



THOMSON-CSF

GRUPEMENT TUBES ELECTRONIQUES

DATA TEV 3186

TH 8205

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TH 8205

RECTANGULAR CATHODE RAY TUBE

FOR HIGH FREQUENCY OSCILLOSCOPY (100 TO 150 MHz)
HIGH SENSITIVITY (2 V/cm ON Y AXIS – 5. 5V/cm ON X AXIS)
FINAL ACCELERATOR VOLTAGE 15 kV
SHORT LENGTH (340 mm)
100 mm x 80 mm USEFUL SCREEN
INTERNAL GRATICULE

The TH 8205 is a rectangular flat faceplate electrostatic focus and deflection CRT including a post deflection acceleration system. In spite of a short length, a high deflection sensitivity is achieved by means of amplified deflection design thanks to a unique combination of quadrupolar and slot lenses.

The vertical deflection section of the TH 8205 can operate without loss of sensitivity up to 150 MHz. The high writing speed allows the observation of transient phenomena.

High sensitivity and reduced size make the tube particularly suitable for high performance all transistor compact oscilloscopes.

All deflection plates are fed by means of leads located on the neck of the tube so as to assure shorter connections.

The aluminized screen includes a graticule avoiding parallax distortion.

The magnetic field created by a coil fitted around the tube bulb permits accurate alignment of x trace with x'x axis of graticule.



GENERAL CHARACTERISTICS

Mechanical

Overall length	340 mm (13.4")
Faceplate dimensions :	
- width	120 mm (4.8")
- height	100 mm (4")
Graticulated useful area	100 mmx80 mm (4"x3.2")
Neck diameter	50.8 mm
Bulb contact	UTE C8-1 (JEDEC J1-21)
Base (14 pins)	UTE 14C 25
Bulb contact aligns with	
x'x axis of graticule	± 10°
Deflection plate leads	on the neck
Socket	THOMSON-CSF N° 8103318
Net weight, approx.	1 kg
Mounting position (Note 1)	any

Electrical

Cathode	unipotential
	indirectly heated
	oxide coated

Heater voltage	12.6 V
Heater current	0.125 to 0.175 A
Minimum preheating time	60 s
Interelectrode capacitances (without external shield):	
- grid g1 to all other electrodes	max 15 pF
- 2C _{x1x2} + C _x to all other electrodes	max 15 pF
- 2C _{y1y2} + C _y to all other electrodes	max 10 pF
Focusing method	electrostatic
Deflection method	electrostatic
Operating frequency	up to 150 MHz

Optical

Faceplate	clear
Screen	aluminized
Phosphor type*	P11 P31
Fluorescence and phosphorescence	blue green
Persistence	medium short medium short
- at 10 %	65 μs 40 μs
- at 1 %	200 μs 250 μs
* Other phosphor on request	

OPERATING CONDITIONS

(All potentials are referred to cathode except for modulation)

Maximum ratings (absolute value)

Grid n°6 voltage (post-acceleration)			
(note 2)	max. 16000	V	
	min. 11500	V	
Grid n°5 voltage (geometry)	max. 2000	V	
Grid n°4 voltage (astigmatism)	max. 2500	V	
Grid n°3 voltage (focus)	max. 1000	V	
	min. 0	V	
Grid n°2 voltage (acceleration)	max. 2000	V	
	min. 1500	V	
Grid n°1 voltage :			
negative bias value	max. 180	V	
positive bias value	max. 0	V	
positive peak value	max. 0	V	
Peak voltage between grid n°2 and			
any deflection plate	max. 300	V	
1st quadrupole voltage	max. 2500	V	
2nd quadrupole voltage	max. 3000	V	
Voltage between heater and cathode :			
heater negative with respect to			
cathode	max. 150	V	
heater positive with respect to			
cathode	max. 150	V	
Grid n°1 resistance	max. 1.5	MΩ	
Deflection plate resistance	max. 0.1	MΩ	

Typical operation (note 3)

Grid n°6 voltage	15000	V
Grid n°5 voltage (note4)	1450 to 1550	V
Grid n°4 voltage	1625 to 1875	V
Grid n°3 voltage	0 to 300	V
Grid n°2 voltage	1500*	V
Grid n°1 voltage (for cut-off)	-50 to -90	V
1st quadrupole voltage :		
x axis	1250 to 1500	V
y axis	1500*	V
2nd quadrupole voltage (note 4) :		
x axis	1900 to 2150	V
y axis	1250 to 1500	V
Modulation (I _{g6} = 5μA)	max. 70	V
Resolution (at center) (note 5)	0.5	mm
Spot position, focused and undeflected		
(note 6)	12	mm
Deflection characteristics :		
x plate deflection factor	5.5	V/cm
y plate deflection factor	2	V/cm
deflection factor uniformity (note 7) ..	2	%
Useful screen area :		
x axis	min. 100	mm
y axis	min. 80	mm
Trace alignment :		
angle between traces	89 to 91	°
angle between x trace and horizontal		
axis of graticule (note 8)	±4	°

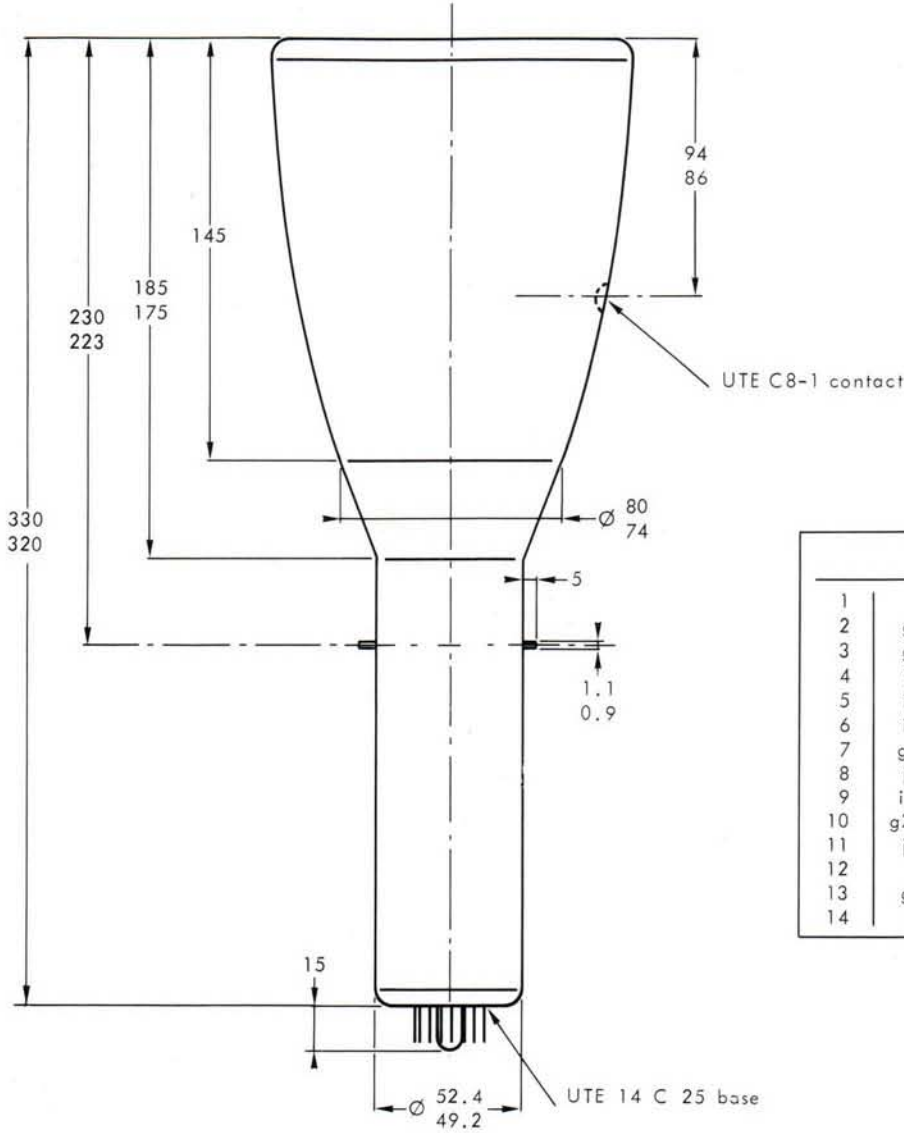
Pattern distortion (note 9)

Trace rotation coil (note 10)

* Grid g2 and j1y are connected inside the tube.



OUTLINE DRAWING



BASING DIAGRAM

1	h	heater
2	g5	geometry
3	g4	astigmatism
4	j1x	1st quadrupole
5	ic	internal connection
6	ic	internal connection
7	g3	focus
8	j2x	2nd quadrupole
9	ic	internal connection
10	g2+j1 y	acceleration + 1st quadrupole
11	j2y	2nd quadrupole
12	k	cathode
13	g1	wehnelt
14	h	heater

Graticulated useful area 100 x 80

