

Cathode-ray display tube documented by Cintel; available extracted data primarily records modulator capacitance and does not support a narrower application classification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	4 V / 1 A	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Cathode Ray	
MAXIMUM PLATE VOLTAGE	11000 V
Published ratings and characteristics promoted from the approved datasheet.	

15MO6A — Radar Cathode Ray Tube

The **15MO6A** is a specialized, high-voltage cathode ray tube (CRT) designed for radar display systems. Featuring a 15-inch nominal face diameter, the tube utilizes magnetic focusing and magnetic deflection to control its electron beam. It is equipped with an aluminum-backed screen that exhibits long-persistence orange fluorescence and afterglow, making it highly suited for displaying slow-scan radar sweeps.

Physical Construction and Mechanical Alignment

The 15MO6A is built with a large glass envelope designed to withstand high vacuum and operating stresses. Its mechanical dimensions and alignment features are tightly controlled to facilitate precise installation and integration with external deflection and focusing components.

Key Dimensions

- **Overall Length:** 582 ± 7 mm
- **Greatest Bulb Diameter:** 385 mm (with a face diameter of 382 ± 3 mm shown in mechanical drawings)
- **Minimum Useful Screen Diameter:** 330 mm
- **Neck Diameter:** 35 mm (with a tolerance of $+0.9 / -0$ mm)
- **Face Radius of Curvature:** 545 mm (with a tolerance of $+55 / -65$ mm)

Reference Line and Mounting

The physical mounting and positioning of external coils are referenced to a specific plane on the tube's cone. This reference line is defined as the position where a standardized cylindrical gauge with an internal diameter of 36 mm and a length of 50 mm comes to rest on the bulb cone. The distance from this reference line to the front face of the tube is 360 ± 5 mm. The tube is rated for mounting in any physical orientation.

Anode Connection and Alignment

The high-voltage anode connection is made via a cavity cap conforming to the BSS448/CT8 standard, located on the cone of the bulb. The center of the anode cap is positioned 63.5 ± 12.7 mm from the reference line.

To ensure proper alignment with the internal electron gun, the angular relationship between the anode cap and the base is controlled. The plane passing through the tube axis and the base spigot key must not deviate from the plane passing through the tube axis and the anode cap by more than 10° of angular tolerance. The anode cap is located on the same side of the tube as the spigot key.

Screen and Phosphor Characteristics

The screen of the 15MO6A is optimized for radar indicator service, where target information must remain visible between successive sweeps of the radar antenna:

- **Screen Construction:** Aluminium-backed, which enhances light output toward the viewer and protects the phosphor from ion damage.
- **Fluorescence Color:** Orange
- **Afterglow Color:** Orange
- **Persistence:** Long

Heater and Electrical Interface

The 15MO6A utilizes an indirectly heated cathode. The heater is designed to operate from either an alternating current (AC) or direct current (DC) supply.

Heater Ratings

- **Heater Voltage:** 4.0 V (AC or DC)
- **Heater Current:** 1.0 A

Inter-electrode Capacitances

- **Modulator to all other electrodes:** 12.0 pF
- **Cathode to all other electrodes:** 10.0 pF

Base and Pin Connections

The tube is fitted with an International Octal base. To prevent voltage breakdown and accommodate the internal structure, several pins are omitted from the base shell during manufacture:

- **Pin 1:** No connection
- **Pin 2:** Heater
- **Pin 3:** Pin omitted
- **Pin 4:** Pin omitted
- **Pin 5:** Modulator (Control Grid)
- **Pin 6:** Pin omitted
- **Pin 7:** Heater
- **Pin 8:** Cathode
- **Anode Cap:** Anode

Maximum Ratings

The following absolute maximum ratings must not be exceeded under any operating conditions:

- **Anode Voltage:** 11,000 V
- **Modulator Voltage (Negative bias value):** 130 V
- **Modulator Voltage (Positive bias value):** 0 V
- **Peak Heater-to-Cathode Voltage (Heater negative with respect to cathode):** 125 V
- **Peak Heater-to-Cathode Voltage (Heater positive with respect to cathode):** 125 V

Typical Operating Conditions

Under typical operating conditions, the tube is set up with the following parameters:

- **Anode Voltage:** 10,000 V
- **Modulator Voltage for Cut-off:** -75 V to -115 V (the negative bias required on the modulator to completely extinguish the electron beam)
- **Focusing-Coil Current:** 600 Ampere-Turns (A.T.)

Focusing and Spot Alignment

To achieve proper focus, the external focusing coil must be positioned such that the center line of its air gap is approximately 80 mm from the reference line along the neck of the tube.

The mechanical alignment of the electron gun ensures that the undeflected, unfocused spot falls within a circle of 15 mm radius concentric with the physical center of the tube face.

Technical Summary

The **15MO6A** is a 15-inch nominal diameter radar cathode ray tube featuring magnetic focus and magnetic deflection. It operates with a 4.0 V, 1.0 A heater and is designed for high-voltage operation up to an absolute maximum anode potential of 11,000 V. Its aluminum-backed screen provides long-persistence orange fluorescence and afterglow, making it ideal for radar display applications. The tube's physical alignment is maintained through a standardized reference line and controlled angular tolerances between the International Octal base and the BSS448/CT8 anode cavity cap, ensuring precise integration into radar indicator consoles.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

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Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Modulator to all other electrodes capacitance	12 pF	Published datasheet value

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