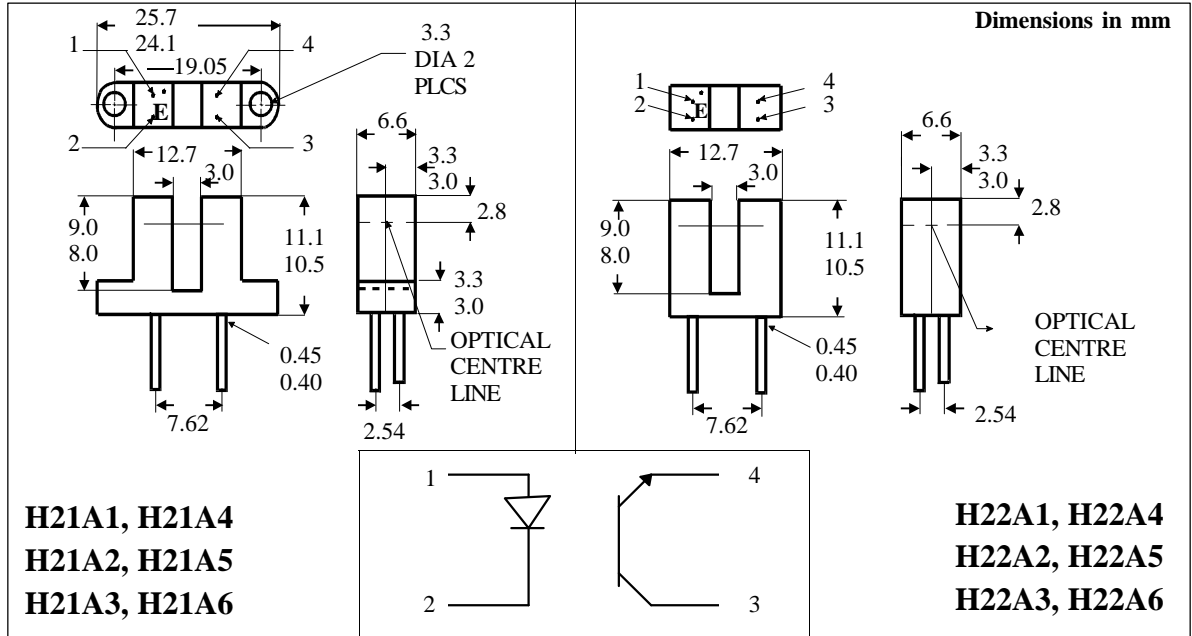


H21A1, H21A2, H21A3, H21A4, H21A5, H21A6  
H22A1, H22A2, H22A3, H22A4, H22A5, H22A6



**1mm APERTURE OPTO-ELECTRONIC SINGLE CHANNEL SLOTTED INTERRUPTER SWITCHES WITH TRANSISTOR SENSORS**



**DESCRIPTION**

The H21A\_ and H22A\_ 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 an infrared emitting diode and a photo sensor switching the output from an "ON" state to an "OFF" state.

**FEATURES**

- High Gain
- 3mm Gap between LED and Detector
- Polycarbonate case protected against ambient light

**APPLICATIONS**

- Copiers, Printers, Facsimilies, Record Players, Cassette Decks, Optoelectronic Switches

**ABSOLUTE MAXIMUM RATINGS  
(25°C unless otherwise specified)**

Storage Temperature \_\_\_\_\_ -40°C to + 85°C  
Operating Temperature \_\_\_\_\_ -25°C to + 85°C  
Lead Soldering Temperature  
(1/16 inch (1.6mm) from case for 10 secs) 260°C

**INPUT DIODE**

Forward Current \_\_\_\_\_ 50mA  
Reverse Voltage \_\_\_\_\_ 5V  
Power Dissipation \_\_\_\_\_ 75mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage  $BV_{CEO}$   
H21A4, 5, 6, H22A4, 5, 6 \_\_\_\_\_ 55V  
H21A1, 2, 3, H22A1, 2, 3 \_\_\_\_\_ 30V  
Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 5V  
Collector Current  $I_C$  \_\_\_\_\_ 20mA  
Power Dissipation \_\_\_\_\_ 75mW

**ISOCOM COMPONENTS LTD**

Unit 25B, Park View Road West,  
Park View Industrial Estate, Brenda Road  
Hartlepool, Cleveland, TS25 1YD  
Tel: (01429) 863609 Fax :(01429) 863581

**ISOCOM INC**

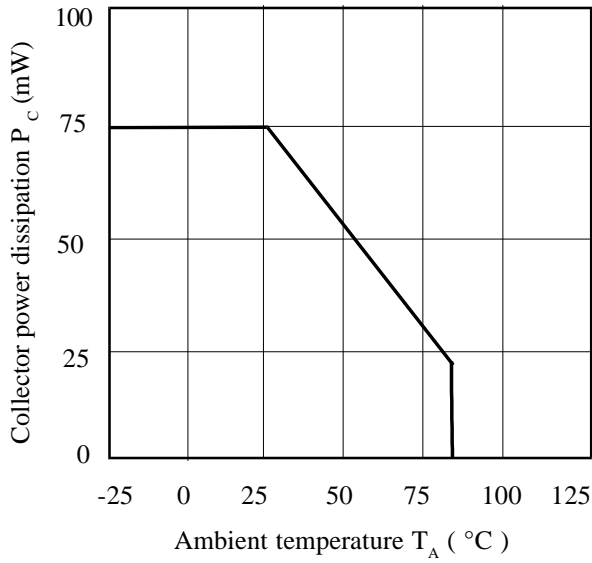
720 E., Park Boulevard, Suite 104,  
Plano, TX 75074 USA  
Tel: (972) 423-5521  
Fax: (972) 422-4549

**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

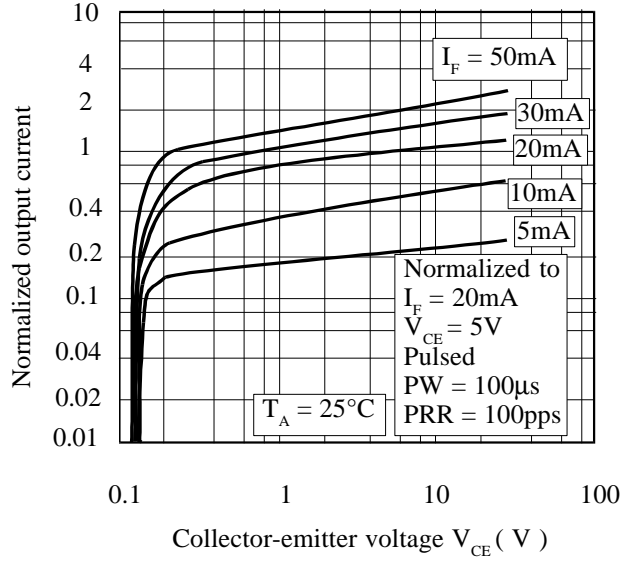
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ ) Reverse Voltage ( $V_R$ ) Reverse Current ( $I_R$ )	5	1.2	1.7 100	V V $\mu\text{A}$	$I_F = 50\text{mA}$ $I_R = 100\mu\text{A}$ $V_R = 5\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( Note 1 ) H21A4, 5, 6, H22A4, 5, 6 H21A1, 2, 3, H22A1, 2, 3  Emitter-collector Breakdown ( $BV_{ECO}$ ) Collector-emitter Dark Current ( $I_{CEO}$ )	55 30  5			V V V nA	$I_C = 1\text{mA}$ $I_C = 1\text{mA}$  $I_E = 100\mu\text{A}$ $V_{CE} = 10\text{V}$
Coupled	On-State Collector Current $I_{C(ON)}$ ( Note 1 ) H21A1, 4, H22A1, 4  H21A2, 5, H22A2, 5  H21A3, 6, H22A3, 6  Collector-emitter Saturation Voltage $V_{CE(SAT)}$ H21A2, 3, 5, 6, H22A2, 3, 5, 6 H21A1, 4, H22A1, 4  Turn-on Time $t_{on}$ Turn-off Time $t_{off}$	0.15 1.0 1.9 0.3 2.0 3.0 0.6 4.0 5.5			mA mA mA mA mA mA mA mA mA V V $\mu\text{s}$ $\mu\text{s}$	$5\text{mA } I_F, 5\text{V } V_{CE}$ $20\text{mA } I_F, 5\text{V } V_{CE}$ $30\text{mA } I_F, 5\text{V } V_{CE}$ $5\text{mA } I_F, 5\text{V } V_{CE}$ $20\text{mA } I_F, 5\text{V } V_{CE}$ $30\text{mA } I_F, 5\text{V } V_{CE}$ $5\text{mA } I_F, 5\text{V } V_{CE}$ $20\text{mA } I_F, 5\text{V } V_{CE}$ $30\text{mA } I_F, 5\text{V } V_{CE}$  $20\text{mA } I_F, 1.8\text{mA } I_C$ $30\text{mA } I_F, 1.8\text{mA } I_C$  $V_{CC} = 5\text{V},$ $I_F = 30\text{mA}, R_L = 2.5\text{k}\Omega$

Note 1 Special Selections are available on request. Please consult the factory.

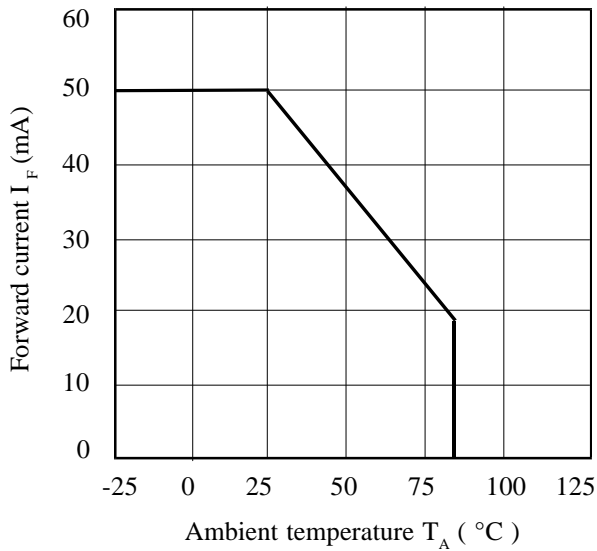
**Collector Power Dissipation vs. Ambient Temperature**



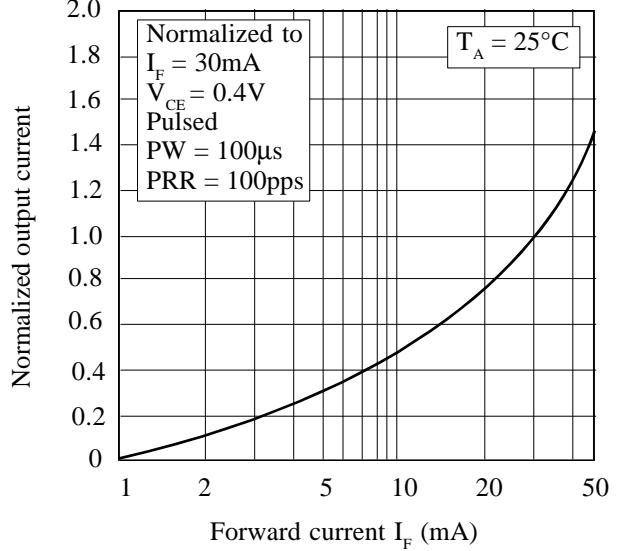
**Normalized Output Current vs. Collector-emitter Voltage**



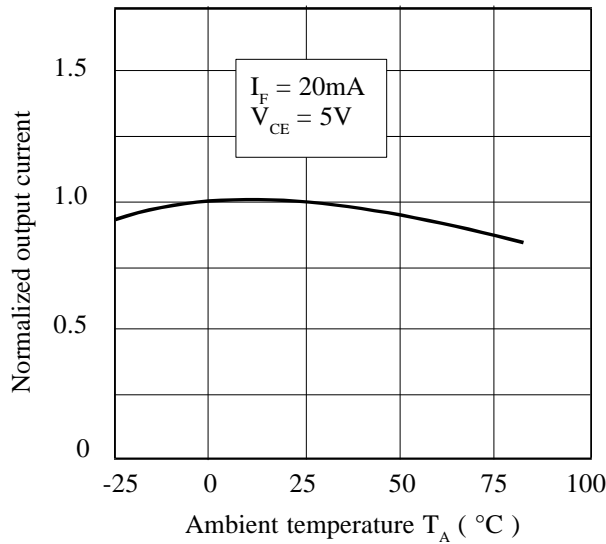
**Forward Current vs. Ambient Temperature**



**Normalized Output Current vs. Forward Current**



**Normalized Output Current vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**

