Toshiba TECHNICAL DATA

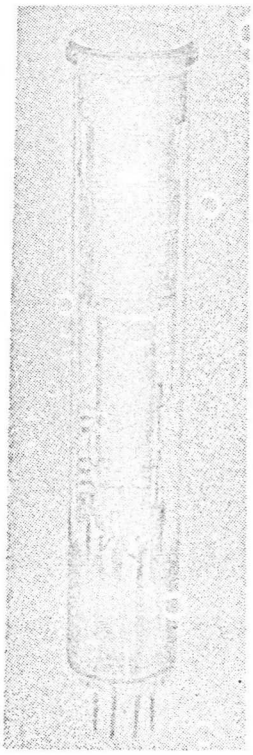
ELECTRON TUBE

TOSHIBA VIDICON TUBE

TENTATIVE

(CHALNICON)

E5001



Toshiba E5001 is a 1"-diameter, magnetic-focus and deflection vidicon-type camera tube having cadmium selenide photoconductive target.
This tube has extremely high sensitivity, low dark current, high resolution and no burn-in.
The electron-gun structure of Toshiba E5001 is the same as that of the 8541.

FEATURES
* EXTREMELY HIGH SENSITIVITY
* WIDE SPECTRAL RESPONSE OVER THE WHOLE RANGE OF VISIBLE WAVELENGTHS
* HIGH RESOLUTION
* NO BURN-IN
* VERY LOW DARK CURRENT

GENERAL DATA

Electrical:

Cathode

Heater Voltage	6.3±10 %	V
Heater Current	95	mA

Direct Interelectrode Capacitance (Note 1)

Target to all other electrodes	4.6	pF
Spectral Sensitivity	See Fig.3	
Focusing Method	Magnetic	
Deflecting Method	Magnetic	

Mechanical:

Base ..... Small-Button Ditetrar 8-pin (JEDEC No. E8-11)

Dimensions:

Overall Length	6.25±0.25 inches	(159±3mm)
Maximum Diameter	1.125±0.010inches	(28.6±0.3mm)

Maximum useful Size of Rectangular Image (4x3 aspect ratio) ..... 0.62 inches (15.7mm) (diagonal

Orientation:
Proper orientation is obtained when the horizontal scan is essentially parallel to the plane passing through the tube axis and short index pin.

This information applies to a contemplated laboratory tube design and is subject to change.
No obligations are assumed as to future manufacture unless otherwise arranged.

MAXIMUM RATINGS

(Absolute-Maximum Values: For scanned area of 1/2" x 3/8" (12.7x9.5 mm^2))

Grid No.4 Voltage	800	Vdc
Grid No.3 Voltage	800	Vdc
Grid No.2 Voltage	400	Vdc
Grid No.1 Voltage:		
Negative-bias value	300	Vdc
Positive-bias value	0	Vdc
Peak Heater to Cathode Voltage		
Heater Negative with respect to Cathode	125	V
Heater Positive with respect to Cathode	10	V
Target Voltage	50	Vdc
Peak Target Current	800	nA
Faceplate:		
Illumination (Note 2)	10^5	lx
Temperature	-20~60	°C

TYPICAL OPERATION

For scanned area of 1/2" x 3/8" (12.7 x 9.5 mm^2)

	Standard Operation	High Voltage Operation	
Faceplate Temperature(Note 3)	25~35	25~35	°C
Grid No.4 Voltage (Note 4)	500	750	Vdc
Grid No.3 (Beam Focus Electrode) Voltage	300	500	Vdc
Grid No.2 Voltage	300	300	Vdc
Grid No.1 Voltage for Picture Cutoff (Note 5)	-45~-100	-45~-100	Vdc
Target Voltage (Note 6)	Adjusted	Adjusted	V
Average "Gamma"	0.95	0.95	
Lag (Note 7)	20	20	%
Minimum peak-to peak Blanking Voltage			
When applied to Grid No.1	75	75	Vp-p
When applied to Cathode	20	20	VP-P
Field strength at the Center of Focusing Coil	41	53	Gauss
Field Strength of Adjustable Alignment Coil	0~4	0~4	Gauss
Center Resolution	750	800	TV lines
Corner Resolution	600	600	TV lines
Amplitude Response to a 400 TV Line Square-wave Test Pattern at Center of the Picture (See Fig. 5)	45	55	%
Highlight Signal Current	200	200	nA
Signal Uniformity	10	10	%

Dark Current (Note 3)	1	1	nA
Sensitivity to Tungsten Light Source (Note 8)			
Faceplate Illumination	0.5	0.5	lx
Signal Output Current	160	160	nA

Notes;

1. The capacitance, effectively the output impedance of this tube, will increase when the tube is mounted in the deflecting-yoke and focusing-coil assembly. The resistive component of the output impedance is several 100 megohms.

2. The tube can withstand the illumination contained in a focused image of the sun without damage.

3. The dark current of the E5001 is about 1 nA at room temperature. The deterioration of picture quality due to the increase of dark current is not seen until up to 60°C of face-plate temperature. (See. Fig.2)

4. The recommended ratio of grid No.4 to grid No.3 voltage is from 1.5 to 1.7 (The ratio is changeable depending on the characteristics of coil assemblies.)

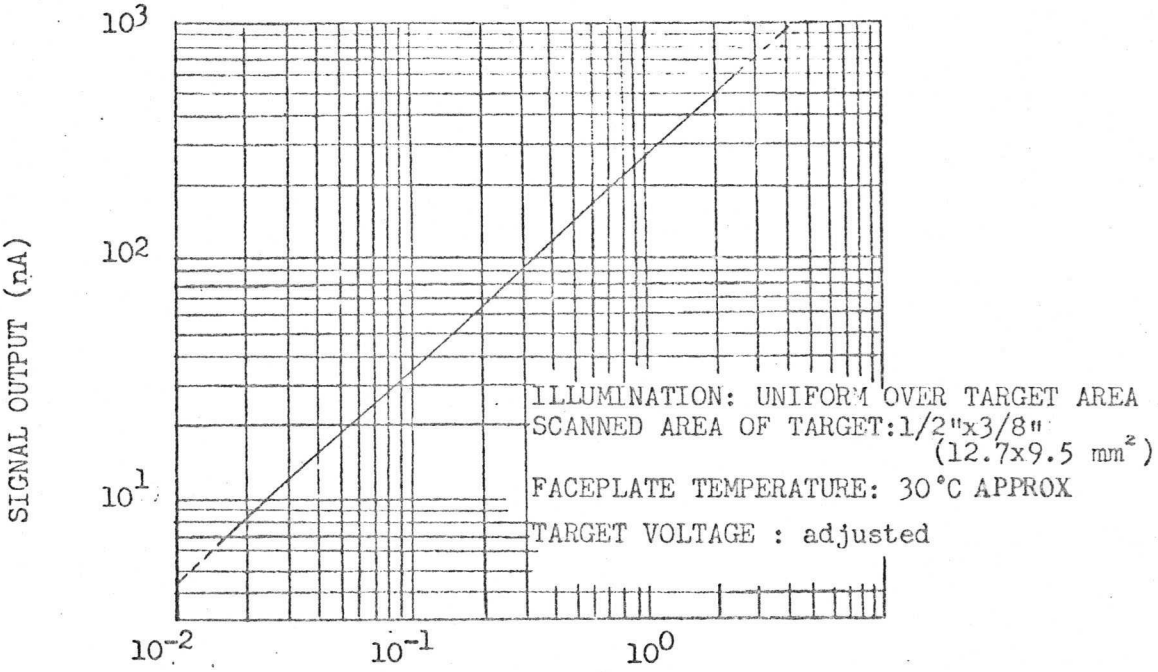
5. With no blanking voltage on grid No.1.

6. Adjust the target voltage to the optimum voltage where after image with "negative" pictures does not remain when an incident pattern is removed and the target is illuminated uniformly.

7. The ratio of residual current at 50 msec after the cessation of illumunation to the initial signal current of 200 nA with the target voltage adjusted by Note 6. (See Fig. 4)

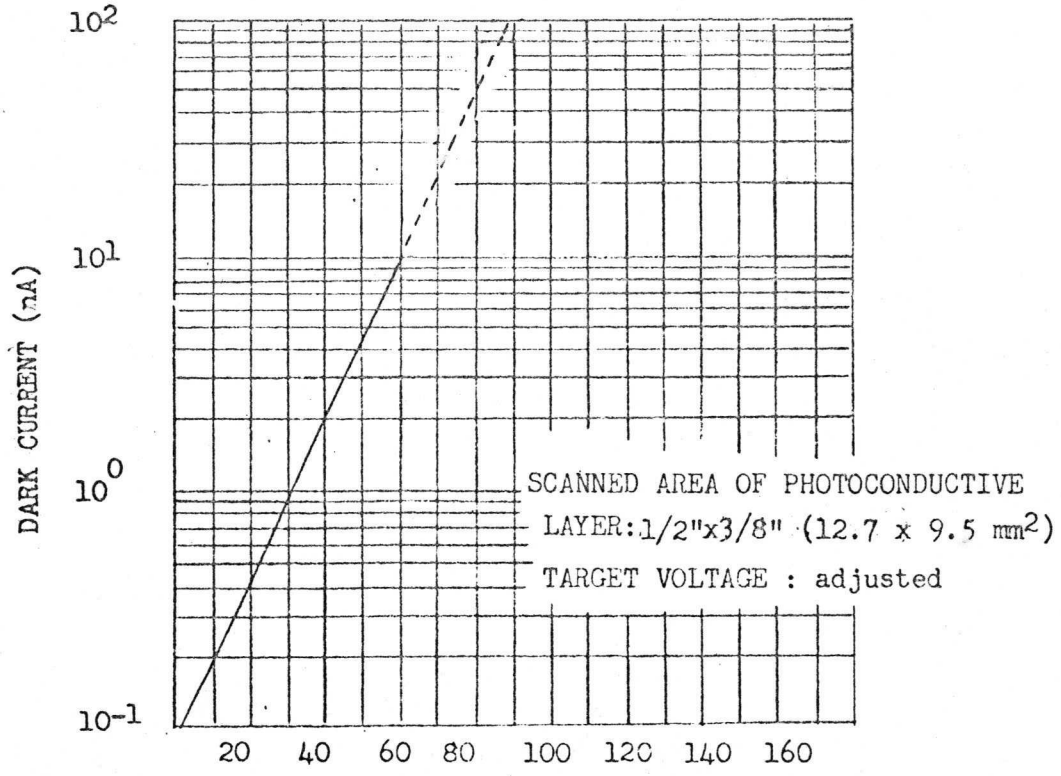
8. The tungsten lamp with the color temperature of 2854°K. (See Fig.1)

FIGURE 1. TYPICAL LIGHT TRANSFER CHARACTERISTICS



2854°K TUNGSTEN ILLUMINATION ON FACEPLATE(lx)

FIGURE 2. TYPICAL TEMPERATURE CHARACTERISTICS



FACEPLATE TEMPERATURE (°C)

FIGURE 3. TYPICAL SPECTRAL RESPONESE CHARACTERISTICS

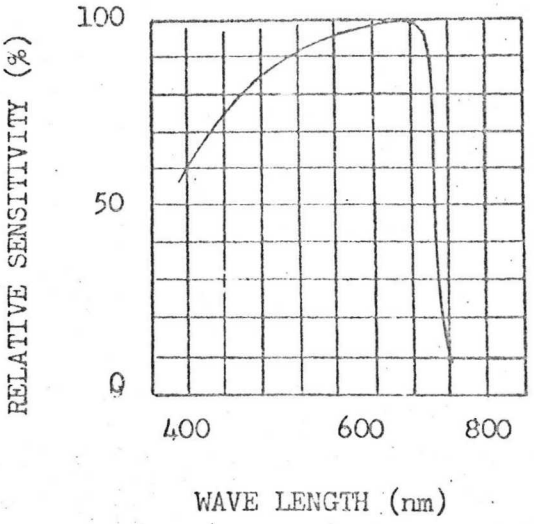
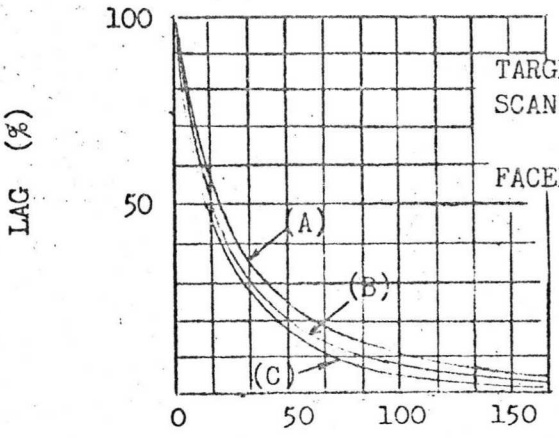


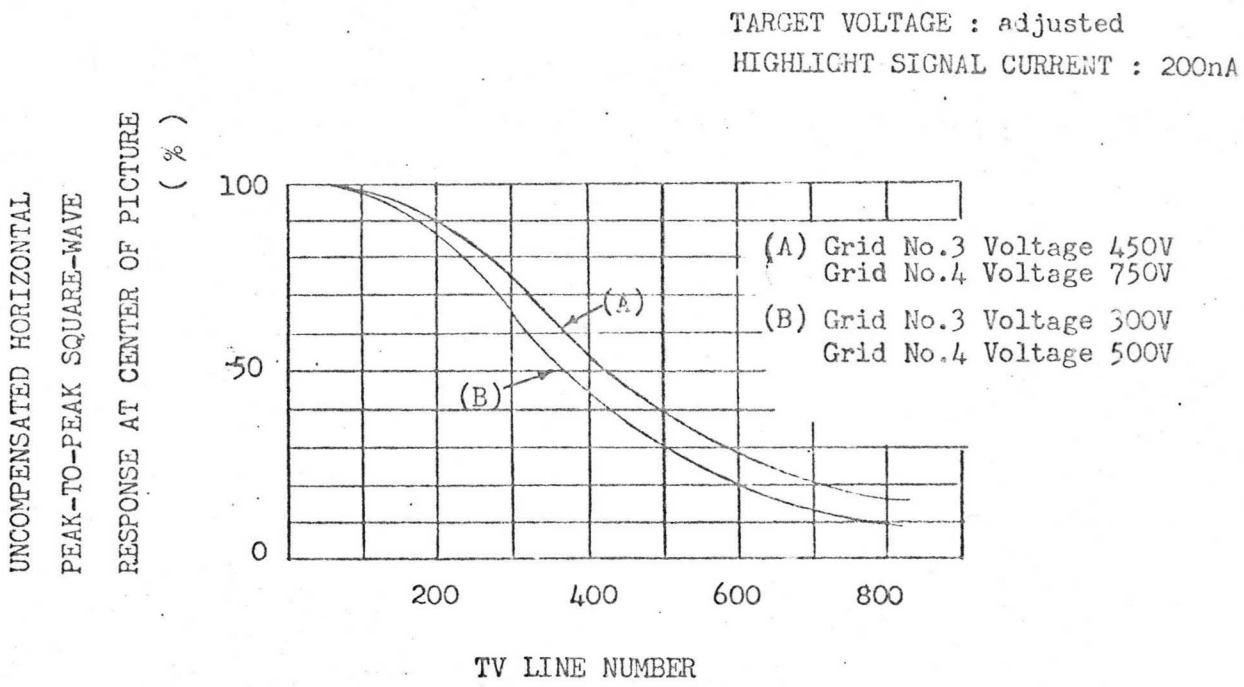
FIGURE 4. TYPICAL LAG CHARACTERISTICS



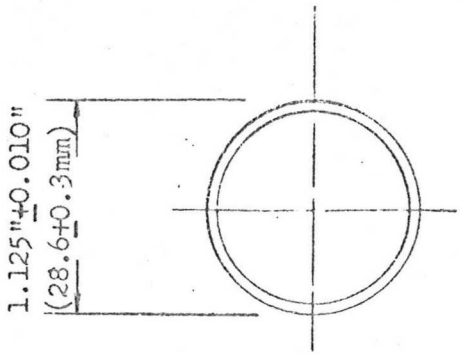
TARGET VOLTAGE: adjusted
SCANNED AREA OF TARGET: 1/2"x3/8" (12.7x9.5 mm^2)
FACEPLATE TEMPERATURE: 30 °C APPROX

CURVE	SIGNAL CURRENT (nA)
A	100
B	200
C	400

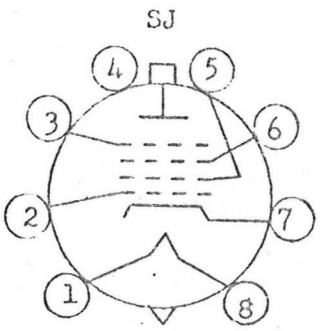
FIGURE 5. TYPICAL HORIZONTAL SQUARE-WAVE RESPONSE



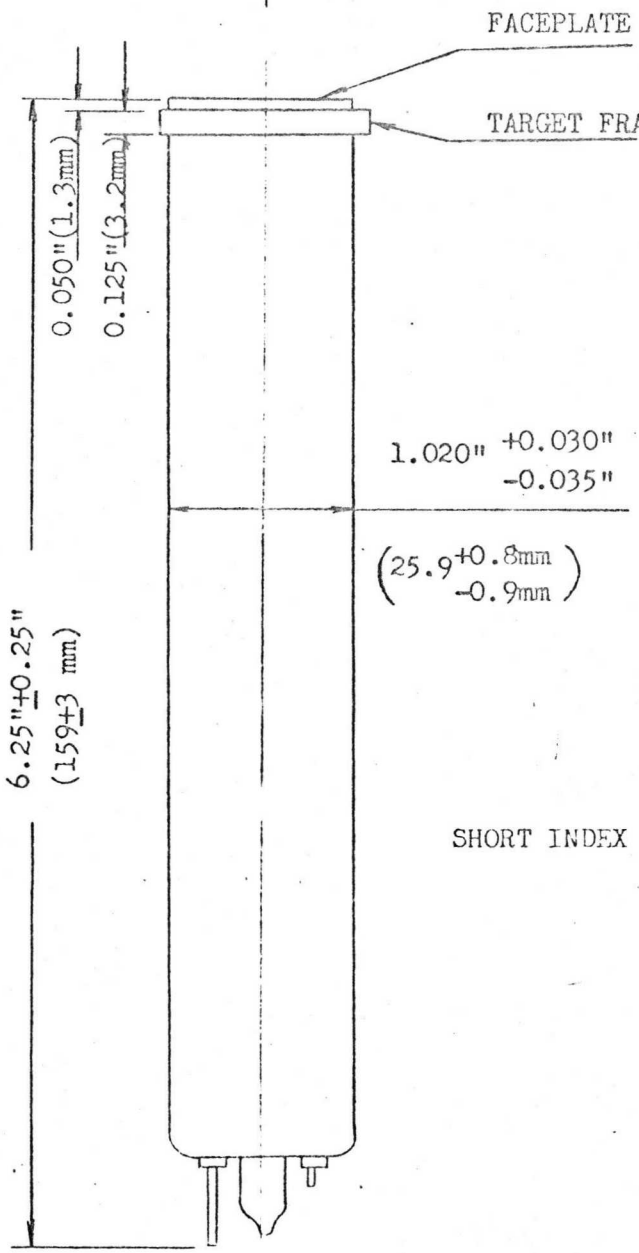
OUTLINE



BASE CONNECTIONS
(BOTTOM VIEW)



SHORT PIN



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
SJ .....TARGET

SHORT INDEX PIN: INTERNAL CONNECTION DO NOT USE.