CLI710

IRED – Phototransistor
Reflective Object Sensor

Clairex® Technologies, Inc.

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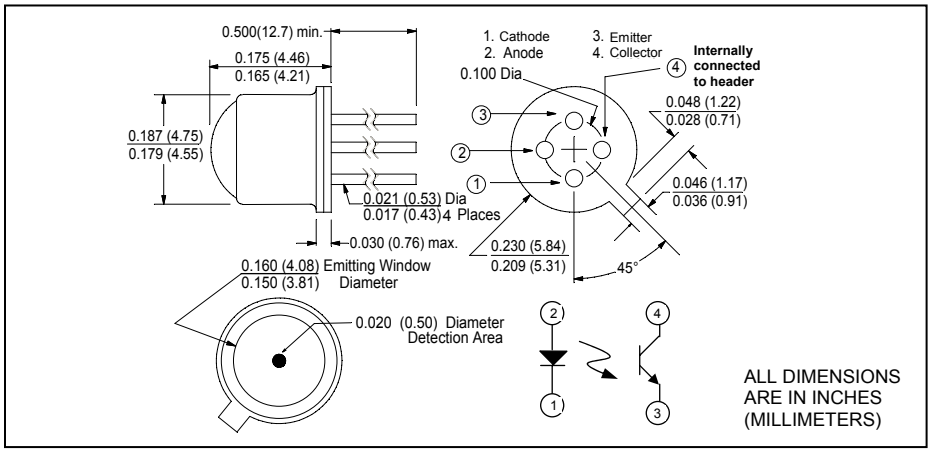

features

- 0.020" dia. light pipe aperture
- T0-72 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°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°C.
2. Derate linearly 1.07mW/°C from 25°C free air temperature to T_A = +100°C.
3. Derate linearly 1.07mW/°C from 25°C free air temperature to T_A = +100°C.

electrical characteristics (T_A = 25°C and V_{CC} = 5.0V unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
Input IRED						
V_F	Forward voltage	-	1.50	1.65	V	I_F = 20mA
I_R	Reverse current	-	-	10	µA	V_R = 5V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	30	-	-	V	I_C = 1mA, I_F = 0, E_e = 0
$V_{(BR)ECO}$	Emitter-collector breakdown voltage	5.0	-	-	V	I_E = 100µA, I_F = 0, E_e = 0
I_D	Dark current	-	-	100	nA	V_{CE} = 10V, I_F = 0, E_e = 0
Coupled						
I_L	Light current[4]	150	250	-	µA	V_{CE} = 5V, I_F = 20mA, d = 0.030"
$I_{CX\ (ratio)}$	Crosstalk ratio[5]	3	10	-		V_{CE} = 5V, I_F = 20mA

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

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