

THOMAS ELECTRONICS

ENGINEERING DATA
CATHODE RAY TUBE
TYPE 1M249P43
Revision A
Sheet 1 of 6 Sept. 1, 1999

<i>Issue Version (Note)</i>	<i>Issue Date</i>	<i>Change no. (ECO)</i>	<i>Changes (added, deleted...)</i>
<i>1.0</i>			<i>Start-up draft</i>
<i>2.0</i>	<i>Jan 7,2000</i>		<i>Anode current max was 150 uAmps</i>

BRIEF OUTLINE DESCRIPTION

The Thomas Electronics 1M249P43 is a 1-inch high resolution, magnetic deflection and electrostatic focus cathode ray tube.

ELECTRICAL DATA

Focusing Method	Electrostatic
Deflection Method	Magnetic
Diagonal Deflection Angle (Approx.)	20 Degrees
Interelectrode Capacitances	
Cathode to all other electrodes	3.8 pf Max.
Grid #1 to all other electrodes	5.0 pf Max.
Focus to all other electrodes	15 pf Max.
Maximum G2 leakage current	± 5 uA
Maximum focus leakage current	± 5 uA

OPTICAL DATA

Phosphor Number	P43
Fluorescence	Yellow Green
Phosphorescence	Yellow Green
Persistence	Medium
Phosphor Efficiency	12 L/W
Color Coordinates:	x = .333 " +/- 0.010 y = .556 " +/-0.010
Faceplate (Aluminized)	Fiberoptic; Spherical Concave 40mm
Brightness Uniformity	20%, Max.

Specification and price change privileges reserved. For further information, contact:

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MECHANICAL DATA

Overall Length	95 mm, max.
Minimum Useful Screen Dimensions	18.3 mm, min.
Faceplate radius	40 mm
Bulb Dimensions:	
Maximum Outside Diameter	22.86 mm, max.
Neck diameter	13 ± 1mm
Base	Potted
Base pinning description	See mechanical Drawing
Operating position	Any
Anode Contact	Pin, locate as shown
Deflection Angle	20 degrees
Weight (Approx.)	35 grams, nominal
Mounting Provision	None
Mechanical drawing	Refer to 1M249P43 drawing

ITC

Thomas Electronics can provide this CRT as a full assembly, with deflection coil potted in place

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MAXIMUM RATINGS (Design Maximum Value)

Accelerator Voltage	10 KV
Focus Voltage	1.5 KV
Grid #2 Voltage	1500 Volts
Grid #1 Voltage	
Negative Bias	-100 Volts
Positive Bias	0 Volts
Positive Peak	0 Volts
Peak Heater-Cathode Voltage Cold or Hot	175 Volts
Long term average anode current	50 uA max.
Peak anode current (e.g. max 20 min)	50 uA

TYPICAL OPERATING CONDITIONS

Reference point	0 volts, cathode
Heater Voltage	12.0 Volts " 2%
Heater Current @ 12.0 Volts	0.095 Amperes, Max.
Accelerator Voltage	8500 VDC
Grid #2 Voltage	Adj. 900 to 1,300 VDC
Grid #2 Voltage Drift	4% variation over 10,000 hours
Modulation	35 Volts, Max.
Grid #1 Cutoff Voltage (Note 2)	-68 VDC, Adjust G2 for cutoff
Focusing Electrode Voltage	900 to 1200 VDC
Spot Position (Note 4)	Within a 0.5mm radius circle
Line Width (Note 3), at rated light output conditions	0.018 mm, Maximum
Light Output (Note 5)	30 fL for P43
Maximum hor. & vert. dynamic focusing voltages (@200kHz)	TBD volts
Typical beam diameter at yoke entrance at 20 uA.	.85 mm
Astigmatism of center spot.	Max. 20%

NOTES

1. Other screen types are available upon request.
2. Visual extinction of undeflected, focused spot.
3. Measured at the tube face center, using merged-line method for production testing.
4. With the tube shielded against external influences.
5. The light output is measured on a 10mm X 10mm raster.

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BLEMISH SPECIFICATION

Glass and screen defect comprised of opaque spots and bubbles within the 18.3 mm useful screen area shall not exceed the following:

- 1) Defects
The equivalent diameter of a blemish is found by averaging its major and minor axis dimension $G = (L+W)/2$.

Allowable Blemishes

Circle with center coincident with mechanical center.

Blemish Size (mm)	Maximum Number
$0.02 < G < 0.05$	4
< 0.05	0
Blemish Distance	> 0.50 mm

Viewing distance 0.5 m

- 2) Scratches
 - Scratches on the outside panel surface: maximum allowed are 2 scratches with a max. width of 15 μ m
Length max: 3 mm.

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ENVIRONMENTAL CONDITIONS

Temperature range	
Operating	0° C to + 71° C
Storage	- 40° to + 85° C
(Temperature gradient)	10° C/min.)
Maximum Temperature on the neck-yoke area	105 °C
Atmospheric pressure	15000 ft
Humidity	0 to 95% relative humidity

VIBRATION / SHOCK

The tests are to be carried out with tube, inclusive of filter, deflection unit.

Test	Test Condition
Vibration Test, Operating	
Vibration Test, Packaging	
Shock test	

OUTLINE DRAWINGS

Mechanical drawing attached.