



SU FUTURO EN TECNOLOGIA

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Estimado cliente:

En las siguientes páginas encontrará la información solicitada por usted, confiamos son de utilidad.

Si necesita más detalles, por favor comuníquese conmigo hoy mismo.

Carlos Erazo
Gerente General

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Optocoupler, Phototransistor Output, With Base Connection

Features

- Interfaces with common logic families
- Input-output coupling capacitance < 0.5 pF
- Industry Standard Dual-in line 6-pin package
- 5300 V_{RMS} isolation test voltage

Agency Approvals

- UL File #E52744 System Code H or J
- CSA 93751
- BSI IEC60950 IEC60965
- DIN EN 60747-5-2(VDE0884)
DIN EN 60747-5-5 pending
Available with Option 1
- FIMKO

Applications

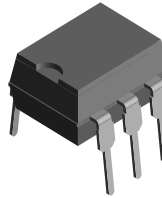
- AC mains detection
- Reed relay driving
- Switch mode power supply feedback
- Telephone ring detection
- Logic ground isolation
- Logic coupling with high frequency noise rejection

Description

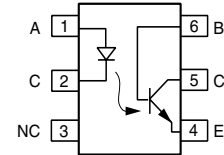
The H11Ax family is an Industry Standard Single Channel Phototransistor Coupler. It includes the H11A1/ H11A2/ H11A3/ H11A4/ H11A5 couplers.

Each optocoupler consists of gallium arsenide infrared LED and a silicon NPN phototransistor.

The isolation performance is accomplished through Vishay double molding isolation manufacturing process. Compliance to DIN EN 60747-5-2(VDE0884)/ DIN EN 60747-5-5 pending partial discharge isolation specification is available is by ordering option 1.



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These isolation processes and the Vishay ISO9001 quality program results in the highest isolation performance available for a commercial plastic phototransistor optocoupler.

The devices are available in lead formed configuration suitable for surface mounting and are available either on tape and reel, or in standard tube shipping containers.

Footnotes

Designing with data sheet is covered in Application Note 45.

Order Information

Part	Remarks
H11A1	CTR > 50 %, DIP-6
H11A2	CTR > 20 %, DIP-6
H11A3	CTR > 20 %, DIP-6
H11A4	CTR > 10 %, DIP-6
H11A5	CTR > 30 %, DIP-6
H11A1-X006	CTR > 50 %, DIP-6 400 mil (option 6)
H11A1-X007	CTR > 50 %, SMD-6 (option 7)
H11A1-X009	CTR > 50 %, SMD-6 (option 9)

For additional information on the available options refer to Option Information.

Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Stresses in excess of the absolute Maximum Ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute Maximum Rating for extended periods of the time can adversely affect reliability.

Input

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	6.0	V
Forward current		I_F	60	mA
Surge current	$t \leq 10\text{ }\mu\text{s}$	I_{FSM}	2.5	A
Power dissipation		P_{diss}	100	mW

Output

Parameter	Test condition	Symbol	Value	Unit
Collector-emitter breakdown voltage		V_{CEO}	70	V
Emitter-base breakdown voltage		V_{EBO}	7.0	V
Collector current		I_C	50	mA
	$(t < 1.0\text{ ms})$	I_C	100	mA
Power dissipation		P_{diss}	150	mW

Coupler

Parameter	Test condition	Symbol	Value	Unit
Isolation test voltage		V_{ISO}	5300	V_{RMS}
Creepage			≥ 7.0	mm
Clearance			≥ 7.0	mm
Isolation thickness between emitter and detector			≥ 0.4	mm
Comparative tracking index per DIN IEC 112/VDE0303, part 1			175	
Isolation resistance	$V_{IO} = 500\text{ V}, T_{amb} = 25\text{ }^{\circ}\text{C}$	R_{IO}	10^{12}	Ω
	$V_{IO} = 500\text{ V}, T_{amb} = 100\text{ }^{\circ}\text{C}$	R_{IO}	10^{11}	Ω
Storage temperature		T_{amb}	- 55 to + 150	$^{\circ}\text{C}$
Operating temperature		T_{stg}	- 55 to + 100	$^{\circ}\text{C}$
Junction temperature		T_j	100	$^{\circ}\text{C}$
Soldering temperature	max. 10 s dip soldering: distance to seating plane $\geq 1.5\text{ mm}$	T_{sld}	260	$^{\circ}\text{C}$



Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Minimum and maximum values are testing requirements. Typical values are characteristics of the device and are the result of engineering evaluation. Typical values are for information only and are not part of the testing requirements.

Input

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 10\text{ mA}$	H11A1	V_F		1.1	1.5	V
		H11A2	V_F		1.1	1.5	V
		H11A3	V_F		1.1	1.5	V
		H11A4	V_F		1.1	1.5	V
		H11A5	V_F		1.1	1.7	V
Reverse current	$V_R = 3.0\text{ V}$		I_R			10	μA
Capacitance	$V_R = 0, f = 1.0\text{ MHz}$		C_O		50		pF

Output

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Collector-emitter breakdown voltage	$I_C = 1.0\text{ mA}, I_F = 0\text{ mA}$	BV_{CEO}	30			V
Emitter-collector breakdown voltage	$I_E = 100\text{ }\mu\text{A}, I_F = 0\text{ mA}$	BV_{ECO}	7.0			V
Collector-base breakdown voltage	$I_C = 10\text{ }\mu\text{A}, I_F = 0\text{ mA}$	BV_{CBO}	70			V
Collector-emitter leakage current	$V_{CE} = 10\text{ V}, I_F = 0\text{ mA}$	I_{CEO}		5.0	50	nA
Collector-emitter capacitance	$V_{CE} = 0$	C_{CE}		6.0		pF

Coupler

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Saturation voltage, collector-emitter	$I_{CE} = 0.5\text{ mA}, I_F = 10\text{ mA}$	V_{CEsat}			0.4	V
Capacitance (input-output)		C_{IO}		0.5		pF

Current Transfer Ratio

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
DC Current Transfer Ratio	$V_{CE} = 10\text{ V}, I_F = 10\text{ mA}$	H11A1	CTR_{DC}	50			%
		H11A2	CTR_{DC}	20			%
		H11A3	CTR_{DC}	20			%
		H11A4	CTR_{DC}	10			%
		H11A5	CTR_{DC}	30			%