8567

Vidicon

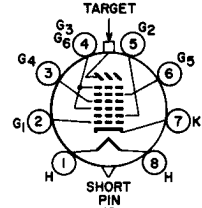
LOW-POWER (0.6-WATT)"DARK HEATER" 1" DIAMETER PRECISION BULB[a]
ELECTROSTATIC FOCUS RUGGEDIZED MAGNETIC DEFLECTION

For Compact, Lightweight, Transistorized TV Cameras in Industrial and Other Closed-Circuit TV Systems Where Severe Environmental Conditions May be Encountered

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3 ± 10%	volts
Current at 6.3 volts	0.095	amp
Direct Interelectrode Capacitance:[b]		
Target to all other electrodes	5.0	pf
Spectral Response	See *Typical Spectral-Sensitivity Characteristic*, shown under Type 8134	
Photoconductive Layer:		
Maximum useful diagonal of rectangular image (4 x 3 aspect ratio)[c]	0.62"	
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Overall Length	6.25" ± 0.10"	
Greatest Diameter	1.125" ± 0.010"	
Operating Position	Any	
Weight (Approx.)	2.8 oz	
Bulb	T8	
Bulb Diameter	1.025" ± 0.003"	
Deflecting-Alignment Assembly	Cleveland Electronics[d] No. VYA-300, or equivalent	
Socket	Cinch[e] No. 133-98-11-015, or equivalent	
Base	Small-Button Ditetrar 8-Pin (JEDEC No. E8-11)	
Basing Designation for BOTTOM VIEW	8LN	

Pin 1 - Heater
Pin 2 - Grid No.1
Pin 3 - Grid No.4
Pin 4 - Grid No.3 & No.6
Pin 5 - Grid No.2
Pin 6 - Grid No.5
Pin 7 - Cathode
Pin 8 - Heater
Flange - Target
Short Pin - Do Not Use



DIRECTION OF LIGHT: INTO FACE END OF TUBE

Maximum Ratings, *Absolute-Maximum Values:*

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

Grid-No.6 & Grid No.3 Voltage[f]	1000	volts
Grid-No.5 Voltage[f]	1000	volts
Grid-No.4 Voltage	300	volts
Grid-No.2 Voltage	750	volts

Grid-No.1 Voltage:		
Negative-bias value.	300	volts
Positive-bias value.	0	volts
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode. .	125	volts
Heater positive with respect to cathode. .	10	volts
Target Voltage	100	volts
Dark Current	0.2	μa
Peak Target Current[g]	0.6	μa
Faceplate:		
Illumination	1000	fc
Temperature.	71	°C

Typical Operation and Performance Data:

For scanned area of 1/2" x 3/8" and faceplate temperature of 30° to 35° C and standard TV scanning rate

	Low-Voltage	Intermediate-Voltage	High-Voltage	
Grid-No.6 (Decelerator) & Grid-No.3 Voltage . .	300	500	750	volts
Grid-No.5 Voltage. . . .	180	300	450	volts
Grid-No.4 (Beam-Focus Electrode) Voltage. . .	20 to 60	50 to 100	90 to 150	volts
Grid-No.2 (Accelerator) Voltage	300	300	300	volts
Grid-No.1 Voltage for picture cutoff[h]	-45 to -100	-45 to -100	-45 to -100	volts
Typical Electrode Currents:				
Grid No.6 & 3	1.7	2.5	3	μa
Grid No.5	0.05	0.20	0.30	μa
Grid No.4	0.0015	0.006	0.008	μa
Grid No.2	375	450	500	μa
Lag[j]				
Maximum value.	20	20	20	%
Typical value.	15	15	15	%
Average "Gamma" of Transfer Characteristic for signal-output current between 0.02 & 0.2 μa. .	0.65	-	-	
Minimum Peak-to-Peak Blanking Voltage:				
Applied to grid-No.1. .	75	-	-	volts
Applied to cathode. . .	20	-	-	volts
Limiting Resolution at picture center.	600	700	750	TV lines
Amplitude Response to a 400 TV Line Square Wave Test Pattern at picture center.	20	25	30	%
Field Strength of Adjustable Alignment Coil[k]	0 to 1	0 to 1	0 to 1	gauss

Average-Sensitivity Operation

Under typical operating conditions specified for either low- or high-voltage operation

Faceplate Illumination (Highlight)	1	fc
Target Voltage[m,n]	20 to 40	volts
Dark Current[p]	0.02	μa
Signal-Output Current[q]	0.2	μa

High-Sensitivity Operation

Under typical operating conditions specified for either low- or high-voltage operation[r]

Faceplate Illumination (Highlight)	0.1	fc
Target Voltage[m,n]	30 to 60	volts
Dark Current[p]	0.10	μa
Signal-Output Current[q]	0.10	μa

[a] The precision outer-diameter bulb permits the use of low-power, close-fitting deflecting yokes of small size and low impedance.

[b] This capacitance, which effectively is the output impedance of the 8567 is increased when the tube is mounted in the deflecting-yoke assembly. The resistive component of the output impedance is in order of 100 megohms.

[c] Proper orientation of quality rectangle 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 pin.

[d] Cleveland Electronics Incorporated, 1974 East 61st Street, Cleveland Ohio. This component is not designed to withstand severe environmental conditions. It is recommended that custom components be used in such service.

[e] Cinch Manufacturing Corporation, 1026 South Homan Avenue, Chicago 24, Illinois.

[f] The maximum voltage difference between grids No.6 & 3 and No.5 should not exceed 500 volts.

[g] Video amplifiers must be designed properly to handle peak target currents of this magnitude to avoid amplifier overload or picture distortion.

[h] With no blanking voltage on grid No.1.

[j] Defined as the per cent of initial value of signal-output current 1/20 second after illumination is removed. Values shown are for initial signal-output current of 0.2 microampere and a dark current of 0.02 microampere.

[k] The alignment coil should be located on the tube so that its center is at a distance of 4-15/16 inches from the face of the tube, and be positioned so that its axis is coincident with the axis of the tube and the deflecting yoke.

[m] Indicated range for each type of service serves only to illustrate the operating target-voltage range normally encountered.

[n] The target voltage for each 8567 must be adjusted to that value which gives the desired operating dark current.

[p] 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.

[q] Defined as the component of the highlight target current after the dark-current component has been subtracted.

[r] Operation at this higher sensitivity level will result in a decrease in the resolution capability of the 8567.

ENVIRONMENTAL TESTS

The 8567 is designed to withstand the following operational and non-operational environmental tests.

OPERATIONAL TESTS

Rejection Criteria

Tubes are operated as specified under *Typical Operation, Low-Voltage Operation*. Throughout these tests, the amplitude of any generated spurious signals must not exceed 80 per cent of the maximum white-signal value and the tube must provide a resolution of at least 200 TV lines.

Sinusoidal Vibration

These tests are performed on apparatus which applies variable-sinusoidal frequency vibration to the tube. The tube is vibrated in each of three orthogonal axes, one axis being parallel to the major axis of the tube, according to the schedule specified below. A vibration cycle has a duration of 4.5 minutes per axis in which time the frequency is varied from 20 to 1000 and back to 20 cycles per second. One vibration cycle is performed for each axis and the total test period is 13.5 minutes.

Double Amplitude inches	Peak Acceleration g's	Sweep Frequencies cps	Sweep Cycle Duration per Axis minutes
0.250	-	20 to 40	4.5
-	20	40 to 400	
-	Decreased linearly from 20 to 3	400 to 1000	
-	Increased linearly from 3 to 20	1000 to 400	
-	20	400 to 40	
0.250	-	40 to 20	

Random Vibration

The 8567 is also subjected to random vibration having a spectral density of 0.1 g^2/cps in a bandwidth of 20 to 1000 cycles per second (10 g's — rms value) for a period of 3 minutes in each of the three orthogonal axes specified above. The total test period for each tube is 9 minutes.

NON-OPERATIONAL TESTS

Rejection Criteria

After completion of these tests, tubes will meet the performance characteristics specified under *Typical Operation*.

Shock

These tests are performed on apparatus which provides half-wave sinusoidal shock pulses. The 8567 is subjected to three impact shocks in each direction of the three orthogonal axes specified above. The peak acceleration of the impact shock is 30 g's and the time duration is 11 milliseconds. Each tube is subjected to a total of 18 impact shocks.

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Sinusoidal Vibration

These tests are performed on apparatus which applies variable sinusoidal frequency vibration to the tube. The tube is vibrated in each of the three orthogonal axes previously specified. A vibration cycle has a duration of 30 minutes per axis in which time the frequency is varied from 5 to 2000 and back to 5 cycles per second. One vibration cycle is performed for each axis and the total test period is 90 minutes.

Double Amplitude inches	Peak Acceleration g's	Sweep Frequencies cps	Sweep Cycle Duration per Axis minutes
0.250	–	5 to 20	30
–	5	20 to 2000	
–	5	2000 to 20	
0.250	–	20 to 5	

Random Vibration

The 8567 is also subjected to random vibration having a spectral density of 0.05 g^2/cps in a bandwidth of 20 to 2000 cycles per second (10 g's — rms value) for a period of 10 minutes in each of the three orthogonal axes specified above. The total test period for each tube is 30 minutes.

Acoustical Noise

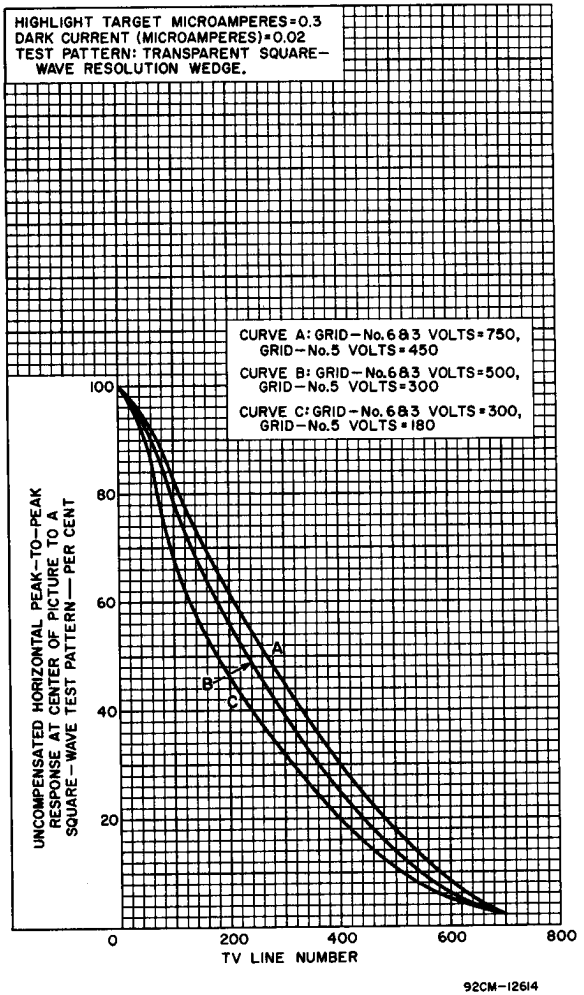
The 8567 is subjected to an overall external noise of 140 db for a period of 5 minutes.

Static Acceleration

The 8567 is subjected to a static acceleration of 20 g's in each of the three orthogonal axes specified above for a period of 5 minutes. The total test period for each tube is 15 minutes.

DIMENSIONAL OUTLINE,
RECOMMENDED LOCATION OF DEFLECTING YOKE AND ALIGNMENT COIL,
DARK-CURRENT RANGE,
TYPICAL LIGHT-TRANSFER CHARACTERISTICS,
TYPICAL SPECTRAL-SENSITIVITY CHARACTERISTIC,
TYPICAL PERSISTENCE CHARACTERISTICS,
and
TYPICAL HORIZONTAL-DEFLECTION-CURRENT-CHARACTERISTIC
shown under Type 8134 also apply to the 8567

UNCOMPENSATED HORIZONTAL SQUARE-WAVE RESPONSE



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