

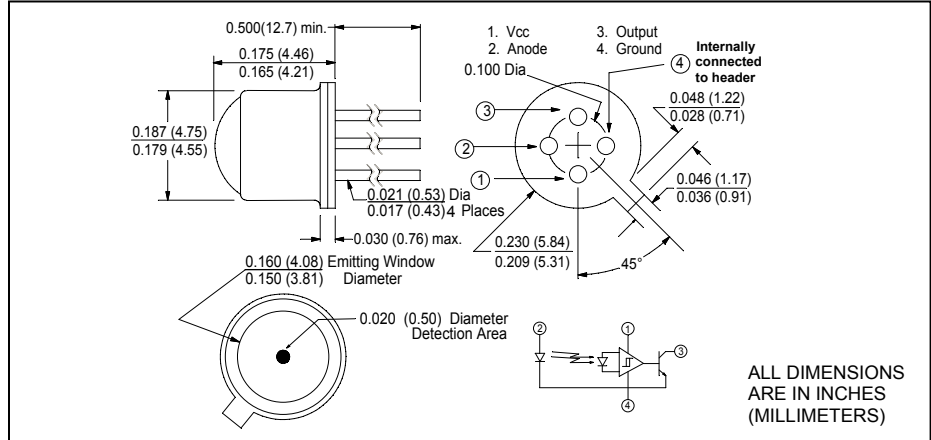
CLI700

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 ⁽¹⁾	260°C

IRED

continuous forward DC current ⁽²⁾	35mA
reverse DC voltage	5V
continuous power dissipation ⁽³⁾	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	μA	$V_R = 5\text{V}$
λ_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 ⁽⁴⁾	-	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 ⁽⁵⁾	-	-	1.0	μA	$I_F = 35\text{mA}, V_{OH} = 25\text{V}$
I_{FT}	Turn-on threshold (IRED current) ⁽⁵⁾	-	-	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	μs	$R_L = 200\Omega$, 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.

Revised 3/16/06