

## DESCRIPTION

The H21Ax and H22Ax series of opaque photointerrupters are single channel switches consisting of a Gallium Arsenide infrared emitting diode and a NPN silicon photo transistor mounted in a polycarbonate housing. The package is designed to optimise the mechanical resolution, coupling efficiency, ambient light rejection, cost and reliability. Operating on the principle that objects opaque to infrared will interrupt the transmission of light between the infrared emitting diode and the photo sensor, switching the output from an "ON" state to an "OFF" state.

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These photoinerrupters are in PWB mounting packages while H21Ax also provides flanges for Screw Mounting.

# FEATURES

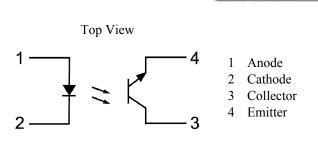
- High Gain
- 3mm Gap between LED and Detector
- Polycarbonate Case Protection against
  Ambient Light
- Pb Free and RoHS Compliant
- Safety Approvals Pending

### APPLICATIONS

- Copiers, Printers, Facsimiles
- Record Players, Casette Decks
- Optoelectronic Switches

### **ORDER INFORMATION**

Supplied in Bulk Package



#### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

Stresses exceeding the absolute maximum ratings can cause permanent damage to the device.

Exposure to absolute maximum ratings for long periods of time

#### Input

Forward Current	50mA
Reverse Voltage	5V
Power dissipation	75mW
Output	
Collector Current	20mA
Collector-Emitter Voltage	30V
Emitter-Collector Voltage	5V

#### **Total Package**

**Power Dissipation** 

-25 to 85 °C
-55 to 100 °C
260°C

100mW

can adversely affect reliability.

#### ISOCOM COMPONENTS 2004 LTD

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# **ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C unless otherwise specified)

#### INPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Forward Voltage	$\mathbf{V}_{\mathrm{F}}$	$I_F = 20 m A$		1.2	1.6	V
Reverse Current	I <sub>R</sub>	$V_R = 5V$			100	μΑ

### OUTPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector-Emitter Dark Current	I <sub>CEO</sub>	$V_{CE} = 10V$			100	nA

## COUPLED

Parameter	Symbol	Test Condition	Min	Тур.	Мах	Unit
On-State	I <sub>C(ON)</sub>	H21A1, H22A1				mA
Collector Current		$I_F = 5mA$ , $V_{CE} = 5V$	0.15			
		$I_F = 20mA, V_{CE} = 5V$	1.0			
		$I_F = 30 m A, V_{CE} = 5 V$	1.9			
		H21A2, H22A2				
		$I_F = 5mA$ , $V_{CE} = 5V$	0.3			
		$I_F = 20mA, V_{CE} = 5V$	2.0			
		$I_F = 30 m A, V_{CE} = 5 V$	3.0			
		H21A3, H22A3				
		$I_F = 5mA$ , $V_{CE} = 5V$	0.6			
		$I_F = 20mA, V_{CE} = 5V$	4.0			
		$I_{\rm F} = 30 {\rm mA}, V_{\rm CE} = 5 {\rm V}$	5.5			
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	$I_F = 20mA, I_C = 0.25mA$			0.4	V

#### SWITCHING

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Output Rise Time (10% to 90%)	t <sub>r</sub>	$V_{CE} = 5V I_C = 2mA$ $R_L = 100\Omega,$		3	15	μs
Output Fall Time (90% to 10%)	t <sub>f</sub>			4	20	



# H21Ax, H22Ax

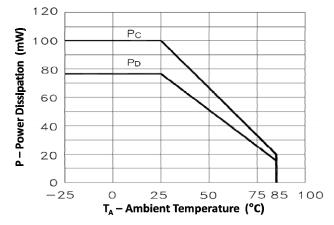


Fig 1 Power Dissipation vs Ambient Temperature

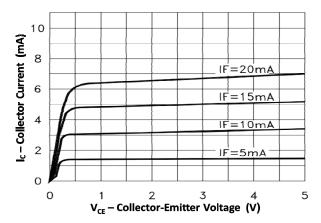
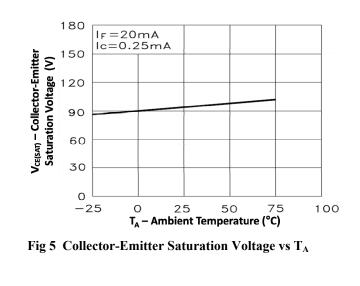


Fig 3 Collector Current vs Collector-Emitter Voltage



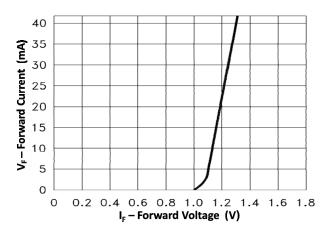


Fig 2 Forward Current vs Forward Voltage

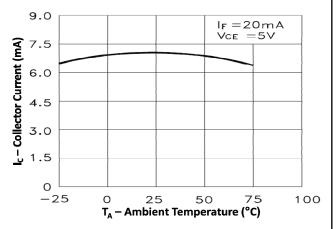


Fig 4 Collector Current vs Ambient Temperature



# H21Ax, H22Ax

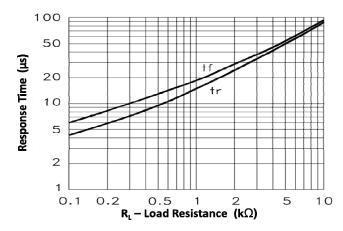
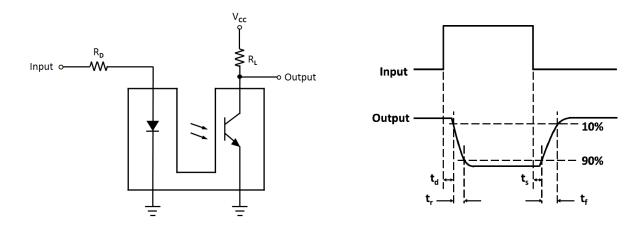


Fig 6 Response Time vs Load Resistance



**Test Circuit for Response Time** 

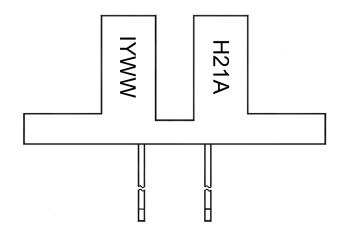
# H21Ax, H22Ax

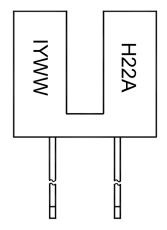
## ORDER INFORMATION

ISOCOM COMPONENTS

H21Ax, H22Ax					
After PN	PN	Description	Packing quantity		
None	H21A1, H21A2, H21A3 H22A1, H22A2, H22A3	Bulk Package	500pcs		

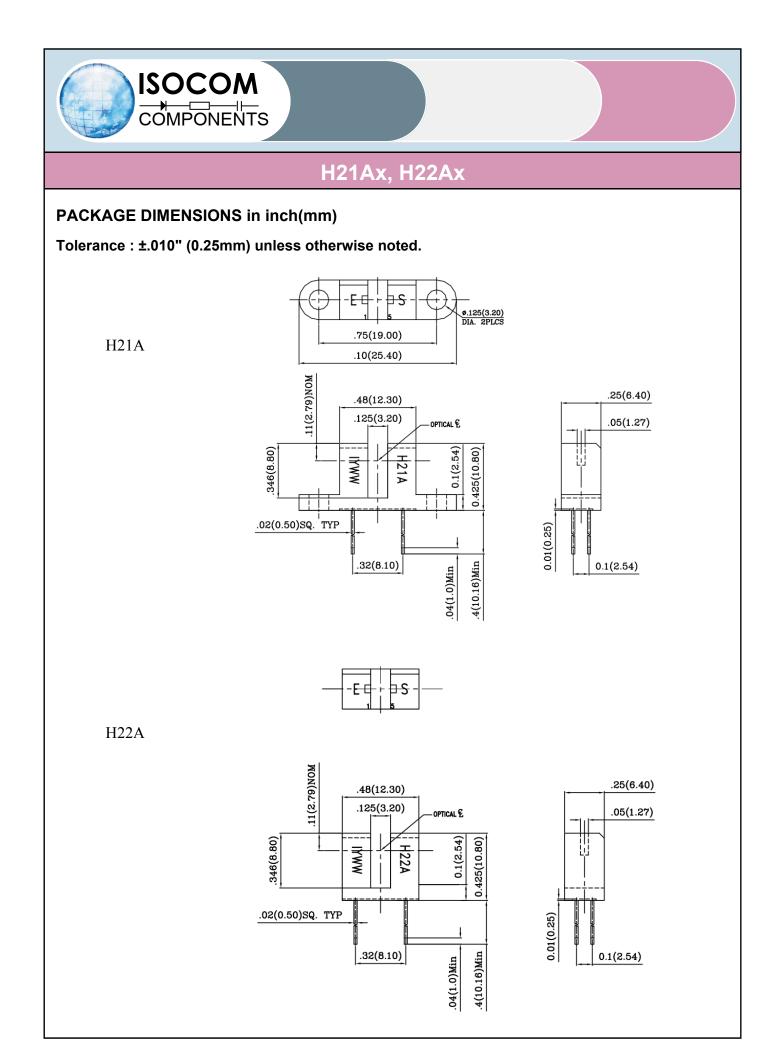
### **DEVICE MARKING**





I denotes Isocom

- Y denotes 1 digit Year code
- WW denotes 2 digit Week code
- Note : H21A Type will be Marked "H21A" H22A Type will be Marked "H22A"





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- When requiring a device for any "specific" application, please contact our sales for advice.
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- Do not immerse device body in solder paste.

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