



ELECTRONIC TUBE REFERENCE

24CP4A

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Twenty-four-inch direct-view monochrome television picture tube with a P4 screen and magnetic deflection. Manufacturer documentation provides the high-voltage operating, focusing, optical, and capacitance characteristics required for receiver display service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12N	BASE PINS	5
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION0 Cathode Ray	
MAXIMUM PLATE VOLTAGE	20000 V
MAXIMUM SCREEN VOLTAGE	500 V
Picture-tube anode maximum 20 kV; source includes X-ray shielding warning above 16 kV.	

Direct-view cathode-ray picture tube intended for television display service. The supplied Tung-Sol datasheet provides electrical ratings, operating conditions, capacitances, optical characteristics, focusing and deflection information. Features an aluminized screen where specified by this designation.

SOURCE OPERATING CONDITIONS

1950 Sylvania

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

1950 SYLVANIA

Section 0 · Cathode Ray

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Phosphor	P4	—
Deflection method	Magnetic	—
Focusing method	Electrostatic	—

SOURCE OPERATING CONDITIONS

1961 Tung Sol

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

1961 TUNG SOL

Section 0 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Anode Voltage	20000 V	—
Typical Anode Voltage	18000 V	—
Maximum Grid2 Voltage	500 V	—
Typical Grid2 Voltage	300 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FocusingMethod	Magnetic	—
DeflectingMethod	Magnetic	—
DiagonalDeflectionAngleApproximate	90 degree	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PhosphorNumber	4	—
FluorescentColor	White	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1965 Sylvania Electronic Tubes Vol3

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

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 0 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Grid No. 2 voltage	500 V	Published maximum Grid No. 2 voltage
Maximum anode voltage	20000 V	Published maximum anode voltage
Anode voltage	20000 V	Anode voltage 20,000 Volts dc
Grid No. 2 Voltage	500 V	Grid No. 2 Voltage 500 Volts dc
During Warm-up Period Not to Exceed	15 s	During Warm-up Period Not to Exceed 15 Seconds . 410 Volts
After Equipment warm-up period	180 V	After Equipment warm-up period 180 Volts
Heater Positive with Respect to Cathode	180 V	Heater Positive with Respect to Cathode . . . 180 Volts
Anodevoltage	18000 V	Anodevoltage. . . . 18,000 Volts dc
Grid No. 2 Voltage	300 V	Grid No. 2 Voltage 300 Volts dc
Grid No. 1 Voltage Required for Cutoff2 . -28 to	-72 V	Grid No. 1 Voltage Required for Cutoff2 . -28 to -72 Volts dc
Ion Trap Magnet Strength (approx.)	40 G	Ion Trap Magnet Strength (approx.) 40 Gauss

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Light Transmittance (approx.)	68 %	Light Transmittance (approx.) 68 Percent

CIRCUITVALUE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 Circuit.Resistance	1.5 Mohm	Grid No.1 Circuit.Resistance 1.5 Megohms Max.



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1966 Tung Sol Electronic Tubes 4 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 4 OF 4

Section 0 · Cathode Ray

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAGNETIC FOCUS AND DEFLECTION – value 1	161	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAGNETIC FOCUS AND DEFLECTION – value 2	211	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
RECTANGULAR Gt.ASS CONSTRUCTION	10	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DIRECT INTERELECTRODE CAPACITANCES (APPROX.)	1	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
GRID #1 TO AL1,. OTHER ELECTRODES – value 1	1	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
GRID #1 TO AL1,. OTHER ELECTRODES – value 2	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
GRID #1 TO AL1,. OTHER ELECTRODES – value 3	1111	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MINIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	500	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
F gCEPLATE LIGHT TRANSMISSION – value 1	11 percent	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
F gCEPLATE LIGHT TRANSMISSION – value 2	3 percent	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
PIN gp - GRID NO. 2	2	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
HEATER CURRENT	0 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
HEATER POSITIVE WITH RESPECT TO CATHODE – value 1	1 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
HEATER POSITIVE WITH RESPECT TO CATHODE – value 2	0 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC ANODE IGRID #3 VOLTAGE – value 1	1 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC ANODE IGRID #3 VOLTAGE – value 2	3 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC ANODE IGRID #3 VOLTAGE – value 3	0 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC GRID #2 VOLTAGE	2 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC GRID #i VOLTA GE B	1 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC FOCUSING COIL CURRENT (APPROX.J C – value 1	115 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC FOCUSING COIL CURRENT (APPROX.J C – value 2	20 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC ION TRAP CURRENT STANDARD COIL #iii (APPROX.J – value 1	111 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC ION TRAP CURRENT STANDARD COIL #iii (APPROX.J – value 2	100 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DC ION TRAP CURRENT STANDARD COIL #iii (APPROX.J – value 3	50 mA	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
B VI SU AI E%TI MCTI OM OF UXDEFL ECTEO FOCUSED SPOT. – value 1	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
B VI SU AI E%TI MCTI OM OF UXDEFL ECTEO FOCUSED SPOT. – value 2	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DFOR STANDARD FOCUS COIL f109, OR EOUI VAL EM T, WITX THE COYBI MED GRID fl BIAS VOI TAGE AND YIDEO – value 1	9	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
DFOR STANDARD FOCUS COIL f109, OR EOUI VAL EM T, WITX THE COYBI MED GRID fl BIAS VOI TAGE AND YIDEO – value 2	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
SIGNAL VOLTAGE ADJUSTED TO PROOU CE A NI GNLIGHT BRIGTMESS OF j0 FOOT LAYBEfl TS ON A 21 1/4" BT – value 1	0 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
SIGNAL VOLTAGE ADJUSTED TO PROOU CE A NI GNLIGHT BRIGTMESS OF j0 FOOT LAYBEfl TS ON A 21 1/4" BT – value 2	211 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
SIGNAL VOLTAGE ADJUSTED TO PROOU CE A NI GNLIGHT BRIGTMESS OF j0 FOOT LAYBEfl TS ON A 21 1/4" BT – value 3	4 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
16 7/4" PICTURE SI ZEr DISTANCE FROM REFERENCE LIME TO CENTER OF AIR GAP OM FOCUS COIL SNAIL – value 1	11	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
16 7/4" PICTURE SI ZEr DISTANCE FROM REFERENCE LIME TO CENTER OF AIR GAP OM FOCUS COIL SNAIL – value 2	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
16 7/4" PICTURE SI ZEr DISTANCE FROM REFERENCE LIME TO CENTER OF AIR GAP OM FOCUS COIL SNAIL – value 3	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM EXTERNAL CONDUCTIVE COATING TO ANODE	7	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM DC ANODE S GRID #} VOLTAGE	20000 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM DC GRID #2 VOI TAGE – value 1	2 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM DC GRID #2 VOI TAGE – value 2	500 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM GRID #1 VOLTAGE	1 V	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM GRID #i CIRCUIT RESISTANCE – value 1	1	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.
MAXIMUM GRID #i CIRCUIT RESISTANCE – value 2	0	Published CRT datasheet value; multiple values on one source row represent separate conditions, limits, or nominal values.



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 0 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid Number 2 Voltage Maximum	500 V	—
Typical Anode Voltage	16000 V	TypicalOperation