CLI700

IRED – Photo-IC
Reflective Object Sensor

Clairex® Technologies, Inc.

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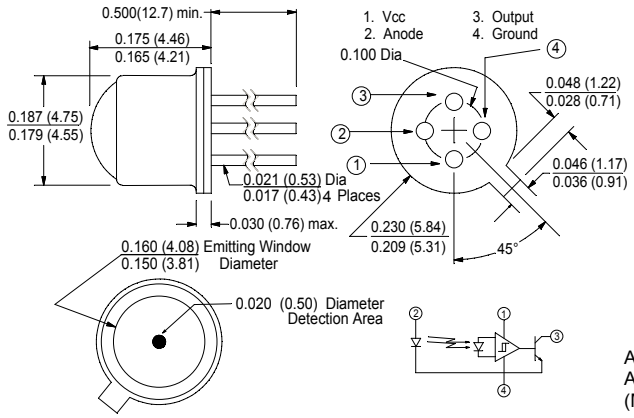

features

- 0.020" dia. light pipe aperture
- T0-72 package
- NPN buffer open collector output

description

The CLI700 consists of an 880nm AlGaAs IRED and an NPN, 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.

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	35mA
reverse DC voltage	5V
power dissipation(1)	100mW
PHOTO-IC	
supply voltage	15V
output sink current	25mA

note:

1. Derate linearly 1.33mW/°C from 25°C free air temperature to T_A = +100°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°C and V_{CC} = 5.0V unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
V_F	IRED forward voltage	1.40	1.50	1.65	V	I_F = 20mA
I_R	IRED reverse current	-	-	10	µA	V_R = 5V
λ_P	Peak emission wavelength	-	880	-	nm	I_F = 20mA
BW	Spectral bandwidth at half power points	-	80	-	nm	I_F = 20mA
I_{CC}	Sensor supply current	-	4.0	10.0	mA	V_{CC}=15V
V_{OL}	Low level output voltage	-	0.3	0.5	V	I_C = 15mA
		-	0.5	0.8	V	I_C = 25mA
I_{OH}	High level output current	-	-	1.0	µA	I_F = 35mA(1)
I_{FT}	Turn-on threshold (IRED current)	-	-	7.0	mA	d = 0.03 inches(2)
$I_F(+)/I_F(-)$	Hysteresis	-	12	-	%	
t_r, t_f	Output rise and fall time	-	200	500	ns	R_L=200Ω, duty cycle = 50%
t_P	Propagation delay	-	-	80	µs	R_L=200Ω, duty cycle = 50%

notes: 1. No reflective surface.
2. Measured using a Kodak 90% diffuse reflectance neutral white test card.

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