7223

PHOTOJUNCTION CELL

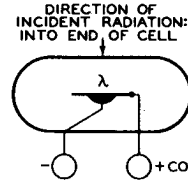
GERMANIUM P-N ALLOY JUNCTION, HEAD-ON TYPE
HAVING S-14 RESPONSE

For computer, punched-tape, punched-card, and sound pickup-from-film applications

DATA

General:

Spectral Response	S-14
Wavelength of Maximum Response	15000 angstroms
Window	Glass
Minimum diameter	0.060"
Length (Excluding flexible leads)	0.520" + 0.060" − 0.100"
Diameter	0.080" ± 0.003"
Envelope Seals	Hermetic
Operating Position	Any
Weight (Approx., avoirdupois)	3 grains
Leads, Flexible	2
Minimum length	1"
Diameter and polarity	*See Dimensional Outline*



λ *indicates that the primary characteristic of the element within the envelope symbol is designed to vary under the influence of light.*

Maximum Ratings, *Absolute Values:*

POLARIZING VOLTAGE	50 max.	volts
POWER DISSIPATION	0.025 max.	watt
AMBIENT TEMPERATURE	50 max.	°C

Characteristics:

Under conditions with polarizing voltage of 2.5 volts and ambient temperature of 25° C, unless otherwise noted

	Min.	*Median*	*Max.*	
Sensitivity:				
Radiant intensity, at 15000 angstroms	–	0.68	–	μa/watt/meter²
Illumination†▲	0.1	0.2	0.5	μa/ft-c
Dark Current:				
At polarizing voltage of 2.5 volts	–	–	14	μa
At polarizing voltage of 50 volts	–	–	35	μa

†,▲: See next page.

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Photocurrent:	
Rise	*See Curve*
Decay	*See Curve*

† For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870° K.

▲ The value of illumination incident on the window is 73 foot-candles.

OPERATING CONSIDERATIONS

The *flexible leads* of the 7223 are usually soldered to the circuit elements. Soldering of the leads may be made close to the seals provided care is taken to conduct excessive heat away from the seals. Otherwise, the heat of soldering will open the seals and damage the cell.

A *clamp* around the metal shell of the cell may be used to hold the cell in position. However, care must be taken in clamping to avoid crushing or otherwise damaging the metal shell, the glass window, or the lead seals. *Do not solder or braze directly to the metal shell* of the cell.

The cell must be *polarized* by connecting the positive voltage to the copper-plated lead.

The use of an optical system to *focus the incident radiation* onto the window is suggested, especially when the level of incident radiation is low.

Exposure of the 7223 to intense radiation, such as focused sunlight, should be avoided under all conditions including the condition when no voltage is applied to the cell. Permanent damage to the cell may result if it is exposed to radiant energy so intense as to cause excessive heating of the cell.

With no radiation on the window of the cell, some *dark current* will flow across the junction. This current can be reduced, as shown in the accompanying curve, by operation of the cell at reduced ambient temperature.

SPECTRAL-SENSITIVITY CHARACTERISTIC of Photojunction Cell having S-14 Response is shown at the front of this Section

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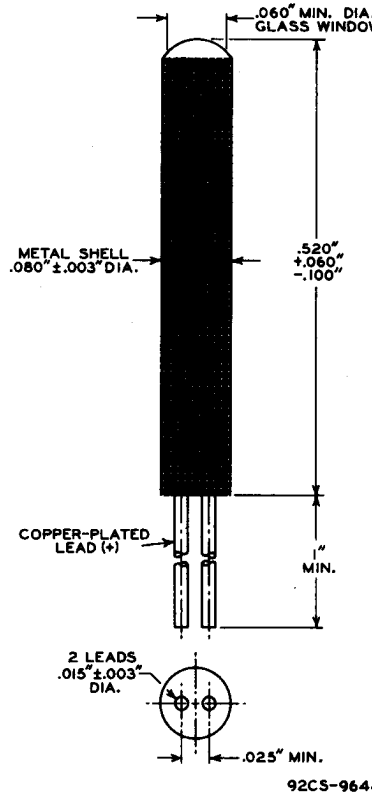

RCA

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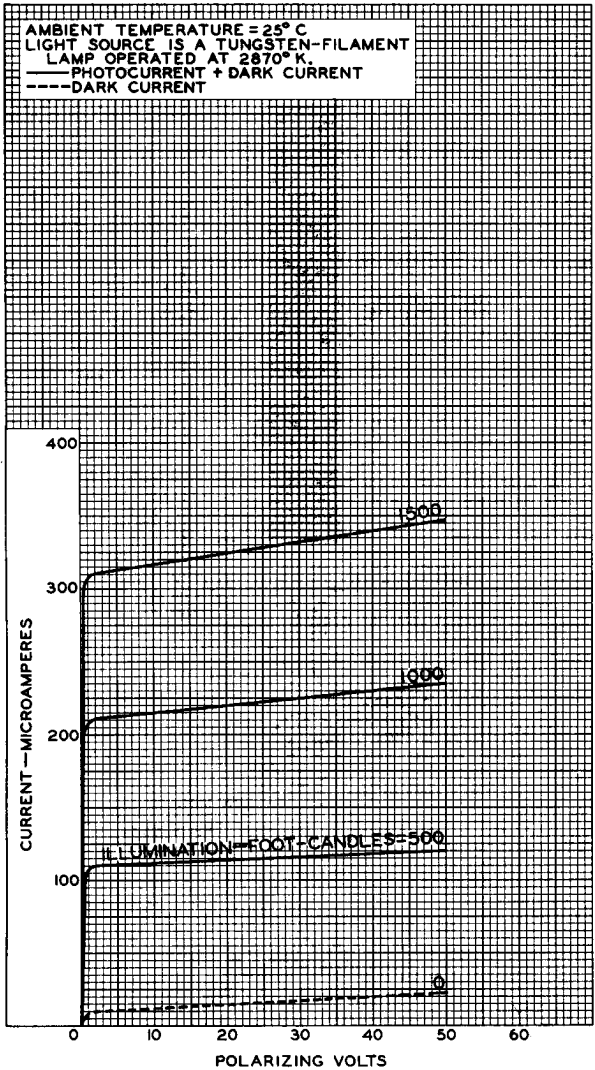
AVERAGE CHARACTERISTICS



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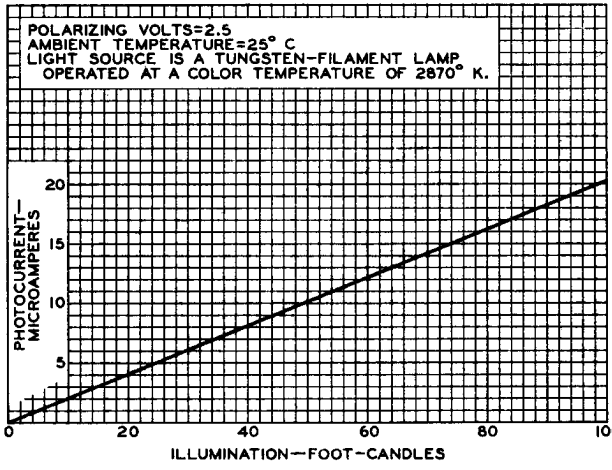
TYPICAL CHARACTERISTIC



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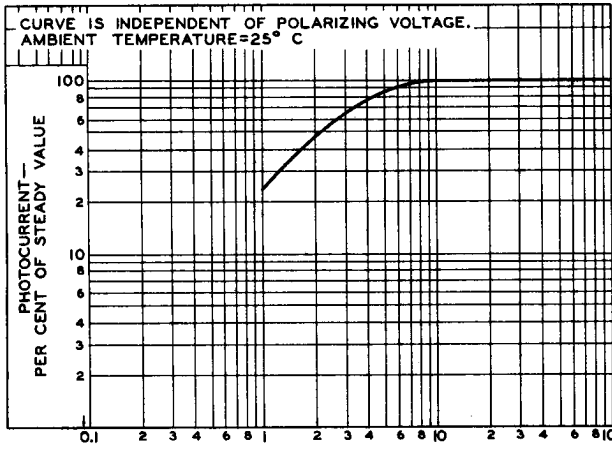
TYPICAL RISE CHARACTERISTIC



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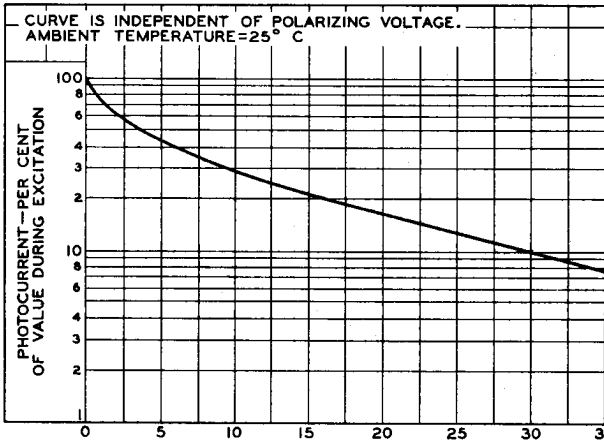
TYPICAL DECAY CHARACTERISTIC



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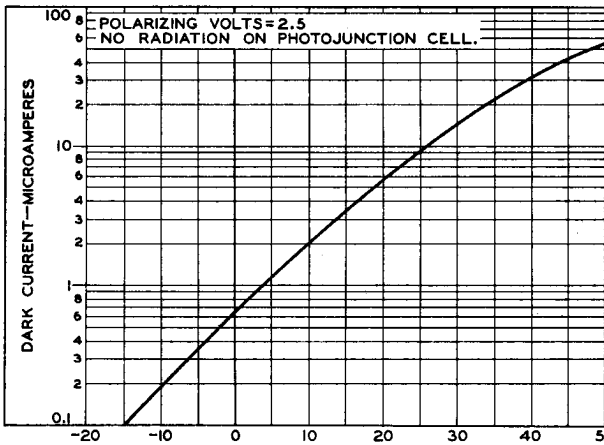
TYPICAL CHARACTERISTIC



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