

Thomson-CSF storage tube designed for electronic recording, retention, and readout of electrical information. Family variants emphasize transient capture, high-resolution storage, scan conversion, rugged miniature operation, or bright direct viewing.

GENERAL CHARACTERISTICS

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

SECTION RATINGS

SECTION1 Cathode Ray
No fixed ratings recorded.
Published ratings/characteristics audited; detailed numeric data retained in parameter table.

The TH8902 is a direct-view storage cathode-ray tube providing a bright stored display for electronic instrumentation and related display applications.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1972 Thomson CSF

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

1972 THOMSON CSF

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Luminance®	400	Luminance® . . . 400 cd.m²
Heater voltage (D.C.)	6.3 V	Heater voltage (D.C.) 6.3V
Heater current e, [1]	2 A	Heater current e, 2x0.3 A
Heater current e, [2]	3 A	Heater current e, 2x0.3 A
Heater voltage i e	6.3 V	Heater voltage i e 6.3V
Heater current ,	600 mA	Heater current , 0.6 A
Heater h' voltage (D.C.) [1]	5.7 V	Heater h' voltage (D.C.) 5.7±0.6V \
Heater h' voltage (D.C.) [2]	6.9 V	Heater h' voltage (D.C.) 5.7±0.6V \
Cathode k' and kgr voltages max	50 V	Cathode k' and kgr voltages max. 50 \
heater negative with respect to cathode max	150	heater negative with respect to cathode max. 150 \%
heater positive with respect to cathode max	150	- heater positive with respect to cathode max. 150 \
Grid gq- voltage (control grid) L —	200 V	Grid gq- voltage (control grid) L — 200 \Y
Grid go- voltage (accelerating electrode) — [1]	50 V	Grid go- voltage (accelerating electrode) — 50 to +50 \

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid go- voltage (accelerating electrode) - [2]	50 V	Grid go- voltage (accelerating electrode) — 50 to +50 \
Grid g3' voltage (collimating electrode} max	100 V	Grid g3' voltage (collimating electrode} max. 100 \)
Grid gg' voltage (collecting electrode} *. max	150 V	Grid gg' voltage (collecting electrode} *. max. 150 \Y;
Grid gg' voltage (backing electrode) - [1]	150 V	Grid gg' voltage (backing electrode) — 150 to + 1600 \Y
Grid gg' voltage (backing electrode) - [2]	1600 V	Grid gg' voltage (backing electrode) — 150 to + 1600 \Y
Viewing screengy-voltage max	8 V	Viewing screengy-voltage max. 8 kV
Heater hvoltage [1]	5.7 V	Heater hvoltage 5.7t06.9 \Y
Heater hvoltage [2]	6.9 V	Heater hvoltage 5.7t06.9 \Y
Cathodevoltage max	3.6 V	Cathodevoltage max. - 3.6 kV
heater positive with respect to cathode, max	150	heater positive with respect to cathode, max. 150 \Y
Grid gq voltage TM (control grid) —	300 V	Grid gq voltage TM (control grid) — 300 \Y
Grid gp voltage (acceleratingvoltage) max	50 V	Grid gp voltage (acceleratingvoltage) max. 50 \Y;
Grid g3 voltage (focusing electrode) max	-3 V	Grid g3 voltage (focusing electrode) max. -3 kV
Grid g4 voltage (astigmatism) max	100 V	Grid g4 voltage (astigmatism) max. 100 \Y;
Grid g5 voltage (geometry) max	100 V	Grid g5 voltage (geometry) .. . max. 100 Vv

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater h' voltage (D.C.) [1]	6.3 V	Heater h' voltage (D.C.) .. 6.3+10% \Y
Heater h' voltage (D.C.) [2]	10 V	Heater h' voltage (D.C.) .. 6.3+10% \Y
Cathode kq-voltage (Note [1])	1 V	Cathode kq-voltage (Note 1) Oto +3 \
Cathode kq-voltage (Note [2])	3 V	Cathode kq-voltage (Note 1) Oto +3 \
Cathode kogrvoltage (Note [1])	1 V	Cathode kogrvoltage (Note 1) Oto +3 \Y;
Cathode kogrvoltage (Note [2])	3 V	Cathode kogrvoltage (Note 1) Oto +3 \Y;
Grid gqr voltage (controt grid)	0 V	Grid gqr voltage (controt grid) 0 \Y
Grid g3 voltage (collimating electrode) (Note [1])	2 V	Grid g3 voltage (collimating electrode) (Note 2} 30to 70 \Y
Grid g3 voltage (collimating electrode) (Note [2])	30 V	Grid g3 voltage (collimating electrode) (Note 2} 30to 70 \Y
Grid g3 voltage (collimating electrode) (Note [3])	70 V	Grid g3 voltage (collimating electrode) (Note 2} 30to 70 \Y
Viewing screen g7+ voltage (Note	8 V	Viewing screen g7+ voltage (Note 8}, .. see table below
Heater hvoltage [1]	6.3 V	Heater hvoltage 6.3f10% \
Heater hvoltage [2]	10 V	Heater hvoltage 6.3f10% \
Cathode k voltage (Note [1])	14 V	Cathode k voltage (Note 14) ... — 1700 \
Cathode k voltage (Note [2])	1700 V	Cathode k voltage (Note 14) ... — 1700 \
Grid gq voltage (for cut-off) (w.rt. Vi) ..o o L — [1]	100 V	Grid gq voltage (for cut-off) (w.rt. Vi) ..o o L — 100 to — 40 \%
Grid gq voltage (for cut-off) (w.rt. Vi) ..o o L — [2]	40 V	Grid gq voltage (for cut-off) (w.rt. Vi) ..o o L — 100 to — 40 \%
Grid gg voltage (acceleration)	40 V	Grid gg voltage (acceleration) 40 \Y;
Grid gz voltage (focus) [1]	-1400 V	Grid gz voltage (focus) —1400 to —1000 A
Grid gz voltage (focus) [2]	-1000 V	Grid gz voltage (focus) —1400 to —1000 A
Grid gq voltage (astigmatism} [1]	10 V	Grid gq voltage (astigmatism} 10to 70 \Y,

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid gq voltage (astigmatism) [2]	70 V	Grid gq voltage (astigmatism) 10to 70 \Y,
Grid gg voltage (geometry) {w.r.t. x plates mean potential) [1]	-30 V	Grid gg voltage (geometry) {w.r.t. x plates mean potential) —30to +30 \'
Grid gg voltage (geometry) {w.r.t. x plates mean potential) [2]	30 V	Grid gg voltage (geometry) {w.r.t. x plates mean potential) —30to +30 \'
heater current (D.C.YatVyr = [1]	6.3 A	heater current (D.C.YatVyr = 6.3V 0.66 A
heater current (D.C.YatVyr = [2]	0 mA	heater current (D.C.YatVyr = 6.3V 0.66 A
heater current (D.C.YatVyr = [3]	66 A	heater current (D.C.YatVyr = 6.3V 0.66 A
cathode kqrcurrent	1.5 A	cathode kqrcurrent 1.5 mA
cathode korcurrent L	1.5 A	cathode korcurrent L. 1.5 mA
gridggr current	1 A	gridggr current ... 1 mA
Sogridggrourent L	2	Sogridggrourent L. 2 mA
grid gg CUITENT	0.5	grid gg CUITENT 0.5 mA
grid ggr CUTTENT . . . L	0.5	grid ggr CUTTENT . . . L. 0.5 mA
grid g7/ CUITENT	0.2	grid g7/ CUITENT 0.2 mA
heater currentat Vi), = [1]	6.3 A	heater currentat Vi), = 6.3V L 0.66 mA
heater currentat Vi), = [2]	0 mA	heater currentat Vi), = 6.3V L 0.66 mA
heater currentat Vi), = [3]	66 A	heater currentat Vi), = 6.3V L 0.66 mA
cathode CUITeNt e e e	3.5	cathode CUITeNt e e e 3.5 mA
grid go CUFTENT e	3	grid go CUFTENT e 3 mA
Published value	1	1 - A high permeability shield (mumetal) is necessary to protect the tube against external electrostatic and
Published value [1]	2	2 - For the writing gun, a heater transformer with insulated secondary coil must be used (4 kV insulation
Published value [2]	4	2 - For the writing gun, a heater transformer with insulated secondary coil must be used (4 kV insulation
Resolution (N0te [1]	9	Resolution (N0te 9) e e 0.4 mm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Resolution (Note [2])	0.4	Resolution (Note 9) e e 0.4 mm
The luminance for a saturated written trace is over [1]	400	The luminance for a saturated written trace is over 400 cd.m-2.
The luminance for a saturated written trace is over [2]	2	The luminance for a saturated written trace is over 400 cd.m-2.
When the flood beams are cut off and the screen voltage at	0 V	When the flood beams are cut off and the screen voltage at 0 V potential, the written information is not degraded
In the long-storage mode, g2' voltage is set at [1]	-6 V	In the long-storage mode, g2' voltage is set at — 6 V, then a positive pulse train of 26 to 46 V amplitude is applied.
In the long-storage mode, g2' voltage is set at [2]	26 V	In the long-storage mode, g2' voltage is set at — 6 V, then a positive pulse train of 26 to 46 V amplitude is applied.
In the long-storage mode, g2' voltage is set at [3]	46 V	In the long-storage mode, g2' voltage is set at — 6 V, then a positive pulse train of 26 to 46 V amplitude is applied.
In store mode, the g6' voltage must never exceed	8 V	In store mode, the g6' voltage must never exceed 8 V. The impedance of the g6' circuit must be as low as possible and not exceed
{n variable persistence mode, a positive pulse train of	4	{n variable persistence mode, a positive pulse train of 4 V amplitude is applied to grid g6'.
In erase mode, the grid g6' potential must be raised from store-mode potential {i.e [1]	1	In erase mode, the grid g6' potential must be raised from store-mode potential {i.e. 1 to 3 V) to '+ 1500 V for about 1 second and
In erase mode, the grid g6' potential must be raised from store-mode potential {i.e [2]	3	In erase mode, the grid g6' potential must be raised from store-mode potential {i.e. 1 to 3 V) to '+ 1500 V for about 1 second and
In erase mode, the grid g6' potential must be raised from store-mode potential {i.e [3]	1500	In erase mode, the grid g6' potential must be raised from store-mode potential {i.e. 1 to 3 V) to '+ 1500 V for about 1 second and
In erase mode, the grid g6' potential must be raised from store-mode potential {i.e [4]	1	In erase mode, the grid g6' potential must be raised from store-mode potential {i.e. 1 to 3 V) to '+ 1500 V for about 1 second and
then be returned to its store-mode potential. A positive pulse of [1]	12	then be returned to its store-mode potential. A positive pulse of 12 V amplitude maximum is then applied for 500 milliseconds.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
then be returned to its store-mode potential. A positive pulse of [2]	500	then be returned to its store-mode potential. A positive pulse of 12 V amplitude maximum is then applied for 500 milliseconds.
In changing the operating from the “non-store” to the “store” mode, the g6' voltage must be raised from	-30 V	In changing the operating from the “non-store” to the “store” mode, the g6' voltage must be raised from —30 V to the proper
positive voltage ([1]	1 V	positive voltage (1 to 3 V) in 2 seconds. This will prevent the storage surface to be damaged.
positive voltage ([2]	3 V	positive voltage (1 to 3 V) in 2 seconds. This will prevent the storage surface to be damaged.
positive voltage ([3]	2 V	positive voltage (1 to 3 V) in 2 seconds. This will prevent the storage surface to be damaged.
To avoid permanent damage to the tube, insert a [1]	30	To avoid permanent damage to the tube, insert a 30 M Ω minimum resistance in series in the supply circuit of g7' screen.
To avoid permanent damage to the tube, insert a [2]	2	To avoid permanent damage to the tube, insert a 30 M Ω minimum resistance in series in the supply circuit of g7' screen.
Measurement is made by the shrinking raster method with a beam current of [1]	5 A	Measurement is made by the shrinking raster method with a beam current of 5 UA. The linewidth is 0.4 mm max. at center and
Measurement is made by the shrinking raster method with a beam current of [2]	400 mA	Measurement is made by the shrinking raster method with a beam current of 5 UA. The linewidth is 0.4 mm max. at center and
In addition, this limiting writing speed can be further multiplied by a factor of [1]	2 V	In addition, this limiting writing speed can be further multiplied by a factor of 2 or 3 by doubling the acceleration voltage of the
In addition, this limiting writing speed can be further multiplied by a factor of [2]	3 V	In addition, this limiting writing speed can be further multiplied by a factor of 2 or 3 by doubling the acceleration voltage of the

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