

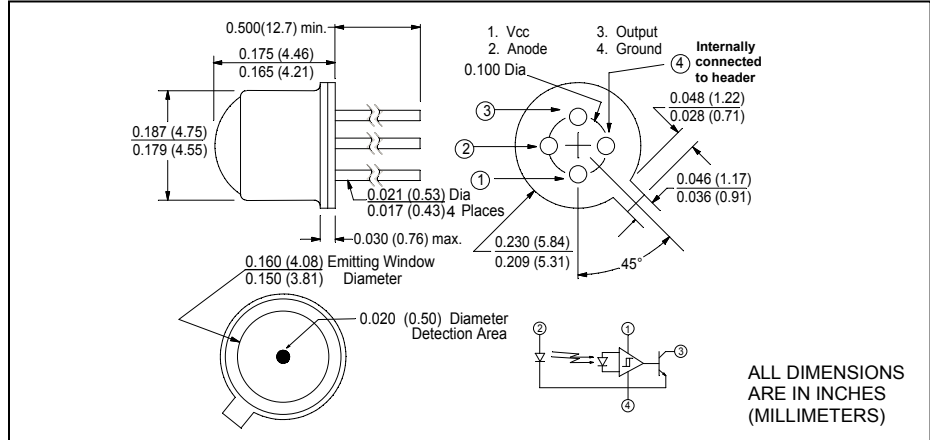
# CLI700

## IRED – Photo-IC

### Reflective Object Sensor



March, 2002



ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)

#### features

- 0.020" dia. light pipe aperture
- TO-72 package
- Buffer, open collector output

#### description

The CLI700 consists of an 880nm AlGaAs IRED and a buffer, open collector photo-IC mounted on a custom TO-72 header. The IRED emits a broad radiation pattern through the formed clear epoxy lens. Radiation reflected from the target is received by a 0.020" diameter fiber optic light pipe attached to the active area of the photo-IC. Other photo-IC options are available. See the CLL series data sheet on our website.

#### absolute maximum ratings (T<sub>A</sub> = 25°C unless otherwise stated)

storage temperature .....	-40°C to +125°C
operating temperature .....	-40°C to +100°C
lead soldering temperature <sup>(1)</sup> .....	260°C

#### IRED

continuous forward DC current <sup>(2)</sup> .....	35mA
reverse DC voltage .....	5V
continuous power dissipation <sup>(3)</sup> .....	100mW

#### PHOTO-IC

supply voltage .....	4.5V to 18V
output sink current .....	25mA
voltage at output lead (open collector) .....	30V

#### note:

1. 0.06" (1.5mm) from the header for 5 seconds maximum
2. Derate linearly 0.37mA/°C from 25°C free air temperature to T<sub>A</sub> = +100°C.
3. Derate linearly 1.07mW/°C from 25°C free air temperature to T<sub>A</sub> = +100°C.

**definition:** Output is buffer, open collector. Output is HIGH (OFF) when reflected light is sensed and LOW (ON) when reflected light is not sensed.

#### electrical characteristics (T<sub>A</sub> = 25°C and V<sub>CC</sub> = 5.0V unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
V <sub>F</sub>	IRED forward voltage	-	1.50	1.65	V	I <sub>F</sub> = 20mA
I <sub>R</sub>	IRED reverse current	-	-	10	μA	V <sub>R</sub> = 5V
λ <sub>P</sub>	Peak emission wavelength	-	880	-	nm	I <sub>F</sub> = 20mA
BW	Spectral bandwidth at half power points	-	80	-	nm	I <sub>F</sub> = 20mA
I <sub>CC</sub>	Sensor supply current	-	4.0	10.0	mA	V <sub>CC</sub> =15V
V <sub>OL</sub>	Low level output voltage <sup>(4)</sup>	-	0.3	0.5	V	I <sub>C</sub> = 15mA, I <sub>F</sub> = 0 or 35mA
		-	0.5	0.8	V	I <sub>C</sub> = 25mA, I <sub>F</sub> = 0 or 35mA
I <sub>OH</sub>	High level output current <sup>(5)</sup>	-	-	1.0	μA	I <sub>F</sub> = 35mA, V <sub>OH</sub> = 25V
I <sub>FT</sub>	Turn-on threshold (IRED current) <sup>(5)</sup>	-	-	7.0	mA	d = 0.03 inches
I <sub>F(+)</sub> /I <sub>F(-)</sub>	Hysteresis	-	12	-	%	
t <sub>r</sub> , t <sub>f</sub>	Output rise and fall time	-	200	500	ns	R <sub>L</sub> =200Ω, duty cycle = 50%
t <sub>P</sub>	Propagation delay	-	-	80	μs	R <sub>L</sub> =200Ω, duty cycle = 50%

- notes:**
4. No reflective surface.
  5. Measured using a Kodak 90% diffuse reflectance neutral white test card.

Clairex reserves the right to make changes at any time to improve design and to provide the best possible product.

Revised 3/16/06