



TH 9953 A

1" PRIMICON for High Resolution Digital TV and Digital Radiology



- Diode gun with dispenser cathode
- Magnetic focus and deflection
- Ultra high resolution
- Excellent contrast ratio
- Very low lag
- Se-Te-As target layer
- High beam reserve

The main features of this Primicon are :

Ultra high resolution : thanks to its Se-Te-As layer and its new diode gun.

Wide spectral response : the well-balanced spectral response characteristics make the Primicon ideally suited for color TV cameras.

Negligible flare : the flare phenomenon is negligible thanks to the low reflectivity of the photoconductor throughout the visible light region, and there is therefore no need to use a flare-tip.

Very low lag : the lag is markedly low as compared to that of a vidicon (antimony trisulfide photoconductor). It can further be reduced to a negligible value by applying a bias light.

Low dark current : the extremely low dark current allows the good picture quality to be maintained, regardless of temperature changes.

Gamma : the unity gamma allows good picture contrast to be obtained.

High beam reserve : due to the dispenser cathode.

Updates and replaces data TEV 3593

This data sheet cannot be considered to be a contractual specification. The information given herein may be modified without notice due to product improvement or further development. Consult Thomson-CSF (Electron Tube Division) before making use of this information for equipment design.

GENERAL CHARACTERISTICS

Electrical

Heater voltage	6.3	V
Heater current at 6.3 V	150	mA
Minimum preheating time	60	s
Output capacitance (target to all other electrodes)	4.5	pF
Spectral sensitivity	See Figure 1	
Focusing method	Magnetic	
Deflection method	Magnetic	

Mechanical

Overall length	165	mm
Greatest diameter	28.6 ± 0.3	mm
Base	JEDEC E 8-11	
Socket	METOX no. 30520	
Deflection/focusing/alignment coils assembly	Thomson-CSF TH 7214-1* (or GERHARD BV 400/1)	
Photoconductive layer :		
- normal dimensions of image target	12.8 x 9.6	mm
- maximum useful diagonal diameter (4 x 3 format)	16	mm
- useful diameter in radiological applications	15	mm
- orientation of quality image	Horizontal scan parallel to the plane passing through the tube axis and the short index pin	
Maximum faceplate temperature	50	°C
Dimensions	See the Outline Drawing	
Net weight, approx.	60	g
Operating position	Any	

* For more information, please ask for the TH 7214-1/TH 7214-2 data sheet.

OPERATING CONDITIONS*

Maximum Ratings (absolute values)

Grid no. 4 voltage	1500	V
Grid no. 3 voltage	1500	V
Grid no. 2 voltage	350	V
Grid no. 1 voltage :		
- negative bias value	— 150	V
- positive bias value	20	V
Heater-to-cathode voltage	— 125 to + 10	V
Target voltage	80	V
Faceplate temperature	50	°C

SAFETY WARNING for tubes see DOCUMENT DTE 807

TYPICAL OPERATION*

Scanning standard	25 images per second	
	625 interlaced lines	
Scanned area	9.6 x 12.8	mm ²
Faceplate temperature	25 to 35	°C
Target voltage	+ 75	V
Grid no. 4 voltage	1000	V
Grid no. 3 voltage	630	V
Grid no. 2 voltage	300	V
Grid no. 1 voltage for picture cutoff	— 10 to 0	V
Grid no. 1 operating voltage	0 to 20	V
Minimum peak-to-peak blanking voltage :		
- when applied to grid no. 1	— 25	V
- when applied to cathode	+ 30	V

* All the electrode voltages with respect to the cathode.

COIL CURRENTS (Thomson-CSF TH 7214)

Focus-coil current	70 ± 5	mA
Alignment-coil current (each pair)	— 30 to + 30	mA
Deflection-coil current (horizontal or vertical)	40	mA/mm

ELECTROOPTICAL PERFORMANCES

Dark current	0.5	nA/cm ²
Maximum signal current	2000	nA/cm ²
Sensitivity :		
- light source at 2854 K	400	μA/lm
- light source P20 (light flux measured after the filters)	320	μA/lm P20
Gamma	1	
Limiting resolution :		
- center	75	lp/mm
- corners	50	lp/mm
Modulation depth at center of picture (750 TVL I _{beam} = 1000 nA - I _s = 300 nA) :		
- picture height 9.6 mm	50	%
- picture height 15 mm	80	%
Lag (scanning format 9.6 x 12.8 mm ² - I _{beam} = 1000 nA I _s = 300 nA - I _{bias} light = 5 nA - 3rd frame)	1	%
Contrast ratio*	10	

* For a black zone occupying 1.2 % of the scanned area and centered on a white slide.

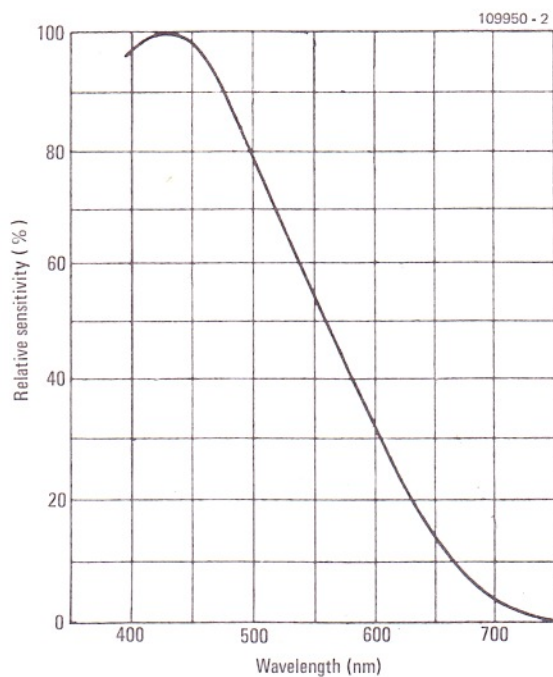


Figure 1 — Spectral sensitivity characteristic

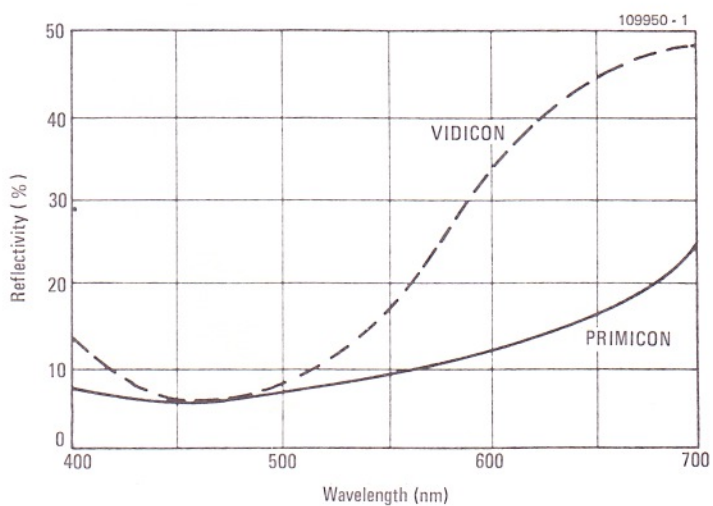
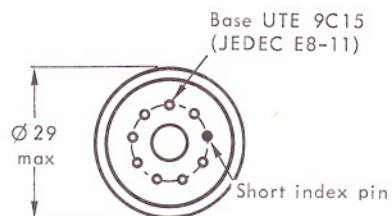
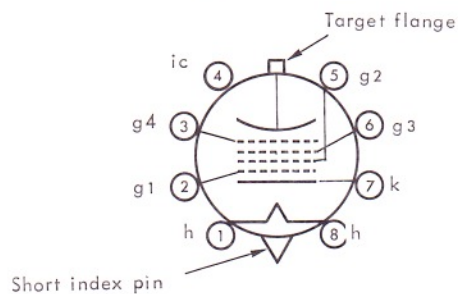
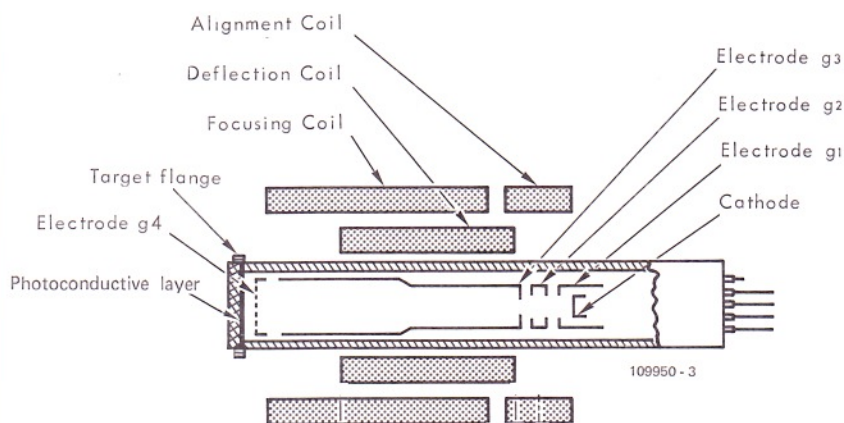
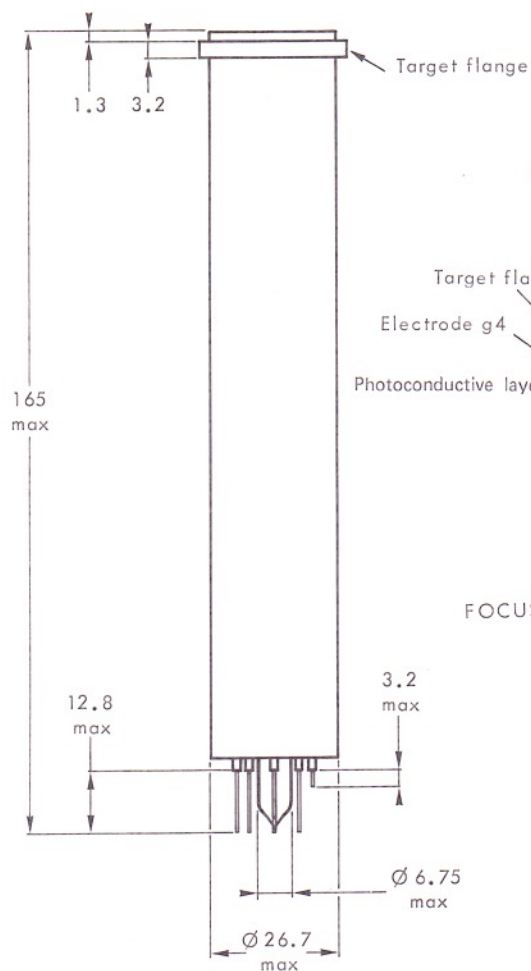


Figure 2 — Spectral reflectivity

OUTLINE DRAWING

BASING DIAGRAM
Bottom view

1 - Heater	5 - Electrode g2
2 - Electrode g1	6 - Electrode g3
3 - Electrode g4	7 - Cathode
4 - Internal connection	8 - Heater

POSITION OF THE TUBE IN THE
FOCUSING/DEFLECTION/ALIGNMENT-COIL ASSEMBLY

Dimensions in mm





THOMSON-CSF

DIVISION TUBES ELECTRONIQUES

DATA TEV 3620

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