

ELECTRONIC TUBE REFERENCE

7682

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
CATHODERAY

Direct-view storage tube with one writing gun and a four-inch display, capable of storing bright flicker-free high-speed transients for roughly 30 seconds for leisurely examination.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Cathode Ray
No fixed ratings recorded.
Source-derived physical/electrical section.

Westinghouse January 15, 1961 DIRECT VIEW STORAGE TUBE TYPE 7682 One Writing Gun 4" Display Diameter Viewing Gun 5-1/4" Overall Diameter Integral Tube and Shield Assembly 14-7/8" Overall Length The 7682 is a display storage tube with high writing speed and moderate brightness. It is capable of electrically writing and storing a bright, flicker-free display on a 4 inch diameter fluorescent screen. The viewing screen requires 5 kilovolts and the brightness exceeds 200 foot-lamberts with a writing speed of 400,000 inches per second. The 7682 has a storage time of 30 seconds which permits storage and display of very high speed transients for liesurely examination. In applications of this type and others having written information of a repetitive character, the ability of the tube fo integrate successive weak signals is of great utility. Longer storage periods may be obtained by pulsing the flood gun. If the pulse rate is high enough, no flicker will be observed. In this manner, storage tim

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1947 Westinghouse

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

1947 WESTINGHOUSE

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The viewing screen requires speed of	5 7682	The viewing screen requires 5 kilovolts and the speed of 400,000 inches per second. The 7682 has a
storage time of	30	storage time of 30 seconds which permits storage and
e e e . Qverall Grids	3000	.. e e e . Qverall Grids 28 4Vtagod o v vi v en o 3000 max. VYolts
Cathede. ... o i iv i vt eiannaas Coated Unipatontial Grid	2000	Cathede. ... o i iv i vt eiannaas Coated Unipatontial Grid 3 Voltags (Foews) o v i v v v v e 2000 max. VYolts
Current . . . v v v v v v	1	Current . . . v v v v v v ... 050 0.0 0.70 Amperes Grid 1 Yoltage:
FocusingMethod v i v vv e oo Electrostatic Negative Bias Value	200	FocusingMethod v i v vv e oo Electrostatic Negative Bias Value 200 max. Volts
Flood Gun: Positive Peak Yolve. e	2	Flood Gun: Positive Peak Yolve. e 2 max. Volts
Heater: Min. Bogey Mox. Respect to Flood Gun Cathade	2800	Heater: Min. Bogey Mox. Respect to Flood Gun Cathade 2800 max. Volts
Voltage o . v v v it i v i e e s	6.93	Voltage o . v v v it i v i e e s 5.67 6.3 6.93 Yolts Voltage Between any Deflaction Electrode
Curmant . . oo v i v i	4	Curmant . . oo v i v i 050 0.0 0.70 Ampere and Grids 2 & 4: ¢
Warm-up Tima bafore Applying Positive or Negative Paak Value	500	Warm-up Tima bafore Applying Positive or Negative Paak Value. 500 max. Volts
High Voltages	30	High Voltages. 30 -- - Seconds Peak Haater-Cathede Voltage:

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Writing Gun Grid	8	Writing Gun Grid 1 to All Internal Elements. . . . 8 max. upf {Reference Valtage is Flood Gun Cathode)
Defloction Eelectrode	5000	Defloction Eelectrode 1 to All Internal Eloments . . 8 max. upf Yiow Screen Voltage, ... ou . 5000 max. Volis
Defloction Eelectrode	35	Defloction Eelectrode 2 to All Internal Elements . . 8 masx. uuf Grid 5 Voltage {Backing Electrods) 35 moax. Volts
Deflection Eelectrode	300	Deflection Eelectrode 3 to Alb Internal Elements . . B max. puf Grid 4 Voltage (Collector Electrode) 300 max., Volts
Deflaction Electrode	200	Deflaction Electrode 4 to All Intemal Elements . . 8 max. ppuf Grid 3 Voltage (Collimating Electrode}. .. 200 max. Volts
Grid	200	Grid 2 Voltoge {Accaloroting Electrode}s . 200 max. Volts
OPTICAL: Grid	1	OPTICAL: Grid 1 Voltage:
Phosphor: Nagative Bias Value. . . . v v i o v v vt	150	Phosphor: Nagative Bias Value. . . . v v i o v v vt 150 max. Volts
Positive Bias VYalue., ... e	0	Positive Bias VYalue., ... e 0 max. Volts
Minimum Usouful Yiewing Diometer	16	Minimum Usouful Yiewing Diometer. 3-15/16° LIMITING CIRCUIT VALUES:
BaS®. . « e o v aurnean	0.1	BaS®. . « e o v aurnean 14 Pin Small Diheptal (JEDEC B14-45} Electrode Circuit® e 0.1 max. Megohm
Operoting. « « « v o v vt e a e =	71	Operoting. « « « v o v vt e a e =35 to +71 °C
Neon-Operating. vt ve-re. =	485	Neon-Operating. vt ve-re. =621to 485 °C
second with a total excursion of	30	second with a total excursion of 0,30 inches and
Note: Damoge to the	200	Note: Damoge to the 7682 may occur if the Write-Gun beam is turned {Collecting Electrode) 150 to 300 200 Volts
on before the Flood-Gun-beam current has reached normal Grid	3	on before the Flood-Gun-beam current has reached normal Grid 3 Voltage
Grids	2	Grids 28 4 Voltaged 90 1o 110 Yolts Grid \$ Current {Backing Electrode) 2 jemperes

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid	1.5	Grid 3 Voltage {Focus} —2000 to 2300 Volts Grid 4 Current (Collector Electrode) 1.5 Ma,
Grid	200	Grid 1 Voltage to Writing Grid 3 Current (Collimating Electrode) 200 pampere
Coil Voltage V	4	Coil Voltage V -2400 Volts Grids 2 & 4 of the Write Gun are internally connected together
Deflection Electrodes	4	Deflection Electrodes 1 and 2 7210 88V dc/In. cathode to Grids 2 & 4 Voltage.
Grid	5	Grid 5 Voltage in each deflection
{Bucking Electrode}	10	{Bucking Electrode} , 240 15 10 Volts electrode circuit
EWK=	0	EWK=0 Volts . N
EWG	2500	EWG2Z, 4= 2500 Volts nw gsi
Grid {	1	Grid {1 Bios Volts
Viewing Time V e v v e v a	30	Viewing Time V e v v e v a 30 Seconds
Erasing Time (Flood Gun Erasure) , . ,	50	Erasing Time (Flood Gun Erasure) , . , 50 Milliseconds
Writing Speed ,	400000	Writing Speed , . 400,000 Inches/Second the lines approach the merging condition, the control
Holt Tones. , ,	4	Holt Tones. , , 4 grid pulse amplitude is adjusted to give a written raster
Grid Drive ot	30	Grid Drive ot 30 Volts
brightness without the application of a writing signal ness) is adjusted to	2	brightness without the application of a writing signal ness) is adjusted to 2 seconds. The ratio of bright-
ness level at the center of the screen to increase to Resolution: A	60	ness level at the center of the screen to increase to Resolution: A 60 cps sawtooth voltage is applied
the backing electrode. The amplitude of this pulse is lines. Trace length shall be adjusted to	3.5	the backing electrode. The amplitude of this pulse is lines. Trace length shall be adjusted to 3.5 inches.
rectangular pulses adjusted from	10	rectangular pulses adjusted from 2 to 10 volts peak to When the specified brightness is achieved and the

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
peak to produce complete erasure in	50	peak to produce complete erasure in 50 milliseconds. lines cannot be discerned visually, the condition for
duce a scanning speed of	400000	duce a scanning speed of 400,000 inches per second. The resolution in lines per inch is the number of hori-
of adjustable amplitude to Grid	90	of adjustable amplitude to Grid 1 of the writing gun. 90% of satrated brightness with a writing speed of
400,000 inches per second in 1 scan. Note the writing	1	400,000 inches per second in 1 scan. Note the writing
collector electrode or penetrate through the holes of grid	4	collector electrode or penetrate through the holes of grid 1, first and second anodes {(grids 2 & 4) which are
approximately zero potential. It the storage surface is at –	2400	approximately zero potential. It the storage surface is at –2400 volts with respect to the flood-gun cathode.
EWG	2500	EWG2, 4 = 2500 Volts w
BN A TR)	1	BN A TR) 1°E i t
Grid	1	Grid 1 Bias volts
Note	4000	Note 2: Voltages are with respect to writing gun cathode. Entire supply must be insulated from ground for 4000 velts.
Cy	200	Cy: 0.1 pf, 200 volis Ry4 Ryg: Write Gun Dy & Dy Centering Controls: Duasl
Ca, C	2	Ca, C3, C4, Cq: Value depends on deflection-voltage fre- 1 megohm potentiometers, 2 watts
Cs: Value deperds on signal-vollage frequency and wave	2	Cs: Value deperds on signal-vollage frequency and wave- 1 megohm potentiometers, 2 watts
form,	0.5	form, 4000 volts R].B' RIQ! R20, R": 100,000 Ohm, 0.5 watt
Cq, Cg	200000	Cq, Cg: 0.08 uf, 600 volts R,,: Collector Electrode Control: 200,000-chm potenti-
R,	1	R,: 91,000 chms, 1 watt Rag Rog, Rap: 51,000 ohm 1 watt
Rz, st, R	200000	Rz, st, R2g: 100,000 OhmS, 1 watt Ry Collimating Electrode Control: 200,000-ohm potenti-
Rg	2	Rg. 34. R5. R6= 470,000 ohms, 2 watts ometer, 2 waltls

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
R,: Write Gun Focus Control	150000	R,: Write Gun Focus Control: 250,000-ohm potentiometer, Ryp: Accelerating Anode Control: 150,000 ohm potenti-
2 watts ometer, 2 watts	2	2 watts ometer, 2 watts
Ra	5	Ra: 180,000 ohm, 1 watt R4o: 1 megohm, 5 watts
Rg, RIO'	1	Rg, RIO' 322, R23: 1megohm, 0.5 watt Rgq: 22,000 ohm, 1 watt
R : Backing FElectrode Control	117	R : Backing FElectrode Control: 100,000-ohm potenti- Ty: Filament Transformer: Primary 117 volts, Secondary
ometer,	4000	ometer, 2 watts 6.3 volts @ 1 ampere, Insulated for 4000 volts
Ryp	117	Ryp: 5,000 ohm, 1 watt Ty: Filament Transformer: Primary 117 volts, Secondary
Ryg: Flood Gun Grid	1	Ryg: Flood Gun Grid 1Control: 250,000-ohm potentiometer 6.3 volts @ 1 ampere
2 watts ~ Fleod	2	2 watts ~ Fleod

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Seated Length. P Cee e PR	1	Maximum Seated Length. . . . P Cee e PR 14-1/4 Limiting Resistance. , 1.0 min. Megohm
Greatest Shietd Diameter. 0 0	5000	Greatest Shietd Diameter. 0 0 v o n - 5- 1/4" £ 1/16" Backing Electroda Circuit Resistance .. 5000 max. Ohms
Collactor Elactroda Recessed Small Ball (JEDEC J	1	Collactor Elactroda Recessed Small Ball (JEDEC J1-22) Grid t Circuit Resistance 1.0 max. Megohm
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS Grid	4	TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS Grid 4 Voltage
Cathode Current ..., ... See Gun Transter Characteristic For other values of cathode to Grids	4	Cathode Current ..., ... See Gun Transter Characteristic For other values of cathode to Grids 2 & 4 Voltages, the
Note	1000	Note 3: Ernse Pulse Characteristics, Amplitude: 0to 10 volts peak-to-peak, Width: 2to 10 microseconds, Frequency: 0to 1000 pulses per second.