

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.

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

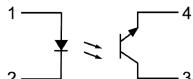
- Copiers, Printers, Facsimiles
- Record Players, Casette Decks
- Optoelectronic Switches

ORDER INFORMATION

Supplied in Bulk Package



Top View



- 1 Anode
- 2 Cathode
- 3 Collector
- 4 Emitter

ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °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
Power Dissipation	100mW

Total Package

Operating Temperature	-25 to 85 °C
Storage Temperature	-55 to 100 °C
Lead Soldering Temperature (10s)	260°C

can adversely affect reliability.

ISOCOM COMPONENTS 2004 LTD

Unit 25B, Park View Road West, Park View Industrial Estate Hartlepool, Cleveland, TS25 1PE, United Kingdom Tel: +44 (0)1429 863 609 Fax: +44 (0)1429 863 581 e-mail: sales@isocom.co.uk

http://www.isocom.com

ISOCOM COMPONENTS ASIA LTD

Hong Kong Office,
Block A, 8/F, Wah Hing Industrial mansion,
36 Tai Yau Street, San Po Kong, Kowloon, Hong Kong.
Tel: +852 2995 9217 Fax: +852 8161 6292

e-mail: sales@isocom.com.hk



ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise specified)

INPUT

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Forward Voltage	V_{F}	$I_F = 20 mA$		1.2	1.6	V
Reverse Current	I_R	$V_R = 5V$			100	μΑ

OUTPUT

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

COUPLED

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

SWITCHING

Parameter	Symbol	Test Condition	Min	Тур.	Max	Unit
Output Rise Time (10% to 90%)	t _r	$\begin{split} V_{CE} &= 5 V \; I_C = 2 m A \\ R_L &= 100 \Omega, \end{split}$		3	15	μs
Output Fall Time (90% to 10%)	t _f			4	20	



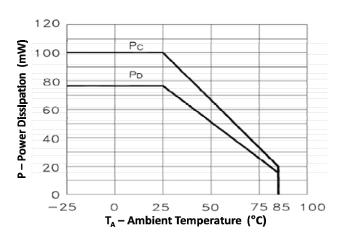


Fig 1 Power Dissipation vs Ambient Temperature

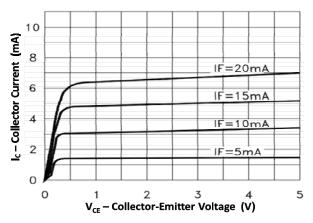


Fig 3 Collector Current vs Collector-Emitter Voltage

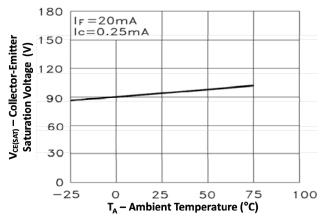


Fig 5 Collector-Emitter Saturation Voltage vs TA

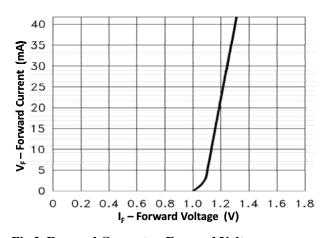


Fig 2 Forward Current vs Forward Voltage

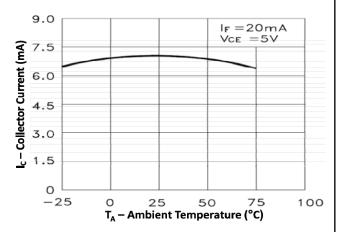


Fig 4 Collector Current vs Ambient Temperature



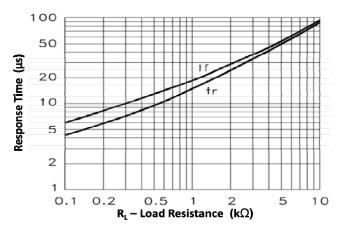
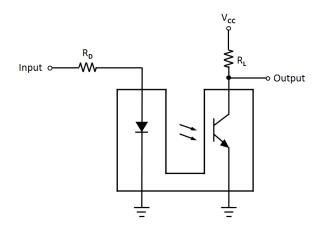
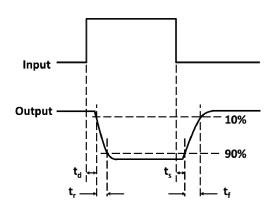


Fig 6 Response Time vs Load Resistance





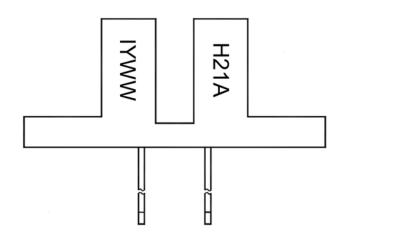
Test Circuit for Response Time

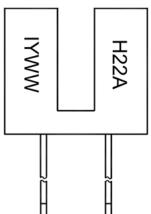


ORDER INFORMATION

	H	21Ax, H22Ax	
After PN	PN	Description	Packing quantity
None	H21A1, H21A2, H21A3 H22A1, H22A2, H22A3	Bulk Package	500pcs

DEVICE MARKING





H21A / H22A denotes Device Part Number

I denotes Isocom

Y denotes 1 digit Year code WW denotes 2 digit Week code

Note: H21A Type will be Marked "H21A"

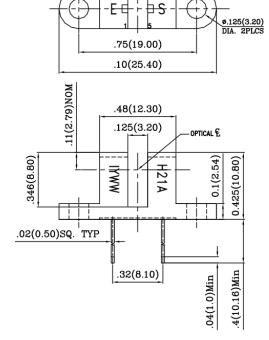
H22A Type will be Marked "H22A"

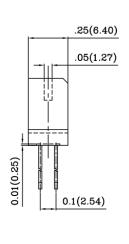


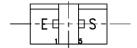
PACKAGE DIMENSIONS in inch(mm)

Tolerance: ±.010" (0.25mm) unless otherwise noted.

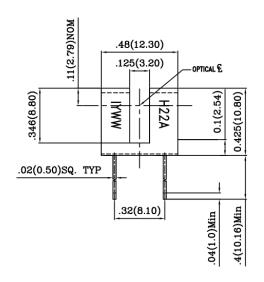
H21A

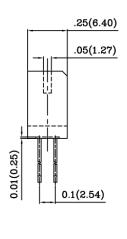






H22A







NOTES:

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- When requiring a device for any "specific" application, please contact our sales for advice.
- The contents described herein are subject to change without prior notice.
- Do not immerse device body in solder paste.



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