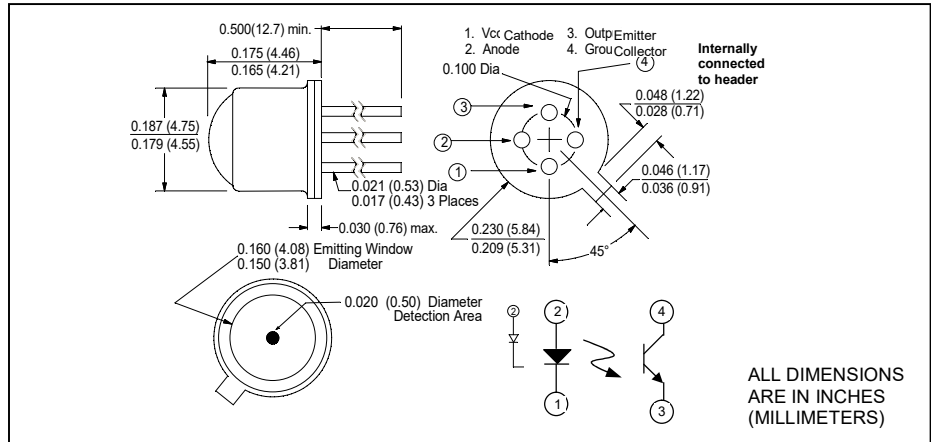


CLI710

IRED – Phototransistor

Reflective Object Sensor



features

- 0.020" dia. light pipe aperture
- TO-72 package
- analog output

description

The CLI710 consists of an 880 nm AlGaAs IRED and a phototransistor 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 phototransistor. For assistance or other configurations, contact Clairex.

absolute maximum ratings ($T_A = 25^\circ\text{C}$ unless otherwise stated)

storage temperature	-40°C to +80°C
operating temperature	-40°C to +65°C
lead soldering temperature ⁽¹⁾	260°C

IRED

continuous forward DC current ⁽²⁾	35 mA
reverse DC voltage	3 V
continuous power dissipation ⁽³⁾	100 mW

PHOTOTRANSISTOR

collector-emitter voltage	30 V
emitter-collector voltage	5 V
continuous power dissipation ⁽⁴⁾	100 mW

note:

1. 0.06" (1.5 mm) from the header for 5 seconds maximum
2. Derate linearly 0.75 mA/°C from 25°C free air temperature to $T_A = +65^\circ\text{C}$.
3. Derate linearly 2.25 mW/°C from 25°C free air temperature to $T_A = +65^\circ\text{C}$.
4. Derate linearly 2.25 mW/°C from 25°C free air temperature to $T_A = +65^\circ\text{C}$.
5. Measured using a Kodak 90% diffuse reflectance neutral white test card.
6. No reflective surface. $I_{CX(\text{ratio})} = I_L(\mu\text{A})/I_{CX}(\mu\text{A})$.

electrical characteristics ($T_A = 25^\circ\text{C}$ and $V_{CC} = 5\text{ V}$ unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
Input IRED						
V_F	Forward voltage	-	1.5	1.65	V	$I_F = 20\text{ mA}$
I_R	Reverse current	-	-	10	μA	$V_R = 3\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	30	-	-	V	$I_C = 1\text{ mA}, I_F = 0, E_e = 0$
$V_{(BR)ECO}$	Emitter-collector breakdown voltage	5	-	-	V	$I_E = 100\ \mu\text{A}, I_F = 0, E_e = 0$
I_D	Dark current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_e = 0$
Coupled						
I_L	Light current ⁽⁵⁾	150	250	-	μA	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}, d = 0.030"$
$I_{CX(\text{ratio})}$	Crosstalk ratio ⁽⁶⁾	3	10	-	-	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$

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