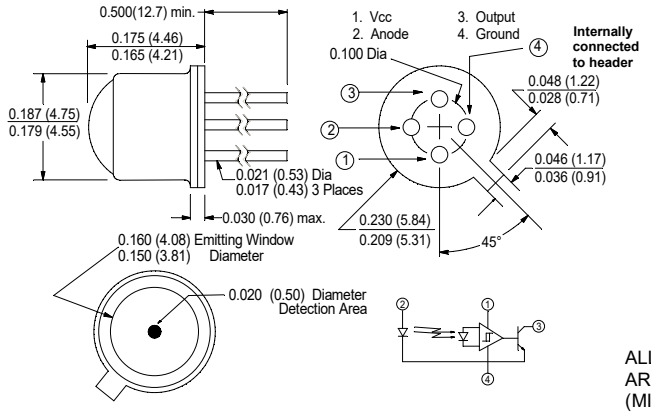
CLI700

IRED – Photo-IC
Reflective Object Sensor

CLAIREX® SEMICONDUCTOR

16-7004A



features

- 0.020” dia. light pipe aperture
- T0-72 package
- Buffer, open collector output

description

The CLI700 consists of an 880nm AlGaAs IRED and a 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 +85°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 ..... 2 V
continuous power dissipation[3] ..... 100 mW

PHOTO-IC

supply voltage ..... 4.5 V to 18 V
output sink current ..... 25 mA
voltage at output lead (open collector) ..... 30 V

note:

1. 0.06” (1.5 mm) from the header for 5 seconds maximum
2. Derate IRED linearly 0.47 mA/°C from 25°C free air temperature to T_A = +85°C.
3. Derate IRED linearly 1.33 mW/°C from 25°C free air temperature to T_A = +85°C
4. No reflective surface.
5. Measured using a Kodak 90% diffuse reflectance neutral white test card.

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 V unless otherwise noted)

symbol	parameter	min	typ	max	units	test conditions
V_F	IRED forward voltage	-	1.5	1.65	V	I_F = 20 mA
I_R	IRED reverse current	-	-	10	µA	V_R = 2 V
λ_P	Peak emission wavelength	-	880	-	nm	I_F = 20 mA
BW	Spectral bandwidth at half power points	-	80	-	nm	I_F = 20 mA
I_{CC}	Sensor supply current	-	4	10	mA	V_{CC}=15 V
V_{OL}	Low level output voltage[4]	-	0.3	0.5	V	I_C = 15 mA, I_F = 0 or 35 mA
		-	0.5	0.8	V	I_C = 25 mA, I_F = 0 or 35 mA
I_{OH}	High level output current[5]	-	-	1	µA	I_F = 35 mA, V_{OH} = 25 V
I_{FT}	Turn-on threshold (IRED current) [5]	-	-	7.0	mA	d = 0.03 inch
$I_F(+)/I_F(-)$	Hysteresis	-	12	-	%	
t_r, t_f	Output rise and fall time	-	200	500	ns	R_L=200 Ω, duty cycle = 50%
t_P	Propagation delay	-	-	80	µs	R_L=200 Ω, duty cycle = 50%

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