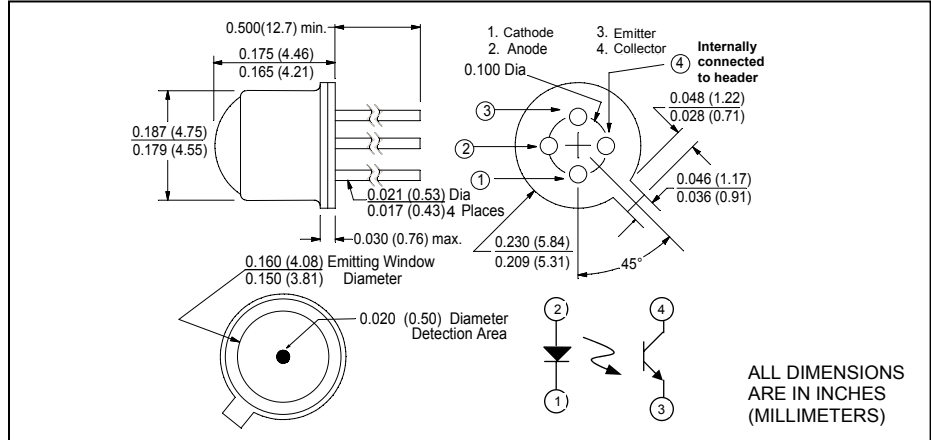


CLI710

IRED – Phototransistor Reflective Object Sensor



March, 2002



ALL DIMENSIONS
ARE IN INCHES
(MILLIMETERS)

features

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

description

The CLI710 consists of an 880nm 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, call Clairex.

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	260°C

IRED

continuous forward DC current ⁽¹⁾	35mA
reverse DC voltage	5V
power dissipation ⁽²⁾	100mW

PHOTOTRANSISTOR

collector-emitter voltage	30V
emitter-collector voltage	5V
power dissipation ⁽³⁾	100mW

note:

1. Derate linearly 0.37mA/°C from 25°C free air temperature to $T_A = +100^\circ\text{C}$.
2. Derate linearly 1.07mW/°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 $T_A = +100^\circ\text{C}$.

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
Input IRED						
V_F	Forward voltage	-	1.50	1.65	V	$I_F = 20\text{mA}$
I_R	Reverse current	-	-	10	μA	$V_R = 5\text{V}$
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	5.0	-	-	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 ⁽⁴⁾	150	250	-	μA	$V_{CE} = 5\text{V}, I_F = 20\text{mA}, d = 0.030"$
$I_{CX(\text{ratio})}$	Crosstalk ratio ⁽⁵⁾	3	10	-		$V_{CE} = 5\text{V}, I_F = 20\text{mA}$

- notes: 4. Measured using a Kodak 90% diffuse reflectance neutral white test card.
5. No reflective surface. $I_{CX(\text{ratio})} = I_{L(\mu\text{A})}/I_{CX(\mu\text{A})}$.



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