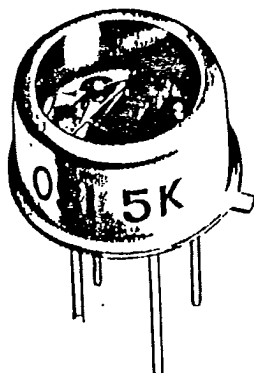




TECHNICAL DATA SHEET

Silicon Photodiode with integrated amplifier

SERIES OSI 5



Centronic Photodetectors type OSI 5 are specifically designed to simplify the difficulties normally associated with opto-electronic interfaces. They provide a simple solution to many of the problems encountered in the measurement and control of light.

The OSI 5 consists of a CENTRONIC high efficiency silicon photodiode combined with a high gain low noise amplifier in a TO-5 package. It is designed particularly for use where accurate measurements are needed of low light levels, and medium speed variation in such light levels. Its small size and excellent temperature coefficients make it ideally suited for use under adverse conditions.

Of particular note is the simplicity with which an OSI 5 may be used. Any supply voltage between $\pm 2.5V$ and $\pm 18V$ may be used. A single output line gives a voltage with respect to earth (Pin 1) proportional to the input light level, up to a maximum only slightly less than the power rail. Correction for dark level output is not normally required due to its extremely low value. The output may be short circuited to ground or either power rail without risk of damage. Changes in ambient temperature also cause only minimal variation in signal level, typically $150\mu V/^{\circ}C$.

The OSI 5 Series offers a broad spectral range with devices optimised for I.R., blue or U.V. sensitivity.

APPLICATIONS INCLUDE

Light intensity measurements
Light fluctuation detection
Optical spectroscopy
Pollution monitoring
Alarm systems
Optical shaft encoders
Automated inspection and control
Flow monitoring

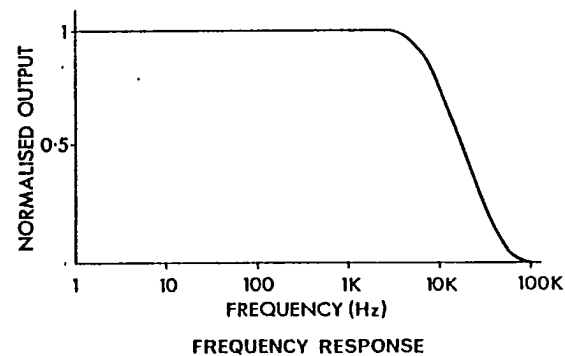
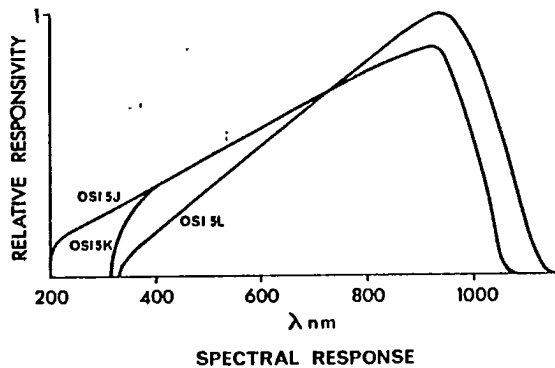
SPECIAL FEATURES OF THE CENTRONIC OSI 5 SERIES

- Very high responsivity
- Broad spectral range
- Low noise
- Linear response
- TTL compatible
- Excellent power supply noise rejection
- Excellent temperature characteristics
- Rugged construction
- TO-5 encapsulation
- Low output impedance
- Short Circuit proof
- Simple to use

CENTRONIC INC.
E-O Division

1829-B DeHavilland Dr. • Newbury Park, California 91320-1702 • (805) 499-5902 • FAX: (805) 499-7770

Morgan
ELECTRONICS DIVISION



MECHANICAL SPECIFICATION

TO.5 can with 4 leads

Gold-Plated leads:

 $\frac{1}{2}$ " length

Active light sensitive area:

5 mm²

ABSOLUTE MAXIMUM RATINGS

Supply Voltage:

 ± 18 V.

Output Short Circuit Duration:

Indefinite

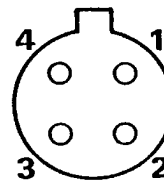
Storage Temperature:

 -65°C to 100°C

Operating Temperature:

 0°C to 70°C

1. Earth
2. Output
3. V+
4. V- (Connected to can)

ELECTRICAL SPECIFICATION — All at $V_s \pm 15$ V. and 25°C unless otherwise stated.

Parameter	Conditions	Min.	Typ.	Max.	Units
O/P Dark Level	$R_L \geq 2\text{K}\Omega$	-9	+20	+60	mV
O/P Saturation Level			-12		V
O/P Resistance ¹			75		Ω
O/P Short Circuit Current			6		mA
O/P Noise Voltage			1		mV rms
Responsivity	253nm OSI 5J	15	30	3	$\text{mV}/\mu\text{W}^{-1}\text{cm}^2$
"	425nm OSI 5K	30	60		"
"	950nm OSI 5L	180	220		"
"	1065nm OSI 5L	100	150		"
Supply voltage (V+)	$R_L = \infty$	2.5	15	18	V
Supply voltage (V-)		-2.5	-15	-18	V
Supply current			0.5	1.3	mA
Supply Voltage					
Rejection Ratio		150	50		$\mu\text{V}/\text{V}$
Bandwidth	Upper 3dB point	3	5		kHz
Rise Time ²	$C_L = 0$		30	50	$\mu\text{sec.}$
Fall Time ²	$C_L = 0$		30	50	$\mu\text{sec.}$
Dark Level	$20^{\circ}\text{C} \leq t_A \leq 50^{\circ}\text{C}$		150	500	$\mu\text{V}/^{\circ}\text{C}$
Temperature Coefficient					

Notes.

1. At 5KHz. Drops to 0.01 at D.C.
2. Time for output signal to reach 90% of true reading after application of a step change in light intensity.