



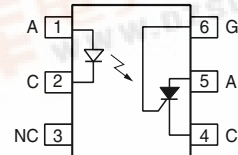
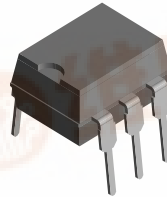
H11C4/ H11C5/ H11C6

Vishay Semiconductors

Optocoupler, PhotoSCR Output, 400 V V_{RM} , 5 A surge current

Features

- Turn on current (I_{FT}), 5.0 mA typical
- Gate trigger current (I_{GT}), 20 mA typical
- Surge anode current, 5.0 A
- Blocking voltage, 400 V gate trigger voltage (V_{GT}), 0.6 V typical
- Isolation test voltage 5300 V_{RMS}
- Solid State reliability
- Lead-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



1179006



Agency Approvals

- UL1577, File No. E52744 System Code H or J, Double Protection

Description

The H11C4/ H11C5/ H11C6 are optically coupled SCRs with a gallium arsenide infrared emitter and a silicon photo SCR sensor. Switching can be achieved while maintaining a high degree of isolation between triggering and load circuits. These optocouplers can be used in SCR triac and solid state relay applications where high blocking voltages and low input current sensitivity are required.

The H11C4 and H11C5 are identical and have a maximum turn-on-current of 11 mA. The H11C6 has a maximum of 14 mA.

Order Information

Part	Remarks
H11C4	$I_{FT} \leq 11$ mA, DIP-6
H11C5	$I_{FT} \leq 11$ mA, DIP-6
H11C6	$I_{FT} \leq 14$ mA, DIP-6
H11C4-X006	$I_{FT} \leq 11$ mA, DIP-6 400 mil (option 6)
H11C6-X009	$I_{FT} \leq 14$ mA, SMD-6 (option 9)

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

Absolute Maximum Ratings

$T_{amb} = 25$ °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
Peak reverse voltage		V_{RM}	6.0	V
Forward continuous current		I_F	60	mA
Peak forward current	1.0 ms, 1 % Duty Cycle	I_{FM}	3.0	A
Power dissipation		P_{diss}	100	mW
Derate linearly from 25 °C			1.33	mW/°C



H11C4/ H11C5/ H11C6



Vishay Semiconductors

Output

Parameter	Test condition	Symbol	Value	Unit
Reverse gate voltage		V_{RG}	6.0	V
Anode voltage	DC or AC peak	V_A	400	V
RMS forward current		I_{FRMS}	300	mA
Surge anode current	10 ms duration	I_{AS}	5.0	A
Peak forward current	100 μ s, 1% Duty Cycle	I_{FM}	10	A
Surge gate current	5.0 ms duration	I_{GS}	200	mA
Power dissipation		P_{diss}	1000	mW
Derate linearly from 25°C			13.3	mW/°C

Coupler

Parameter	Test condition	Symbol	Value	Unit
Isolation test voltage (between emitter and detector referred to standard climate 23 °C/ 50 % RH, DIN 50014)		V_{ISO}	5300	V_{RMS}
Creepage			≥ 7.0	mm
Clearance			≥ 7.0	mm
Comparative tracking index per DIN IEC 112/VDE 0303, part 1			175	
Isolation resistance	$V_{IO} = 500$ V, $T_{amb} = 25$ °C	R_{IO}	$\geq 10^{12}$	Ω
	$V_{IO} = 500$ V, $T_{amb} = 100$ °C	R_{IO}	$\geq 10^{11}$	Ω
Total package dissipation		P_{tot}	400	mW
Derate linearly from 25 °C			5.5	mW/°C
Operating temperature range		T_{amb}	- 55 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 150	°C
Lead soldering time at 260 °C			10	sec.

Electrical Characteristics

$T_{amb} = 25$ °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	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 10$ mA	V_F		1.2	1.5	V
Reverse current	$V_R = 3.0$ V	I_R			10	μ A
Capacitance	$V_R = 0$, $f = 1.0$ MHz	C_O		50		pF

Output

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward blocking voltage	$R_{GK} = 10$ K Ω , $T_A = 100$ °C, $I_d = 150$ μ A	V_{DM}	400			V
Reverse blocking voltage	$R_{GK} = 10$ K Ω , $T_A = 100$ °C, $I_d = 150$ μ A	V_{DM}	400			V
On-state voltage	$I_T = 300$ mA	V_t		1.1	1.3	V
Holding current	$R_{GK} = 27$ K Ω , $V_{FX} = 50$ V	I_H			500	μ A



H11C4/ H11C5/ H11C6

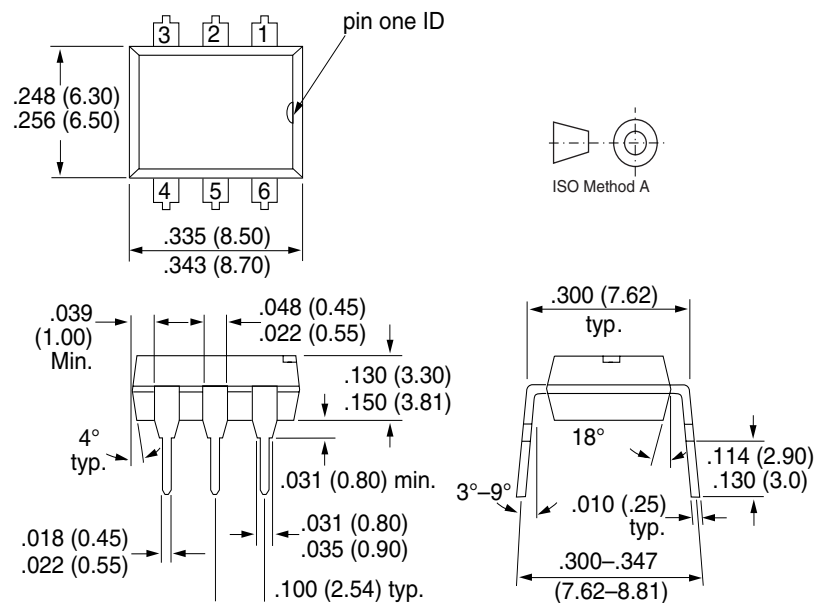
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Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Gate trigger voltage	$V_{FX} = 100\text{ V}$, $R_{GK} = 27\text{ k}\Omega$, $R_L = 10\text{ k}\Omega$	V_{GT}		0.6	1.0	V
Forward leakage current	$R_{GK} = 10\text{ k}\Omega$, $V_{RX} = 400\text{ V}$, $I_F = 0$, $T_A = 100\text{ }^\circ\text{C}$	I_R		150		μA
Reverse leakage current	$R_{GK} = 10\text{ k}\Omega$, $V_{RX} = 400\text{ V}$, $I_F = 0$, $T_A = 100\text{ }^\circ\text{C}$	I_R		150		μA
Gate trigger current	$V_{FX} = 100\text{ V}$, $R_{RG} = 27\text{ k}\Omega$, $R_L = 10\text{ k}\Omega$	I_{GT}		20	50	μA
Capacitance, Anode to gate	$V = 0$, $f = 1.0\text{ MHz}$			20		pF
Capacitance, Gate to cathode	$V = 0$, $f = 1.0\text{ MHz}$			350		pF

Coupler

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Turn-on current	$V_{DM} = 50\text{ V}$, $R_{GK} = 10\text{ k}\Omega$	H11C4	I_{FT}			20	mA
		H11C5	I_{FT}			20	mA
		H11C6	I_{FT}			30	mA
	$V_{DM} = 100\text{ V}$, $R_{GK} = 27\text{ k}\Omega$	H11C4	I_{FT}		5.0	11	mA
		H11C5	I_{FT}		5.0	11	mA
		H11C6	I_{FT}		7.0	14	mA

Package Dimensions in Inches (mm)



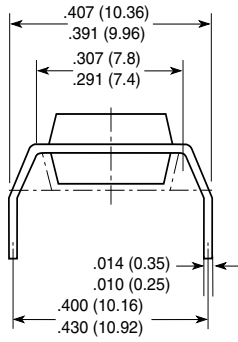
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H11C4/ H11C5/ H11C6

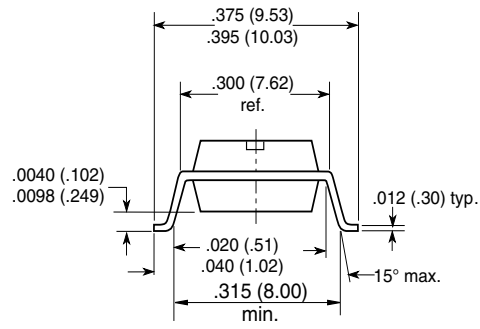
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Option 6



Option 9



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Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423