

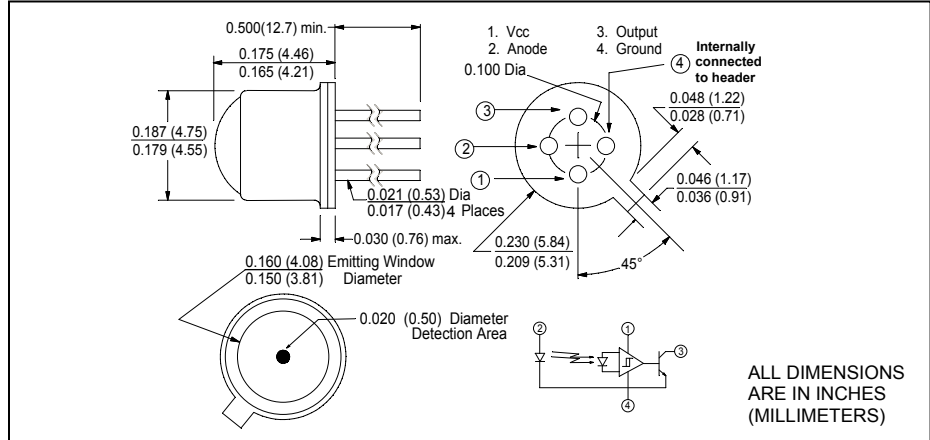
# CLI700

## 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 ( $T_A = 25^\circ\text{C}$ 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  $T_A = +100^\circ\text{C}$ .
3. Derate linearly 1.07mW/°C from 25°C free air temperature to  $T_A = +100^\circ\text{C}$ .

**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 ( $T_A = 25^\circ\text{C}$ and $V_{CC} = 5.0\text{V}$ unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
$V_F$	IRED forward voltage	-	1.50	1.65	V	$I_F = 20\text{mA}$
$I_R$	IRED reverse current	-	-	10	$\mu\text{A}$	$V_R = 5\text{V}$
$\lambda_P$	Peak emission wavelength	-	880	-	nm	$I_F = 20\text{mA}$
BW	Spectral bandwidth at half power points	-	80	-	nm	$I_F = 20\text{mA}$
$I_{CC}$	Sensor supply current	-	4.0	10.0	mA	$V_{CC} = 15\text{V}$
$V_{OL}$	Low level output voltage <sup>(4)</sup>	-	0.3	0.5	V	$I_C = 15\text{mA}, I_F = 0$ or 35mA
		-	0.5	0.8	V	$I_C = 25\text{mA}, I_F = 0$ or 35mA
$I_{OH}$	High level output current <sup>(5)</sup>	-	-	1.0	$\mu\text{A}$	$I_F = 35\text{mA}, V_{OH} = 25\text{V}$
$I_{FT}$	Turn-on threshold (IRED current) <sup>(5)</sup>	-	-	7.0	mA	d = 0.03 inches
$I_F(+)/I_F(-)$	Hysteresis	-	12	-	%	
$t_r, t_f$	Output rise and fall time	-	200	500	ns	$R_L = 200\Omega$ , duty cycle = 50%
$t_P$	Propagation delay	-	-	80	$\mu\text{s}$	$R_L = 200\Omega$ , 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.

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