CATHODE RAY

THE 27MP4 IS A DIRECT-VIEW PICTURE TUBE DESIGNED FOR USE IN TELEVISION APPLICATIONS. ITS FEATURES INCLUDE:

- ALUMINIZED SCREEN
- UNIPOTENTIAL CATHODE
- MAGNETIC FOCUS & DEFLECTION
- FROSTED FILTERGLASS FACEPLATE
- RECTANGULAR METAL CONSTRUCTION
- EXTERNAL SINGLE FIELD ION TRAP
- 23 7/16" X 18 1/8" RASTER SIZE

ELECTRICAL DATA

FOCUSBNG METHOD: MAGNETIC
DEFLECTING METHOD: MAGNETIC
DEFLECTION ANGLE (APPROX.):
  - HORIZONTAL: 85 DEGREES
  - VERTICAL: 69 DEGREES
  - DIAGONAL: 90 DEGREES
DIRECT INTERELECTRODE CAPACITANCES (APPROX.):
  - CATHODE TO ALL OTHER ELECTRODES: 5 µuf
  - GRID #1 TO ALL OTHER ELECTRODES: 6 µuf

OPTICAL DATA

- PHOSPHOR NUMBER: SULFIDE TYPE
- FLUORESCENT COLOR: NO. 4 WHITE
- PHOSPHORESCENT COLOR: WHITE
- PERSISTENCE: SHORT PERCENT
- FACEPLATE LIGHT TRANSMISSION AT CENTER (APPROX.): 66

MECHANICAL DATA

- OVERALL LENGTH: 22 3/16 INCHES
- GREATEST DIMENSIONS OF BULB:
  - DIAGONAL: 26 7/8 ± 1/4 INCHES
  - WIDTH: 25 1/4 ± 3/16 INCHES
  - HEIGHT: 19 15/16 ± 3/16 INCHES
- MINIMUM USEFUL SCREEN DIMENSIONS:
  - DIAGONAL: 25 1/16 INCHES
  - WIDTH: 23 7/16 INCHES
  - HEIGHT: 18 1/8 INCHES
- BULB CONTACT: METAL SHELL LIP
- BASE: SMALL SHELL DUODECAL 5 PIN 85-57
- BASING: 120
- BASE ALIGNMENT: PIN #6 ALIGNS WITH HORIZONTAL PICTURE AXIS ± 10 DEGREES

PIN CONNECTIONS

PIN 1 - HEATER
PIN 2 - GRID NO. 1
PIN 10 - GRID NO. 2
PIN 11 - CATHODE

PIN 12 - HEATER ANODE CAP.
GRID NO. 3

BOTTOM VIEW

CONTINUED ON FOLLOWING PAGE
RATINGS
DESIGN CENTER VALUES

HEATER VOLTAGE 6.3 VOLTS
HEATER CURRENT 0.6 AMP.
MAXIMUM DC GRID #3, COLLECTOR VOLTAGE \( A \) 18000 VOLTS
MAXIMUM DC GRID #2 VOLTAGE 500 VOLTS
MAXIMUM GRID #1 VOLTAGE:
  DC NEGATIVE-BIAS VALUE 125 VOLTS
  DC POSITIVE-BIAS VALUE 0 VOLTS
  POSITIVE-PEAK VALUE 2 VOLTS
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:
  HEATER NEGATIVE WITH RESPECT TO CATHODE
    DURING WARM-UP PERIOD NOT TO EXCEED \( \pm 15 \) SECONDS 410 VOLTS
  AFTER EQUIPMENT WARM-UP PERIOD 180 VOLTS
  HEATER POSITIVE WITH RESPECT TO CATHODE 180 VOLTS

\( A \) BRILLIANCE AND DEFINITION DECREASE WITH DECREASING COLLECTOR VOLTAGE. IN GENERAL, THE COLLECTOR VOLTAGE SHOULD NOT BE LESS THAN 16,000 VOLTS.

\( B \) BECAUSE THE RATINGS OF THIS TUBE PERMIT ANODE VOLTAGES AS HIGH AS \( 19.8 \) KV, SHIELDING OF X-RAY RADIATION FROM THE TUBE MAY BE NECESSARY. THIS PRECAUTION SHOULD BE OBSERVED WHEN THE ANODE IS OPERATED IN EXCESS OF \( 16 \) KV.

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

DC COLLECTOR, GRID #3 VOLTAGE 16000 VOLTS
DC GRID #2 VOLTAGE 300 VOLTS
DC GRID #1 VOLTAGE \( c \) -37 TO -73 VOLTS
DC FOCUSING COIL CURRENT (APPROX.) \( 0 \) 110 \( \pm 10\% \) MA.
ION TRAP MAGNET (RATED STRENGTH) 50 GAUSSES

\( c \) VISUAL EXTINCTION OF FOCUSED RASTER.

\( d \) FOR STANDARD FOCUS COIL #109, OR EQUIVALENT, WITH THE COMBINED GRID #2 BIAS VOLTAGE AND VIDEO-SIGNAL VOLTAGE ADJUSTED TO PRODUCE A HIGHLIGHT BRIGHTNESS OF 30 FOOT LAMBERTS ON A 23 7/16" BY 18 1/8" PICTURE SIZE, DISTANCE FROM REFERENCE LINE TO CENTER OF AIR GAP ON FOCUS COIL SHALL BE \( 3.0 \) INCHES.

CIRCUIT VALUES

MAXIMUM GRID #1 CIRCUIT RESISTANCE 1.5 MEGOHMS