



GENERAL ELECTRIC

INDUSTRIAL AND COMMERCIAL

VIDICONS.

- GL-7038**
- GL-7226**
- GL-7262a**
- GL-7263a**
- GL-7325**
- GL-7697**
- GL-7735a**
- GL-8511**

General Electric offers this full line of vidicons to meet a wide variety of television requirements and are specifically designed for . . .
. . . STUDIO . . . REMOTE . . . AND INDUSTRIAL APPLICATIONS

GL-8507 and GL-8541 High Resolution Vidicons Also Available—See Data Folder ETR-3837

GL-7038

Primarily designed and recommended for film pickup applications . . . also for televising live scenes under well lighted conditions . . . for monochrome or color . . . a direct replacement for the 6198a.

GL-7325

Provides higher sensitivity recommended for live pickup applications . . . features lower lag characteristics at low light levels . . . ideally suited for live pickup of industrial areas.

GL-7735a

Highest sensitivity . . . provides very high quality pictures . . . for studio and remote pickup . . . features lowest lag at low light level operation.

GL-7697

Designed for cameras with automatic sensitivity control where low values of target voltage are required . . . similar to GL 7735a in sensitivity and low lag characteristics . . . for industrial television applications.

GL-7226 LOW HEATER POWER

A short vidicon designed for transistorized cameras . . . similar to GL 7325 in sensitivity . . . for televising live scenes under normal room lighting in industrial applications . . . features low heater power cathode of 0.9 watt.

GL-8511 LOW HEATER POWER

A short vidicon designed for transistorized cameras . . . similar to GL 7226 except with lower heater power rating of 0.6 watt . . . high sensitivity photoconductor affords low lag characteristics at low light levels.

GL-7262a LOW HEATER POWER

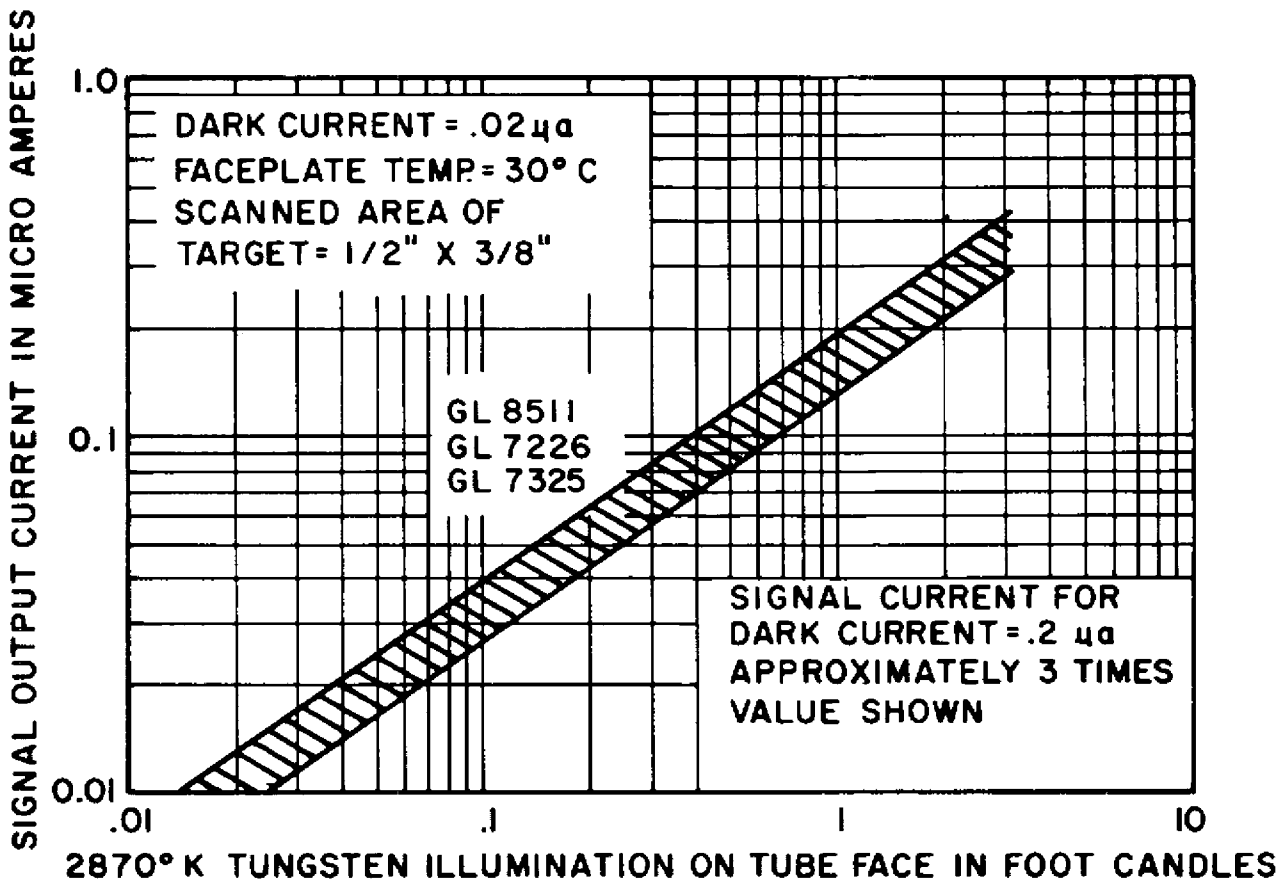
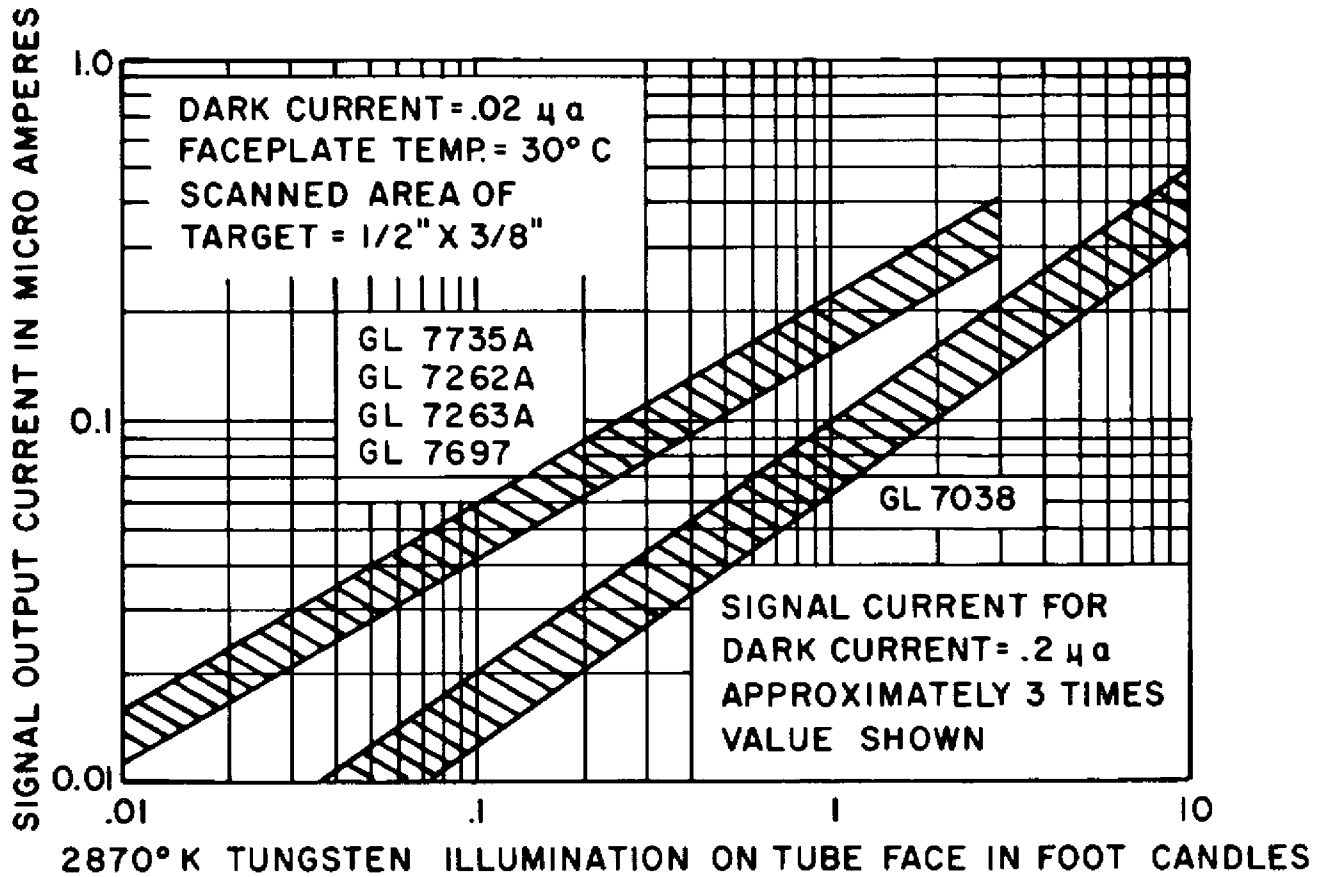
A short vidicon designed for transistorized cameras . . . low heater power rating of 0.6 watt . . . sensitivity and lag characteristics similar to GL 7735A . . . recommended for industrial applications requiring high quality picture at normal lighting levels.

GL-7263a RUGGEDIZED

This type has all the features of the GL 7262A and is designed to operate under severe shock, vibration and humidity conditions listed on page 3.

from JEDEC release #4676, April 20, 1964

LIGHT TRANSFER CHARACTERISTICS



ESSENTIAL SPECIFICATIONS AND RATINGS

ELECTRICAL—ALL TYPES

Cathode-unipotential
 Heater voltage, AC or DC 6.3±10% volts
 Heater current
 GL-7735a, GL-7325, GL-7697, GL-7038 0.6 amperes
 GL-7226 0.15 amperes
 GL-8511, GL-7262a, GL-7263a 0.09 amperes
 Focus and deflection method Magnetic
 Direct interelectrode capacitance
 Anode to all other electrodes 3.6 pf

Photoconductive layer
 Spectral response See page 5
 Rectangular image, 4 × 3 aspect ratio useful size,
 max. diagonal 0.62 inch
 Orientation—horizontal scan should be essentially parallel to a
 plane passing through the tube axis and short index pin.

MECHANICAL—ALL TYPES

Overall length
 GL-7735a, GL-7325, GL-7697, GL-7038 6.25±.25 inches
 GL-8511, GL-7226, GL-7262a, GL-7263a 5.125±.125 inches
 Greatest diameter 1.125±.010 inches
 Weight, approximate 2 ounces

Bulb T8
 Base Small button ditetar 8 pin
 (JEDEC No. E8-11)
 Socket Cinch No. 54A18088 or equivalent
 Operating position Any

MAXIMUM RATINGS—ABSOLUTE VALUES—ALL TYPES

Faceplate, scanned area 1/2 × 3/8 inch
 Illumination 1000 foot-candles
 Temperature 71° centigrade
 Target voltage 100 volts
 Target current, peak 0.60 ua
 Dark current 0.25 ua
 Grid No. 3 and Grid No. 4 voltage 750 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

TYPICAL OPERATION—AVERAGE VALUES—ALL TYPES

Faceplate, scanned area 1/2 × 3/8 inch
 Illumination See light transfer curves p. 2
 Temperature 30° to 35° centigrade
 Target voltage See special ratings
 Grid No. 3 and Grid No. 4 voltage 250 to 300 volts
 Grid No. 2 voltage 300 volts
 Grid No. 1 voltage for picture cutoff -45 to -100 volts

Minimum peak-to-peak blanking voltage
 When applied to Grid No. 1 75 volts
 When applied to cathode 20 volts
 Field strength at center of focus coil 40 gauss
 Field strength of alignment coil 0 to 4 gauss
 Resolution—minimum at center 600 TV lines
 Amplitude response See page 5

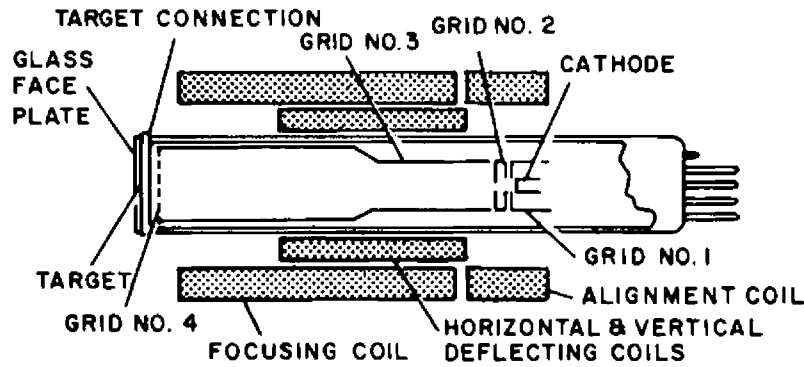
SPECIAL RATINGS—AVERAGE VALUES BY TYPE

	GL-7735a, GL-7262a, GL-7263a	GL-7325, GL-7226, GL-8511	GL-7697	GL-7038
Average sensitivity				
Faceplate illumination	1 ft-c	1 ft-c	1 ft-c	15 ft-c
Target voltage	20 to 40 volts	30 to 50 volts	10 to 30 volts	30 to 50 volts
@ dark current	0.02 ua	0.02 ua	0.02 ua	0.02 ua
Signal output	See page 2	See page 2	See page 2	See page 2
Maximum sensitivity				
Faceplate illumination	0.1 ft-c	0.2 ft-c	0.5 ft-c	2.0 ft-c
Target voltage	35 to 70 volts	40 to 100 volts	35 to 70 volts	60 to 100 volts
@ dark current	0.2 ua	0.2 ua	0.2 ua	0.2 ua
Average gamma	0.57	0.65	0.57	0.65

ENVIRONMENTAL SPECIFICATIONS FOR GL-7263a

SHOCK:	Per specification MIL-E-5400 (1/1/56) Paragraphs 3.2.21.2.1 18 impact shocks of 15G consisting of 3 shocks in opposite directions along each of 3 mutually perpendicular axes of the tube with shock pulse duration of 11±1 millisecond, with no voltages applied.	ALTITUDE:	Per specification MIL-E-5400 (1/1/56) Paragraphs 3.2.20, 3.2.20.1, 3.2.20.1.1 At temperatures from 0°C to +55°C at corres- ponding barometric pressures equivalent to sea level to 50,000 feet.
VIBRATION:	Per specification MIL-E-5272b (6/5/57) Paragraphs 4.7.1, 4.7.1.1, 4.7.1.2 Vibration for 1 hour at +25°C, 15 minutes at 0°C, and 15 minutes at +55°C.	TEMPERATURE:	Per specification MIL-E-5400 (1/1/56) Paragraph 3.2.20.2B At temperatures up to +55°C and at relative humid- ity up to 95 percent, with no voltages applied.

FUNDAMENTALS OF OPERATION



SCHEMATIC OF VIDICON AND ASSOCIATED
FOCUS, DEFLECTION AND ALIGNMENT COILS

The photoconductive layer of the vidicon tube is made up of many small elements, each of which is essentially an insulator in the dark, but conductive when illuminated. The target (signal electrode) ring makes contact with the front side of the layer and is maintained at a positive potential. A beam of electrons from the electron gun scans the rear side of the layer, and the scene to be televised is focused on the front. Each element on the rear side of the layer will rise in voltage toward the positive target voltage in proportion to the amount of the illumination from the scene. Thus, a positive voltage pattern corresponding to the focused scene is deposited on the rear side of the layer. The electron beam produced by the electron gun scans this voltage pattern and

deposits enough electrons on the back side of the photoconductor layer to reduce them to the vidicon cathode potential.

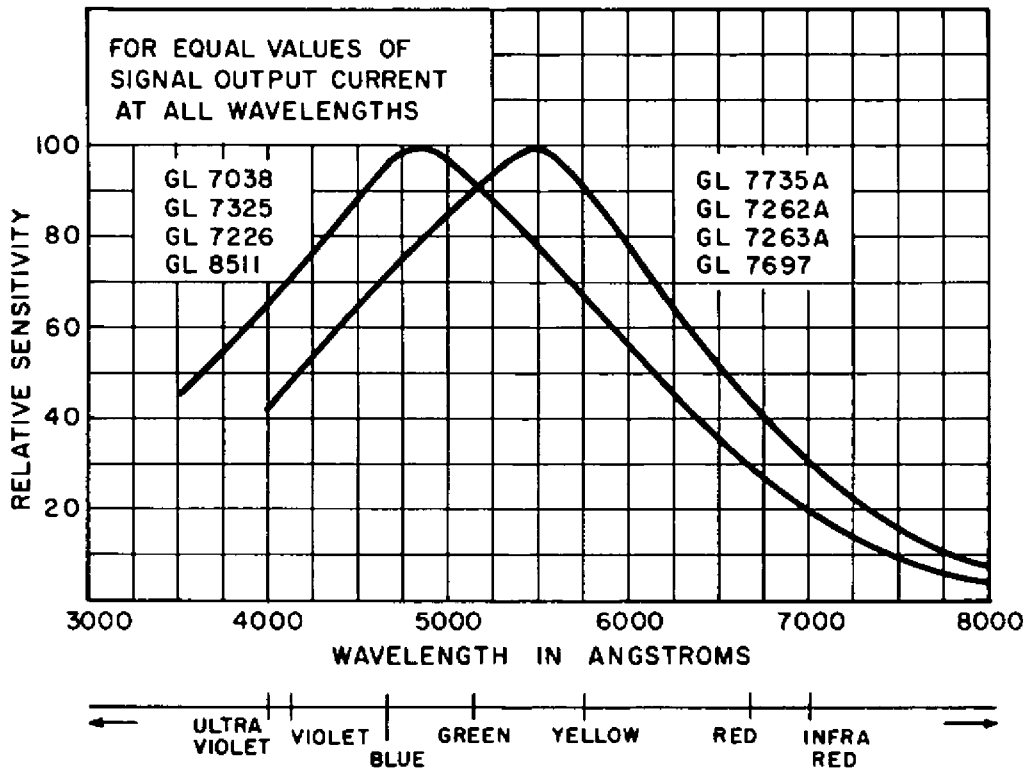
Each photoconductor element may be considered as a capacitor with one plate connected to the positive target voltage and the other plate grounded. Each plate contains internal resistance proportional to the amount of illumination striking it. Since the two sides of the photoconductive layer are connected by the external target circuit and the electron beam, a capacitive video signal current is produced. Increasing or decreasing the target voltage or the illumination of the vidicon tube will cause a corresponding increase or decrease in the video output signal from the vidicon tube.

GENERAL ELECTRIC IMAGE ORTHICONS AVAILABLE (DATA ON REQUEST)

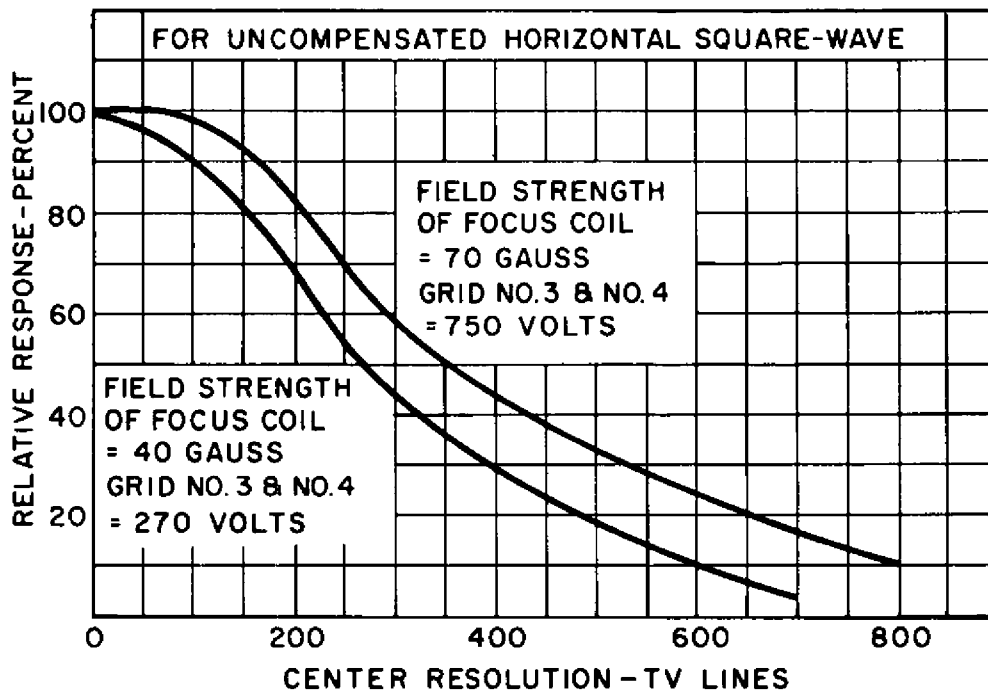
COMMERCIAL BROADCAST • NETWORK • EDUCATIONAL				
GL-7629a	high reliability very long life low light level sensitivity semiconductor target	3200-6950 Å S-10 ↓	‡equivalent ASA rating 32,000-64,000	remote black/white as low as 1 ft-c scene illumination remote color—as low as 5 ft-c scene illumination long life studio service
GL-8092a	same as GL-7629a plus: field mesh flatter fields improved corner resolution		32,000-64,000	studio color 40 to 100 ft-c illumination remote color
GL-5820a	glass target good gray scale stable performance		8000-16,000 (new tube)	studio black/white 100 ft-c scene illumination educational TV
GL-7293	same as GL-5820a plus: field mesh flatter fields improved corner resolution		8000-16,000 (new tube)	studio black/white high quality monochrome educational TV
GL-8093	same as GL-7293 plus: very high signal: noise ratio for video tape recording and color		5000-10,000 (new tube)	high quality video tape recording high quality color educational TV

‡ Equivalent ASA ratings based on exposure at knee of transfer characteristic curve and frame time of 1/30 sec.

SPECTRAL SENSITIVITY CHARACTERISTICS



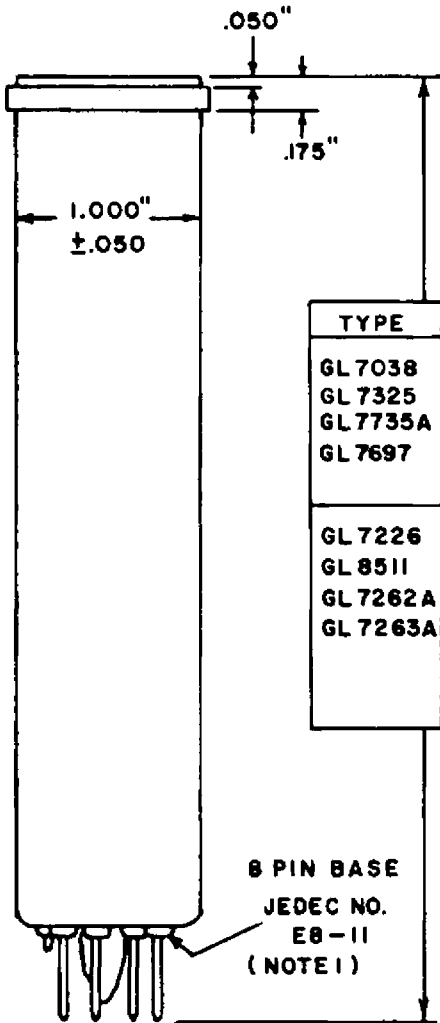
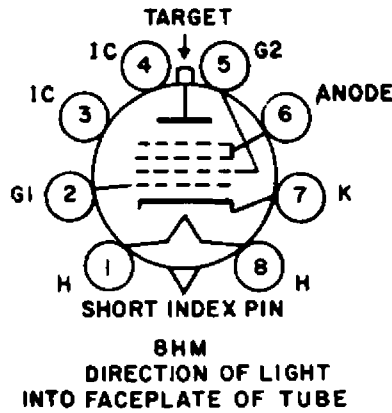
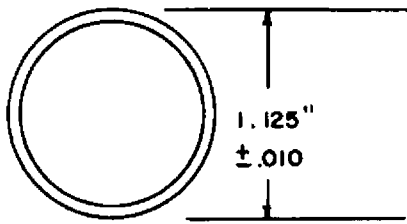
TYPICAL AMPLITUDE RESPONSE



As indicated in the above comparison, both amplitude response and the limiting resolution for these vidicons may be significantly improved by:

1. Increasing Grid No. 3 and Grid No. 4 voltage to 750 volts.
2. Increasing the field strength of the focus coil to 70 gauss.
3. Increasing the deflection power to a sufficient value to maintain proper scanning.
4. Providing adequate provisions for cooling due to increased power requirements.

OUTLINE SPECIFICATIONS



TYPE	LENGTH
GL 7038 GL 7325 GL 7735A GL 7697	6.25 ± .25
GL 7226 GL 8511 GL 7262A GL 7263A	5.125 ± .125

- PIN 1: HEATER
- PIN 2: GRID No. 1
- PIN 3: INTERNAL CONNECTION --DO NOT USE
- PIN 4: INTERNAL CONNECTION --DO NOT USE
- PIN 5: GRID No.2
- PIN 6: GRID No. 3 and No. 4
- PIN 7: CATHODE
- PIN 8: HEATER
- FLANGE: TARGET
- SHORT INDEX PIN: INTERNAL CONNECTION DO NOT USE

NOTES

1. Base-pin positions fit 0.25 inch thick, 10-hole flat-plate gage with holes located as follows: 9 holes, 0.0550 (±0.0005) inch Dia. equally spaced, 0.2052 (±0.0005) inch apart on a circle, 0.6000 (±0.0005) inch Dia. plus a center hole, 0.300 (±0.001) in. Dia., concentric with 9-hole circle
2. All dimensions are shown in inches.

FOR COMPLETE INFORMATION AND AVAILABILITY:

In the United States:

General Electric Company
 Pickup Tube Operation
 Syracuse, New York
 Tel. 456-3210
 Clifton, New Jersey
 200 Main Ave.
 Tel. GR 2-8100
 Chicago, Illinois
 3800 N. Milwaukee Ave.
 Tel. SP 7-1600
 Los Angeles, California
 11840 W. Olympic Blvd.
 Tel. BR 2-8566 or GR 9-7765

In Canada: Canadian General Electric Company, Ltd.
 189 Dufferin Street
 Toronto, Ontario
 LE 4-6311

Outside U.S.A. and Canada: International General Electric Company
 Electronic Component Sales
 159 Madison Avenue
 New York 16, N. Y., U.S.A.

or: Local General Electric Broadcast Tube Distributor

Printed in U.S.A.