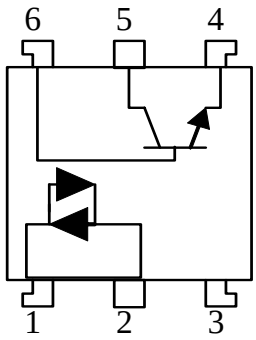
TRANSISTOR OPTOCOUPLERS

ISOCOM® LTD

H11AA1 (Schematic Diagram)



DESCRIPTION

The H11AA1 is an optically coupled isolator consisting of a Gallium Arsenide infrared emitting diode and a silicon phototransistor mounted in a standard 6-pin dual-in line package, with surface mount, butt cut and gull wing options available.

Isocom Ltd supplies a multitude of plastic optocouplers for all applications varying from standard transistor optos through to Darlingtons and Schmitt Trigger devices. It's massive family of optos vary in speed allowing maximum opportunity to engineers worldwide.

All devices are performance guaranteed between -20ºC and +80ºC and have completed rigorous testing.
The Company's customers can be assured of our commitment to stringent quality, reliability and inspection standards, as demonstrated by our existing approvals. Other customer specific options can also be offered.

FEATURES

- Improved performance, guaranteed over -55°C to +100°C temperature range
- Manufactured and tested in BS9000 and CECC20000 approved premises
- 2500V electrical isolation
- Low cost dual-in-line package

For sales enquiries, or further information, please contact our sales office at:
Isocom Ltd, Hutton Close, Crowther Industrial Estate, District 3, Washington, NE38 0AH
Tel: +44 0191 4166 546 Fax: +44 0191 4155 055 Email Isocom@isocomoptocouplers.com
Or go to the Isocom Website @: Http://www.isocom.uk.com

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-55°C to +150°C
Operating Temperature	-55°C to +100°C
Lead Soldering Temperature	260°C
Input-to-Output Isolation Voltage	5000V

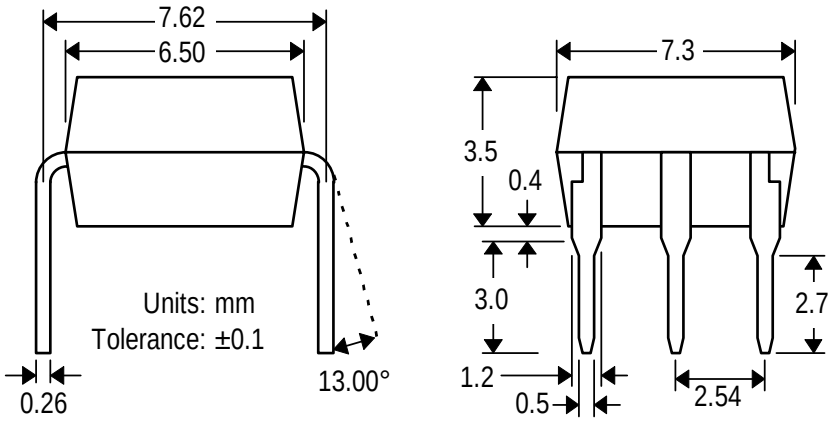
Input Diode

Forward DC Current	50mA
Reverse DC Voltage	3V
Peak forward Current	3A
Power Dissipation	100mW

Output Photo-Darlington Transistor

Collector-Emitter Voltage	25 V
Emitter-Collector Voltage	7 V
Power Dissipation	150mW
Package Total Power Dissipation	250mW

PACKAGES



SMD and GULL WING are available for all the above.

Isocom Ltd reserves the right to change the details on this specification without notice. Please consult Isocom Ltd prior to use.
Isocom Ltd cannot accept liability for any errors or omissions.
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ELECTRICAL CHARACTERISTICS

T_A = 25°C U.O.S. (each channel where appropriate).

Input Diode Electrical Characteristics

Parameter	Symbol	Test Conditions	Device	Min	Typ	Max	Units
Forward Voltage	V_F	I_F = 10mA		-	-	1.5	V
Reverse Breakdown Voltage	V_R	I_R = 10 µA		3.0	-	-	V
Reverse Current	I_R	V_R = 3V		-	-	10	µA
Output Detector Electrical Characteristics							
Collector-Emitter Breakdown Voltage (See note 1 below)	BV_{CEO}	I_C = 1mA		30	-	-	V
Collector-Base Breakdown Voltage (See note 1 below)	BV_{CBO}	I_B =100µA		70	-	-	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E = 100µA		7	-	-	V
Collector-Emitter Leakage Current	I_{CEO}	V_{CE} = 10, I_B = 0		-	-	50	nA
Collector-base Dark Current	I_{CBO}	V_{CB} = 10, I_E = 0		-	-	20	nA
H_{FE}		V_{CE} = 5.0 V, I_C = 100uA		100	150		
Collector-emitter Capitance	C_{CE}	V_{CE} = 10 V, f = 1mhz			10		pf
Coupled Electrical Characteristics							
DC Current Transfer Ratio	$_{IC/IF}$	I_F = 10mA, V_{CE} = 5V, I_B = 0		20	-	-	%
Collector-Emitter Saturation Voltage	V_{CE} (Sat)	I_F = 10mA, I_C = 0.5mA		-	-	0.4	V
Input to Output Capacitance	C_{IO}	f = 1mhz (See note 2 below)		-	0.6	-	pF
Input to Output Resistance	R_{IO}	V_{IO} = 500V (See note 2 below)		10^{11}	-	-	↓
Isolation Voltage	V_{IO}	(See note 2 below)		2500	-	-	VDC
Output Rise Time	tr	V_{CC} = 10V, I_C = 2mA		-	2.0	-	µS
Output Fall Time	tf	R_L = 100Ω		-	2.0	-	µS

Notes

1. BV_{CEO} and BV_{CBO} can be selected to suit customer specifications.
2. Measured between input when leads 1, 2 and 3 are shorted together, and output when leads 4, 5 and 6 are shorted together.
3. A higher CTR can be selected to suit customer specification as a standard part.

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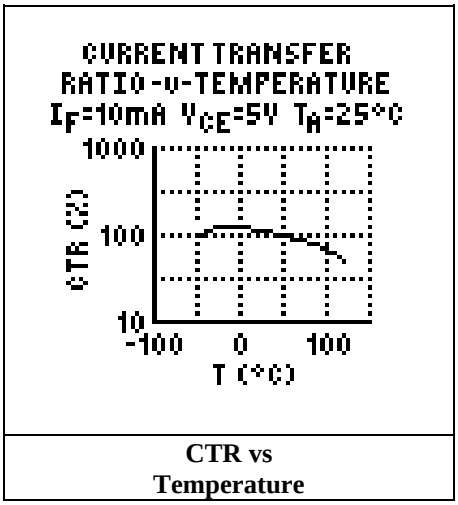
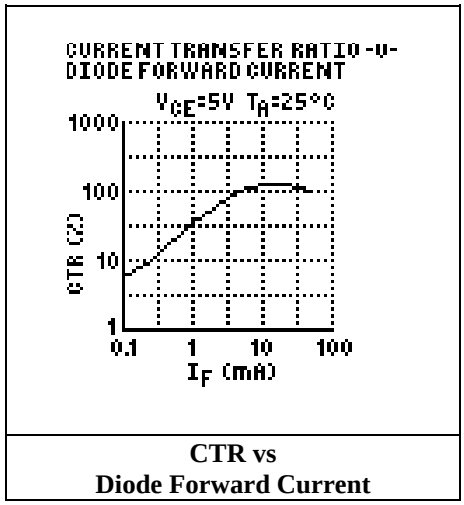
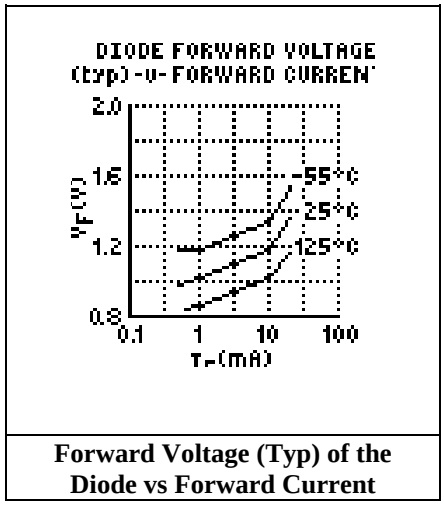


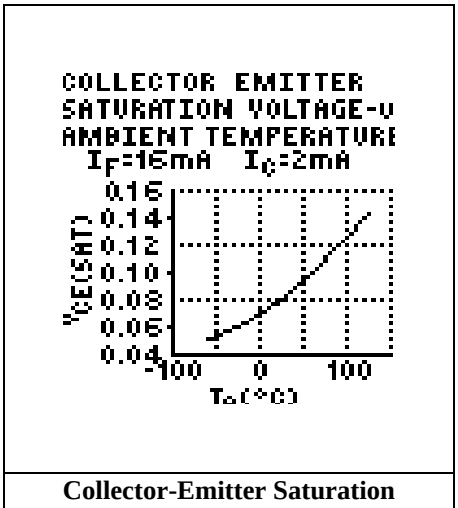
CTR vs Temperature



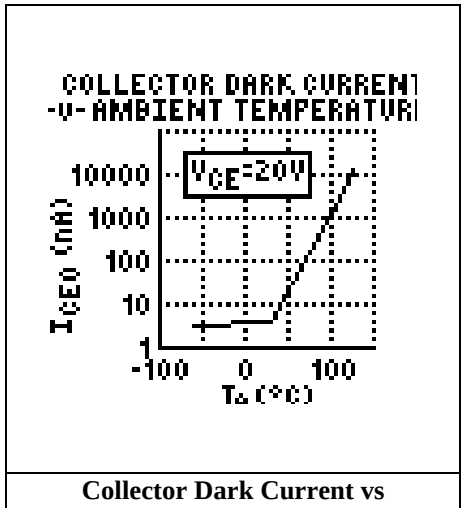
CTR vs Diode Forward Current



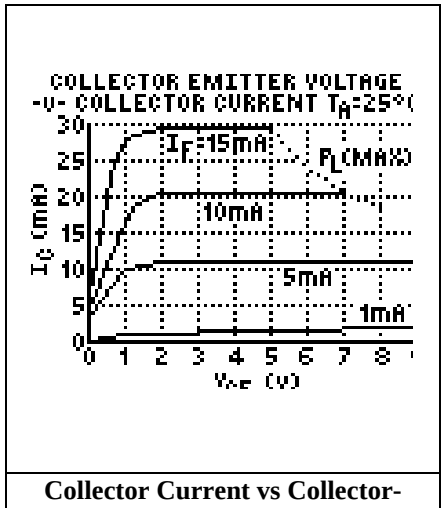
Forward Voltage (Typ) of the Diode vs Forward Current



Collector-Emitter Saturation Voltage vs Ambient Temperature



Collector Dark Current vs Ambient Temperature



Collector Current vs Collector-Emitter Voltage

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