ELECTRONIC TUBE REFERENCE

24CP4

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

SECTION1 Cathode Ray	
MAXIMUM PLATE VOLTAGE	20000 V
MAXIMUM SCREEN VOLTAGE	500 V
CRT electrode, focus, deflection and optical data preserved in parameter rows.	

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

SOURCE PDF

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

1950 SYLVANIA

Section 1 · Cathode Ray

CHARACTERISTICS

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

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1961 Tung Sol

SOURCE PDF

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

1961 TUNG SOL

Section 1 · 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 OPERATING CONDITIONS

SOURCE PDF

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 1 · 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 Gausses

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 OPERATING CONDITIONS

SOURCE PDF

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 1 · 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.J	**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 GNLIGMT BRIGNTMESS 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 GNLIGMT BRIGNTMESS 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 GNLIGMT BRIGNTMESS 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.

Tube Tinker

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