

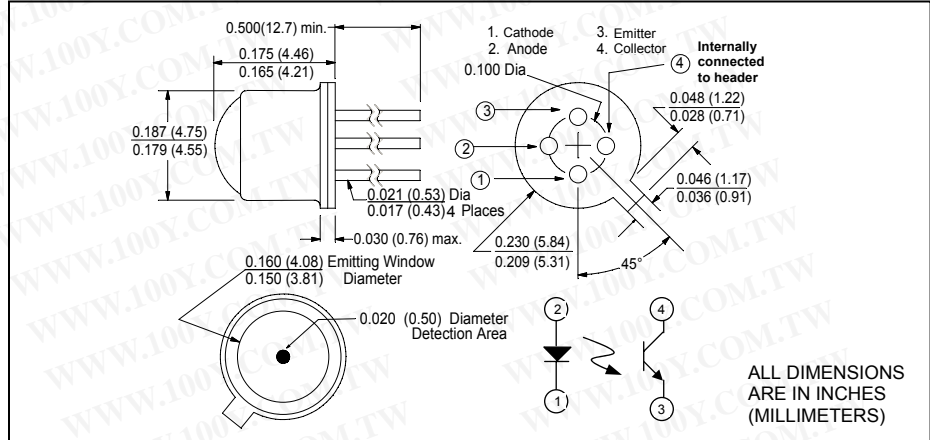
# CLI710

## IRED – Phototransistor Reflective Object Sensor

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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 .....  $-40^\circ\text{C}$  to  $+125^\circ\text{C}$   
 operating temperature .....  $-40^\circ\text{C}$  to  $+100^\circ\text{C}$   
 lead soldering temperature .....  $260^\circ\text{C}$

### IRED

continuous forward DC current<sup>(1)</sup> ..... 35mA  
 reverse DC voltage ..... 5V  
 power dissipation<sup>(2)</sup> ..... 100mW

### PHOTOTRANSISTOR

collector-emitter voltage ..... 30V  
 emitter-collector voltage ..... 5V  
 power dissipation<sup>(3)</sup> ..... 100mW

### note:

1. Derate linearly 0.37mA/ $^\circ\text{C}$  from  $25^\circ\text{C}$  free air temperature to  $T_A = +100^\circ\text{C}$ .
2. Derate linearly 1.07mW/ $^\circ\text{C}$  from  $25^\circ\text{C}$  free air temperature to  $T_A = +100^\circ\text{C}$ .
3. Derate linearly 1.07mW/ $^\circ\text{C}$  from  $25^\circ\text{C}$  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
<b>Input IRED</b>						
$V_F$	Forward voltage	-	1.50	1.65	V	$I_F = 20\text{mA}$
$I_R$	Reverse current	-	-	10	$\mu\text{A}$	$V_R = 5\text{V}$
<b>Output Phototransistor</b>						
$V_{(BR)CEO}$	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	$V_{CE} = 10\text{V}, I_F = 0, E_e = 0$
<b>Coupled</b>						
$I_L$	Light current <sup>(4)</sup>	150	250	-	$\mu\text{A}$	$V_{CE} = 5\text{V}, I_F = 20\text{mA}, d = 0.030"$
$I_{CX(\text{ratio})}$	Crosstalk ratio <sup>(5)</sup>	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.  $I_{CX(\text{ratio})} = I_{L(\mu\text{A})}/I_{CX(\mu\text{A})}$ .