
InputSignalForAMRejectionAdjustment	2 V	—
AMRejection	30 dB	InputSignal=3Vrms
Total Harmonic Distortion	1.8 %	—
PeakAudioOutputVoltage	16.8 V	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 2 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 1 · Hexode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GRID k1 TO ALL	4.2 pF	Published datasheet
GRID k3 TO ALL	3.3 pF	Published datasheet

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
TOTAL DC AND PEAK	2 V	Published datasheet
INPUT–SIGNAL CENTER FREQUENCY	10.7 MHz	Published datasheet; operating column 1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
INPUT–SIGNAL CENTER FREQUENCY	4.5 MHz	Published datasheet; operating column 2
CATHODE –BIAS RESISTOR	200 ohm	Published datasheet; operating column 1
CATHODE –BIAS RESISTOR	400 ohm	Published datasheet; operating column 2
PLATE LOAD RESISTOR	85000 ohm	Published datasheet; operating column 1
PLATE LOAD RESISTOR	330000 ohm	Published datasheet; operating column 2
PLATE LINEARITY RESISTOR	470 ohm	Published datasheet; operating column 1
PLATE LINEARITY RESISTOR	1500 ohm	Published datasheet; operating column 2
PLATE LINEARITY RESISTOR	0 ohm	Published datasheet; operating column 3
LIMITING ACTION, RMS B	1.25 V	Published datasheet; operating column 1
AM REJECTION ADJUSTMENT A	1.25 V	Published datasheet; operating column 1
AM REJECTION ADJUSTMENT A	2 V	Published datasheet; operating column 2
AM REJECTION ADJUSTMENT A	0 V	Published datasheet; operating column 3
E _f =	12.6 V	Published datasheet
E _b =	60 V	Published datasheet
E _{acc} =	60 V	Published datasheet
Maximum plate voltage	330 V	Published datasheet; promoted section value
Maximum screen voltage	110 V	Published datasheet; promoted section value
Maximum cathode current	13 mA	Published datasheet; promoted section value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PLATE SUPPLY VOLTAGE	33 V	Published datasheet
GRID VOLTAGE	110 V	Published datasheet
PEAK POSITIVE LIMITER – GRID VOLTAGE	60 V	Published datasheet
DC CATHODE CURRENT	13 mA	Published datasheet
PLATE –SUPPLY VOLTAGE	85 V	Published datasheet; operating column 1
PLATE –SUPPLY VOLTAGE	285 V	Published datasheet; operating column 2
PLATE –SUPPLY VOLTAGE	2 V	Published datasheet; operating column 3
PLATE VOLTAGE	63 V	Published datasheet; operating column 1
PLATE VOLTAGE	122 V	Published datasheet; operating column 2
PLATE VOLTAGE	121 V	Published datasheet; operating column 3

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ACCELERATOR VOLTAGE	55 V	Published datasheet
DC PLATE CURRENT	0.25 mA	Published datasheet; operating column 1
DC PLATE CURRENT	0.49 mA	Published datasheet; operating column 2
DC PLATE CURRENT	0.44 mA	Published datasheet; operating column 3
ACCELERATOR CURRENT	4.1 mA	Published datasheet; operating column 1
ACCELERATOR CURRENT	9 mA	Published datasheet; operating column 2
PEAK AUDIO	0 V	Published datasheet; operating column 1
PEAK AUDIO	6 V	Published datasheet; operating column 2
PEAK AUDIO	1 V	Published datasheet; operating column 3



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

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

1975 RCA RC30

Section 1 · Hexode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	12.6 volts	Published value from supplied target entry
Heater Current	0.15 ampere	Published value from supplied target entry
Plate-Supply Voltage	330 volts	Published value from supplied target entry
Grid-No	110 volts	Published value from supplied target entry
Grid-No	60 volts	Published value from supplied target entry
Cathode Current	13 mA	Published value from supplied target entry
Heater Voltage (ac/dc)	8.4 volts	Published value from supplied target entry
Heater Current	0.45 ampere	Published value from supplied target entry
Heater Warm-up Time (Average)	11 seconds	Published value from supplied target entry
Plate Voltage	330 volts	Published value from supplied target entry
Plate Voltage	250	Published value from supplied target entry
Grid Voltage	-3 volts	Published value from supplied target entry

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance (Approx.)	28000 ohms	Published value from supplied target entry
Plate Current	1.6 mA	Published value from supplied target entry
Grid Voltage (Approx.) for plate current of	-5.5 volts	Published value from supplied target entry

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode Grid to Triode Plate	2.6 pF	Published value from supplied target entry
Triode Grid to Cathode and Heater	3.6 pF	Published value from supplied target entry
Triode Plate to Cathode and Heater	0.26 pF	Published value from supplied target entry
Diode Cathode to All Other Electrodes (Each Diode Unit)	5 PF	Published value from supplied target entry
Diode Plate to Diode Cathode and Heater (Each Diode Unit)	1.9 PF	Published value from supplied target entry
Diode Cathode to Diode Plate and Heater (Each Diode Unit)	4.8 PF	Published value from supplied target entry
Diode Plate to All Other Electrodes (Each Diode Unit)	3 pF	Published value from supplied target entry

TUBE TINKER

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