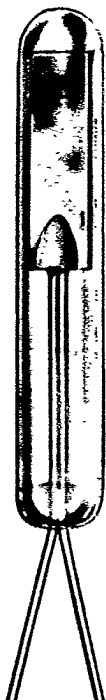
**SILICON SENSORS, INC.**

Highway 18 East  
Dodgeville, Wisconsin 53533  
Telephone: (608) 935-2707

## GLASS ENCAPSULATED PHOTO CELL SS-400

# TECHNICAL BULLETIN

**SS  
400**


This glass encapsulated, hermedically sealed silicon photo cell assembly provides a rugged unit that can be readily handled and at the same time assure highest performance standards.

The uses of this device vary from computer and card and tape readers to simple counting circuits.

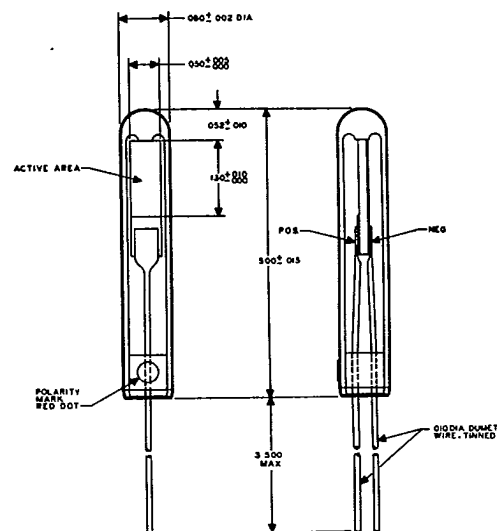


FIG. 1

### TEST CONDITIONS

#### FORWARD CHARACTERISTICS

Color Temperature: 2800° Kelvin  
Tungsten  
Illumination Level: 1250 FTC.  
Load Resistance: 1000 ohms  
Test Temperature: 55°C

#### DARK REVERSE CHARACTERISTICS

Illumination Level: less than 1 ftc.  
Test Voltage: -1.0 volt d.c.  
Test Temperature: 55°C

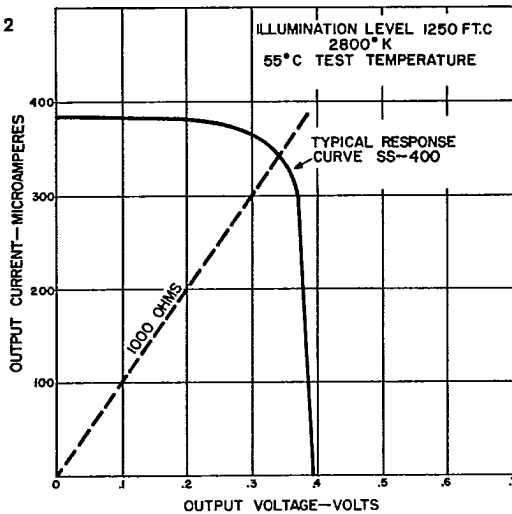
### ELECTRICAL OUTPUT SPECIFICATIONS

TYPE	OUTPUT VOLTAGE (MINIMUM)	DARK REVERSE CURRENT (MAXIMUM)
SS-400-1	300 mv	5 $\mu$ a
SS-400-2	300 mv	10 $\mu$ a
SS-400-3	300 mv	20 $\mu$ a
SS-400-4	250 mv	10 $\mu$ a
SS-400-5	250 mv	20 $\mu$ a
SS-400-6	250 mv	50 $\mu$ a
SS-400-7	200 mv	—

Specifications: **Mechanical** Glass Encapsulated, Hermedically Sealed.

## CURRENT-VOLTAGE CHARACTERISTICS FOR A TYPICAL SS-400

FIG. 2



## OPEN CIRCUIT VOLTAGE

The open circuit voltage varies logarithmically with illumination level. It is only a function of illumination level and not a function of converter area or other cell parameters.

## SHORT-CIRCUIT CURRENT

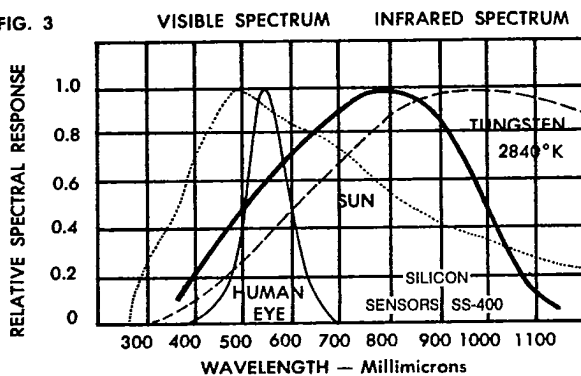
The short circuit current varies linearly with illumination level. The magnitude of the short circuit current is a function of cell area as well as the illumination level.

## LOAD CONDITIONS

The output voltage and currents for normal load conditions can be determined by referring to the I-V characteristics, Fig. 2. For any particular illumination level, a maximum power point can be determined and then the load impedance can be optimized for maximum power transfer.

## RELATIVE SPECTRAL RESPONSE OF SILICON SENSORS - SILICON SS-400 AND ILLUMINATION SOURCES

FIG. 3

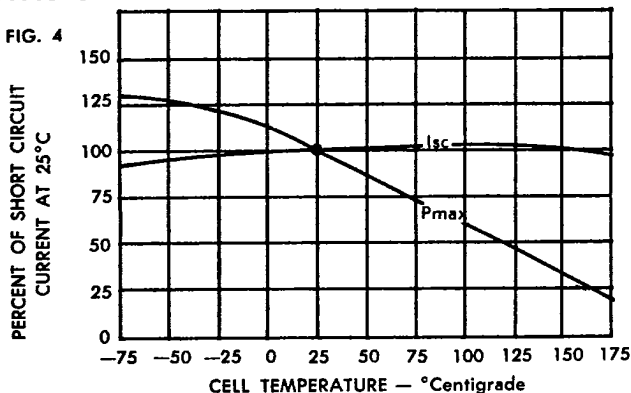


**SPECTRAL RESPONSE** — The curve in Figure 3, shows the response of Silicon Sensors SS-400 in the visible and near infrared range. This characteristic allows for SS-400 use in photographic and infra-red detector applications.

**ILLUMINATION SOURCES** — A light source must have a spectral energy distribution which is similar to the SS-400 response. Fig. 3 shows that both sunlight and tungsten light (at a color temperature of 2840° K) are suitable for use with Silicon Sensors SS-400.

## TYPICAL VARIATION OF MAXIMUM POWER OUTPUT AND SHORT CIRCUIT CURRENT WITH TEMPERATURE

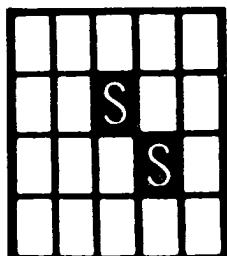
FIG. 4



**TEMPERATURE CHARACTERISTICS** — The short-circuit current and the output current for maximum power are essentially constant over the operating temperature range of the SS-400. The open-circuit voltage and output voltage for maximum power decrease linearly with increasing temperature. Fig. 4 shows the variation of short-circuit current and maximum available power over the operating temperature range.

*Our staff of experienced engineers are always available to discuss your particular problems. Let our experience and ability save you time and money.*

CALL OR WRITE FOR FURTHER INFORMATION



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