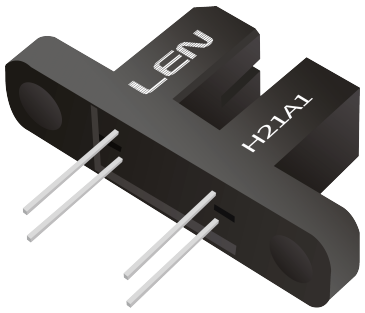
Descriptions

H21A1 consist of a gallium arsenide infrared emitting diode coupled with a silicon phototransistor in a plastic housing. The packaging system is plastic housing. The packaging system is designed to optimize the mechanical resolution,coupling efficiency,ambient light rejection,cost and reliability. The gap in the housing provides a means of interrupting the signal with an opaque material, switching the output from an “ON” to an “OFF” state.



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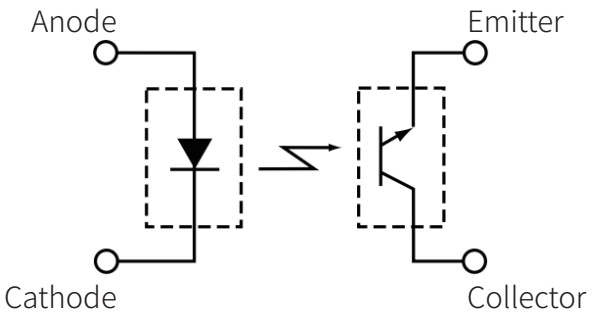
Features

- Low cost
- High $I_{C(ON)}$
- Opaque housing

Schematic Diagram



Applications

- Mouse Copier
- Switch Scanner
- For Direct Board
- Floppy disk driver
- Non-contact Switching

Ordering Information

Part Number	Package	Shipping Quantity
H21A1	DIP-4	100 pcs / Bag, 1000pcs / Box

Absolute Maximum Ratings (T_A=25°C)

Input (Emitter)			
Parameter	Symbol	Ratings	Unit
Reverse Voltage	V_R	6	V
Forward Current	I_F	50	mA
Power Dissipation(*1)	P_D	100	mW
Output (Sensor)			
Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	4.5	V
Collector Current	I_C	20	mA
Power Dissipation(*1)	P_D	150	mW
Coupler			
Parameter	Symbol	Ratings	Unit
Operating Temperature Range	T_{OPR}	–55 ~ +100	°C
Storage Temperature Range	T_{STG}	–55 ~ +100	°C
Soldering Temperature (Iron)(*2 3 4)	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)(*2 3)	T_{SOL-F}	260 for 10 sec	°C

Notes: (*1) Derate power dissipation linearly 1.33 mW/°C above 25°C.
(*2) RMA flux is recommended.
(*3) Methanol or isopropyl alcohols are recommended as cleaning agents.
(*4) Soldering iron 1/16" (1.6 mm) minimum from housing.

Electrical Characteristics (T_A=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input (Emitter)						
Forward Voltage	V_F	I_F = 60 mA			1.7	V
Reverse Breakdown Voltage	V_R	I_R = 10 μA	6			V
Reverse Leakage Current	I_R	V_R = 3 V			1	uA
Output (Sensor)						
Collector-Emitter Voltage	V_{CEO}	I_C = 1 mA, E_E = 0	30			V
Emitter-Collector Voltage	V_{ECO}	I_F = 100 μA, E_E = 0	6			V
Collector to Emitter Leakage	I_{CEO}	V_{CE} = 25 V, E_E = 0			100	nA
Coupler						
On-State Collector Current	$I_{C(ON)}$	I_F = 5 mA, V_{CE} = 5 V	0.15			mA
		I_F = 20 mA, V_{CE} = 5 V	1			mA
		I_F = 30 mA, V_{CE} = 5 V	1.9			mA
Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	I_F = 30 mA, I_C = 1.8 mA			0.4	V
Turn-on Time	T_{ON}	I_F = 30 mA, V_{CC} = 5 V, R_L = 2.5KΩ		8		μs
Turn-off Time	T_{OFF}	I_F = 30 mA, V_{CC} = 5 V, R_L = 2.5KΩ		50		μs

Typical Characteristics

Figure 1. Output Current vs. Input Current

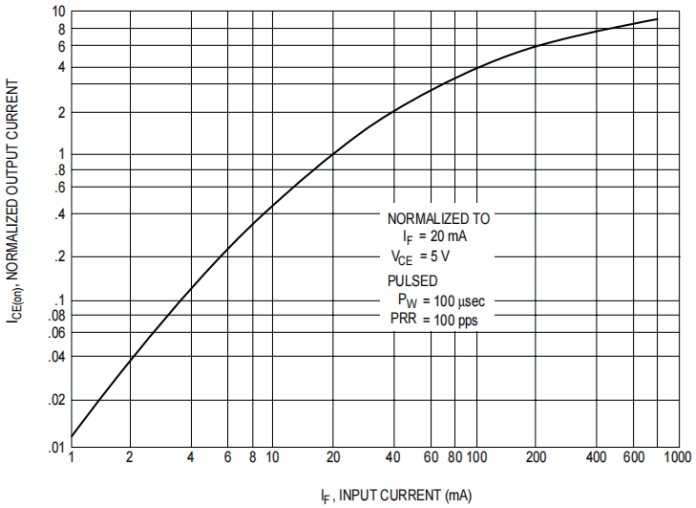


Figure 2. Output Current vs. Temperature

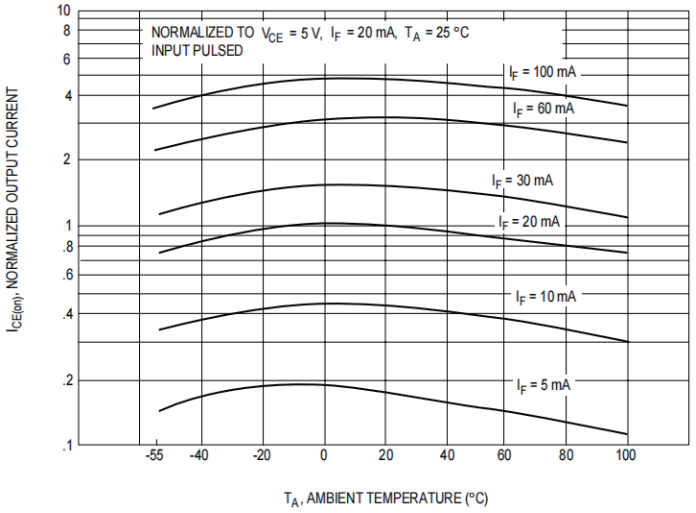
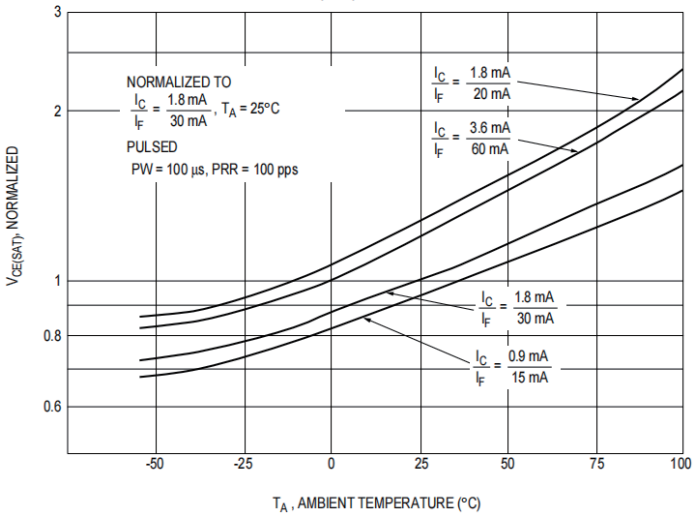


Figure 3. $V_{CE(SAT)}$ vs. Temperature



Typical Characteristics

Figure 4. Leakage Current vs. Temperature

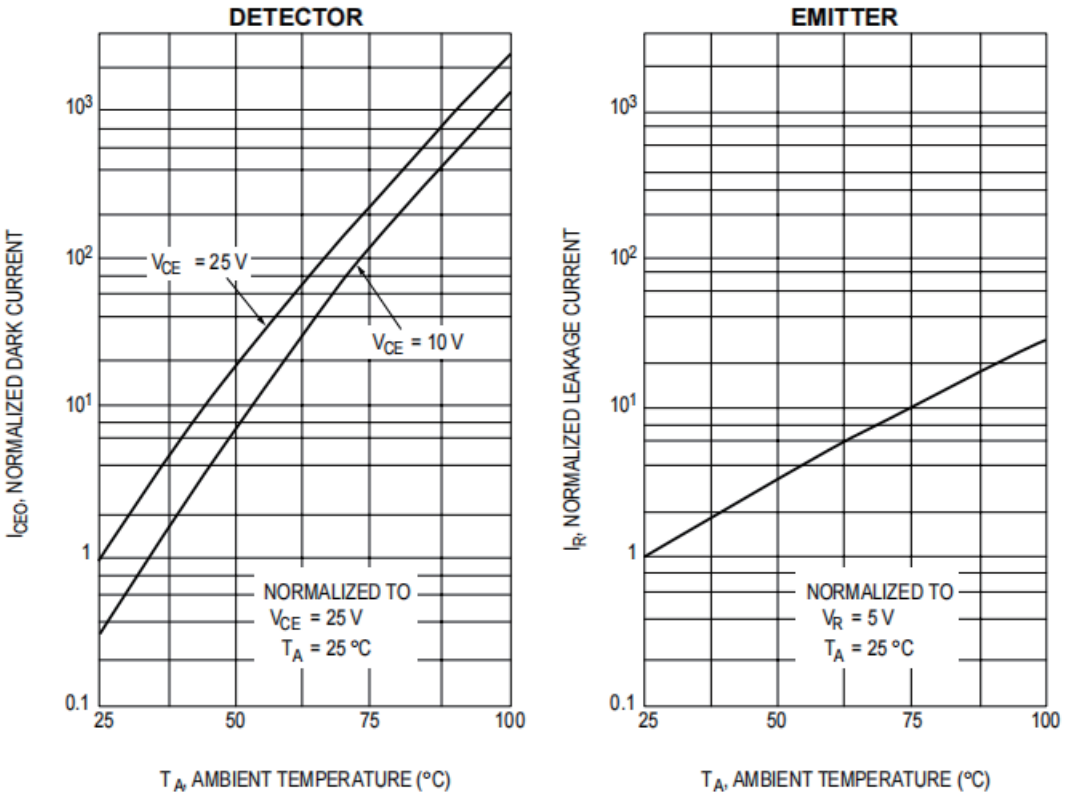


Figure 5. Switching Speed vs. RL

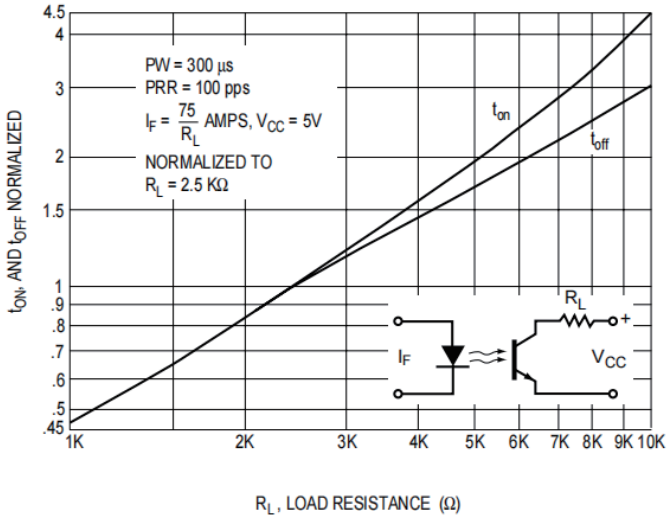
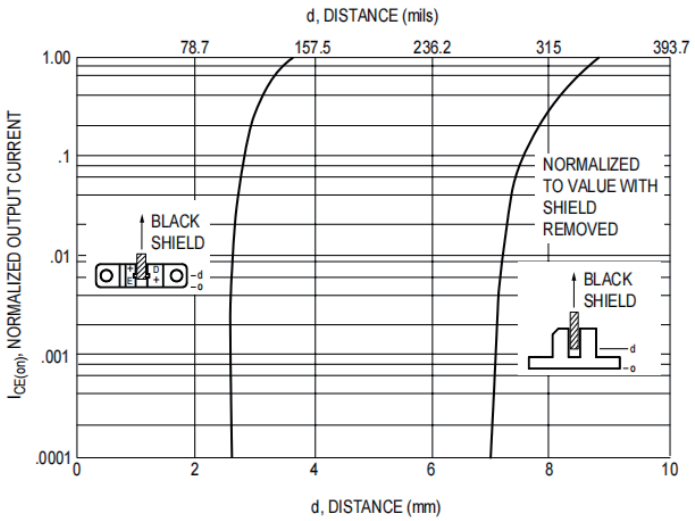


Figure 6. Output Current vs. Distance



Package Dimensions

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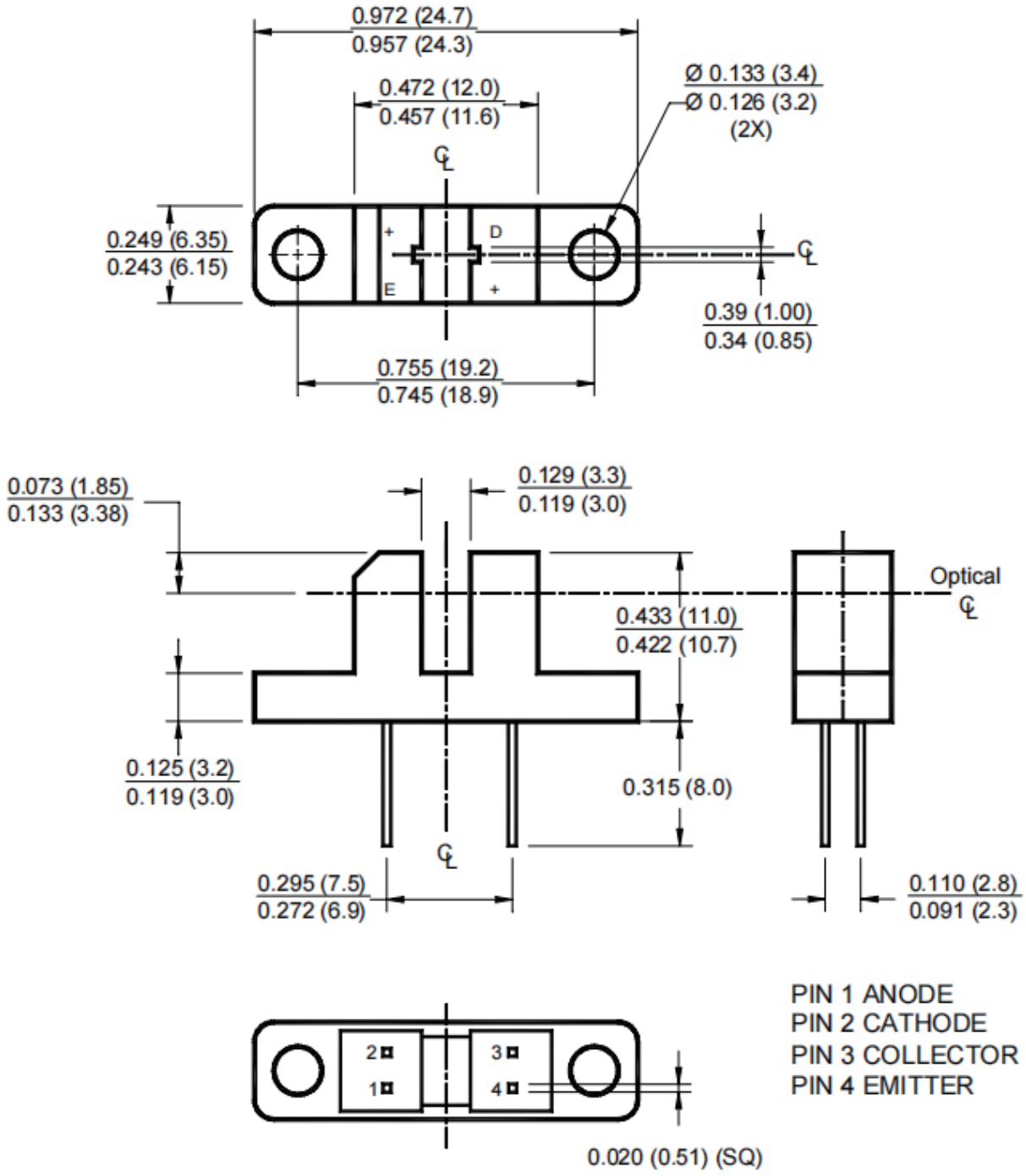

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