

Vidicon

High-Resolution Type for Film Pickup With Color or Black-and-White TV Cameras

GENERAL

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3 ± 10% V
Current at 6.3 volts	0.6 A

Direct Interelectrode Capacitance:^a

Target to all other electrodes	4.6 pF
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Spectral Response See accompanying *Typical RCA Type 1 Spectral Response*

Photoconductive Layer:

Maximum useful diagonal of rectangular image (4 x 3 aspect ratio)	0.62 in
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Orientation of quality rectangle—Proper orientation is obtained when the horizontal scan is essentially parallel to the straight sides of the masked portions of the faceplate. The straight sides are parallel to the plane passing through the tube axis and short index pin. The masking is for orientation only and does not define the proper scanned area of the photoconductive layer.

Focusing Method Magnetic

Deflection Method Magnetic

Overall Length 6.250 in ± 0.125 in

Greatest Diameter 1.125 in ± 0.010 in

Bulb T8

Base Small-Button Ditetra 8-Pin,
(JEDEC No.E8-11)Socket Cinch^b No.54A18088, or equivalentDeflecting Yoke-Focusing Coil-
Alignment Coil Assembly Cleveland Electronics^{c,d}
No.VYFA-355-2, or equivalent

Operating Position Any

Weight (Approx.) 2 oz

ABSOLUTE-MAXIMUM RATINGS*For scanned area of 1/2" x 3/8"*Grid-No.4 Voltage^f 1000 max. VGrid-No.3 Voltage^f 1000 max. V

Grid-No.2 Voltage 750 max. V

Grid-No.1 Voltage:

Negative bias value 300 max. V

Positive bias value 0 max. V

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Peak Heater-Cathode Voltage:

Heater negative with respect to cathode	125 max.	V
Heater positive with respect to cathode	10 max.	V
Target Voltage	125 max.	V
Dark Current	0.25 max.	μA
Peak Target Current ^g	0.75 max.	μA
Faceplate:		
Illumination ^h	5000 max.	fc
Temperature	71 max.	$^{\circ}\text{C}$

TYPICAL OPERATION AND PERFORMANCE DATA

For scanned area of 1/2" x 3/8"

Faceplate temperature of 30^o to 35^o C and Standard TV

Scanning Rate

	Low-Voltage Mode	High-Voltage Mode	
Grid-No.4 (Decelerator) Voltage ^f	500	900	V
Grid-No.3 (Beam-Focus Electrode) Voltage ^f	300	540	V
Grid-No.2 (Accelerator) Voltage	300	300	V
Grid-No.1 Voltage for Picture Cutoff ⁱ	-65 to -100	-65 to -100	V

Average "Gamma" of Transfer Characteristic for signal-output current between 0.02 μA and 0.2 μA

0.65 0.65

Visual Equivalent Signal-to-Noise Ratio (Approx.)^k

300:1 300:1

Lag--Per Cent of Initial Value of Signal-Output Current 1/20 Second After Illumination is Removed:^m

Typical value for minimum lag operation 7.5 7.5 %

Minimum Peak-to-Peak Blanking Voltage:

When applied to grid No.1 . . 75 75 V

When applied to cathode . . . 20 20 V

Limiting Resolution:

At center of picture 1000 1100 TV lines

At corner of picture 600 700 TV lines

Amplitude Response to a 40 TV Line Square-Wave Test Pattern at Center of Picture ⁿ . . .	50	60	%
Field Strength at Center of Focusing Coil ^p	40 ± 4	58 ± 4	G
Peak Deflecting-Coil Current:			
Horizontal	350	480	mA
Vertical	20	28	mA
Field Strength of Adjustable Alignment Coil ^q	0 to 4	0 to 4	G
<i>Average-Sensitivity Operation (Live-Scene Pickup)</i> <i>10 Footcandles on Faceplate</i>			
Faceplate Illumination (Highlight)	10		fc
Target Voltage ^{r, s}	25 to 60		V
Dark Current ^t	0.02		μA
Signal-Output Current:^u			
Typical	0.3		μA
<i>Minimum-Lag Operation (Film Pickup)</i> <i>100 Footcandles on Faceplate</i>			
Faceplate Illumination (Highlight)	100		fc
Target Voltage ^{r, s}	12 to 30		V
Dark Current ^t	0.004		μA
Signal-Output Current:^u			
Typical	0.3		μA

^a This capacitance, which effectively is the output impedance of the tube, is increased when the tube is mounted in the deflecting-yoke and focusing-coil assembly. The resistive component of the output impedance is in the order of 100 megohms.

^b Made by Cinch Manufacturing Corporation, 1501 Morse Ave., Elk Grove Village, IL 60007.

^c Made by Cleveland Electronics Inc., 2000 Highland Road, Twinsburg, OH 44087.

^d These components are chosen to provide tube operation with minimum beam-landing error when mounted in the recommended position along the tube axis.

^f Grid-No.4 voltage must always be greater than grid-No.3 voltage. The maximum voltage difference between these electrodes, however, should not exceed 600 volts. The recommended ratio of grid-No.3 to grid-No.4 voltage is 6/10 to 5/10; best geometry being provided when the ratio

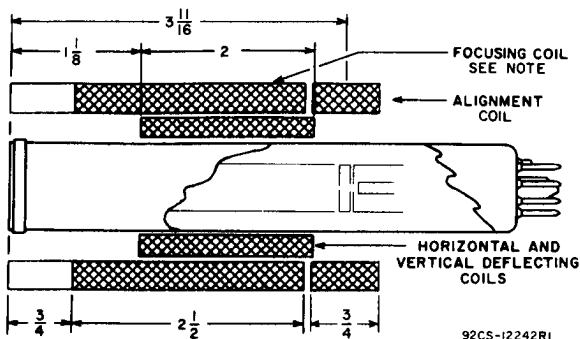
is 6/10, and most uniform signal output when the ratio is 5/10. The operator should select the ratio within this range which provides the desired performance.

- g Video amplifiers must be designed properly to handle target currents of this magnitude to avoid amplifier overload or picture distortion.
- h For conditions where "white light" is uniformly diffused over entire tube face.
- i With no blanking voltage on grid No.1.
- k Measured with high-gain, low-noise, cascode-input-type amplifier having bandwidth of 5 MHz and a peak signal-output current of 0.35 microampere. Because the noise in such a system is predominately of the high-frequency type, the visual equivalent signal-to-noise ratio is taken as the ratio of the highlight video-signal current to rms noise current, multiplied by a factor of 3.
- m For initial signal-output current of 0.3 microampere and a dark current of 0.004 microampere.
- n Amplitude response is the signal amplitude from a given TV line number (fine picture detail) expressed as a per cent of the signal amplitude from a very-low-frequency (large-area) picture element. In practice, the large-detail reference is usually 15 TV lines with signal amplitude set equal to 100 per cent. The TV line numbers are determined by the number of equal-width black and white lines that will fit into the physical height of the image focused on the camera-tube faceplate.
- p The polarity of the focusing coil should be such that a north-seeking pole is attracted to the image end of the focusing coil, with the indicator located outside of and at the image end of the focusing coil.
- q The alignment coil should be located on the tube so that its center is at a distance of 3-11/16 inches from the face of the tube, and be positioned so that its axis is coincident with the axis of the tube, the deflecting yoke, and the focusing coil.
- r The target voltage for each 8572A must be adjusted to that value which gives the desired operating dark current.
- s Indicated range for each type of service serves only to illustrate the operating target-voltage range normally encountered.
- f The deflecting circuits must provide extremely linear scanning for good black-level reproduction. Dark-current signal

is proportional to the scanning velocity. Any change in scanning velocity produces a black-level error in direct proportion to the change in scanning velocity.

- ^u Defined as the component of the highlight target current after the dark-current component has been subtracted.

RECOMMENDED LOCATION AND LENGTH OF DEFLECTING, FOCUSING, AND ALIGNMENT COMPONENTS TO OBTAIN MINIMUM BEAM-LANDING ERROR

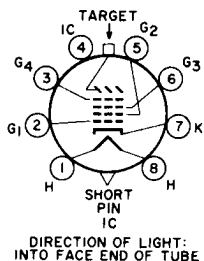


Dimensions in Inches

Note: Cross-hatching indicates wound portion of focusing coil.

TERMINAL DIAGRAM (Bottom View)

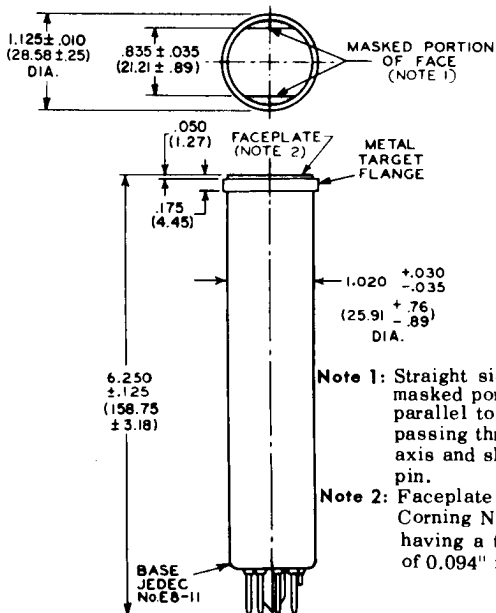
- Pin 1: Heater
- Pin 2: Grid No.1
- Pin 3: Grid No.4
- Pin 4: Internal Connection —
Do Not Use
- Pin 5: Grid No.2
- Pin 6: Grid No.3
- Pin 7: Cathode
- Pin 8: Heater
- Flange: Target
- Short Index Pin — Internal Connection —
Make No Connection



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DIMENSIONAL OUTLINE - Dimensions in Inches (mm)



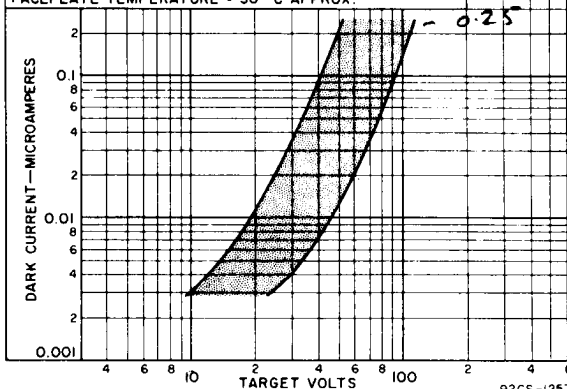
Note 1: Straight sides of masked portions are parallel to the plane passing through tube axis and short index pin.

Note 2: Faceplate glass is Corning No.7056 having a thickness of $0.094'' \pm 0.012''$.

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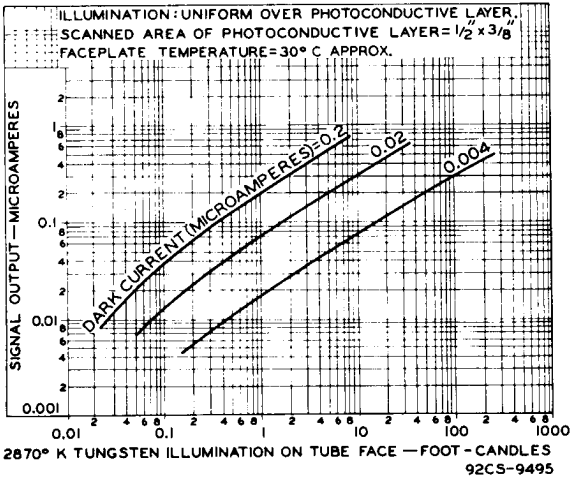
RANGE OF DARK CURRENT

SCANNED AREA OF PHOTOCONDUCTIVE LAYER = $1/2'' \times 3/8''$
FACEPLATE TEMPERATURE = 30° C APPROX.

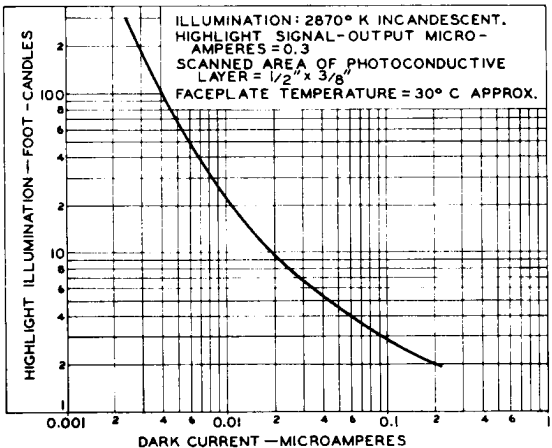


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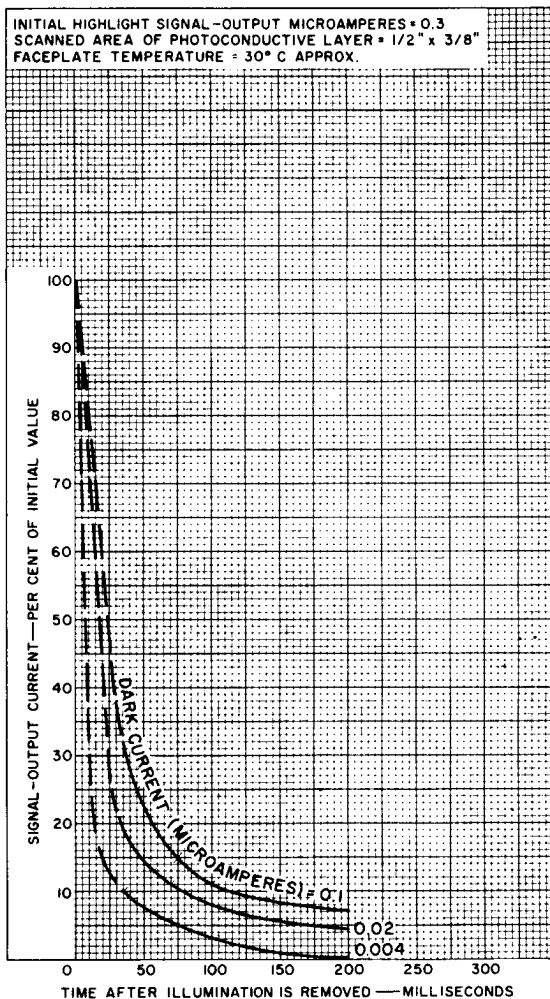
LIGHT TRANSFER CHARACTERISTICS



TYPICAL CHARACTERISTIC

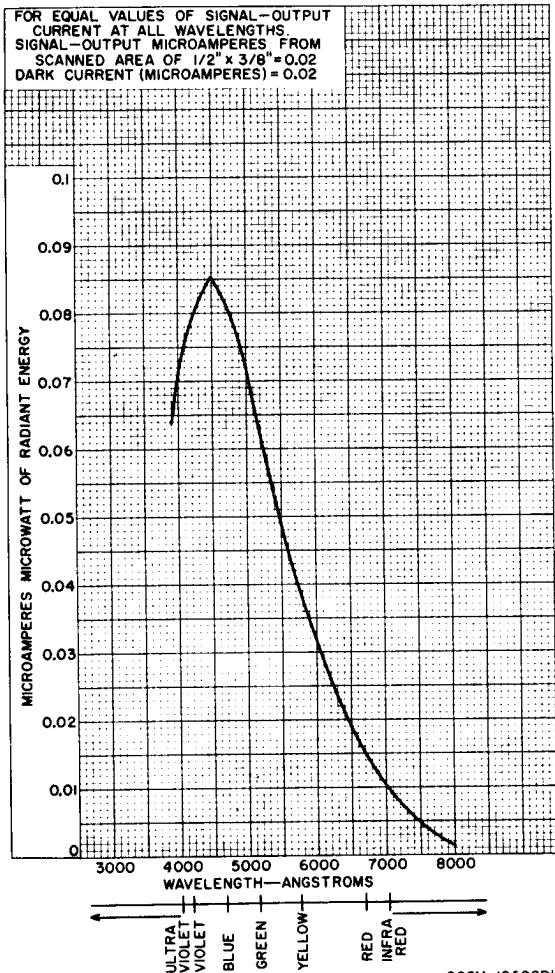


TYPICAL PERSISTENCE CHARACTERISTICS

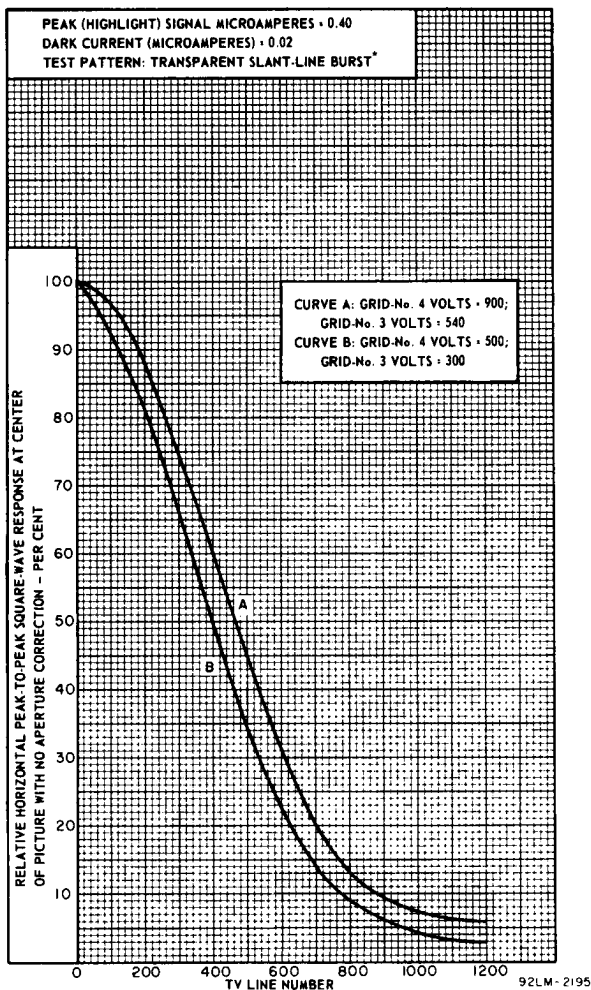


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TYPICAL RCA TYPE I SPECTRAL RESPONSE



HORIZONTAL SQUARE-WAVE RESPONSE



* Amplitude response measured using the RCA P200 slant-line burst pattern with horizontal center response balanced on the 400 line chevrons.