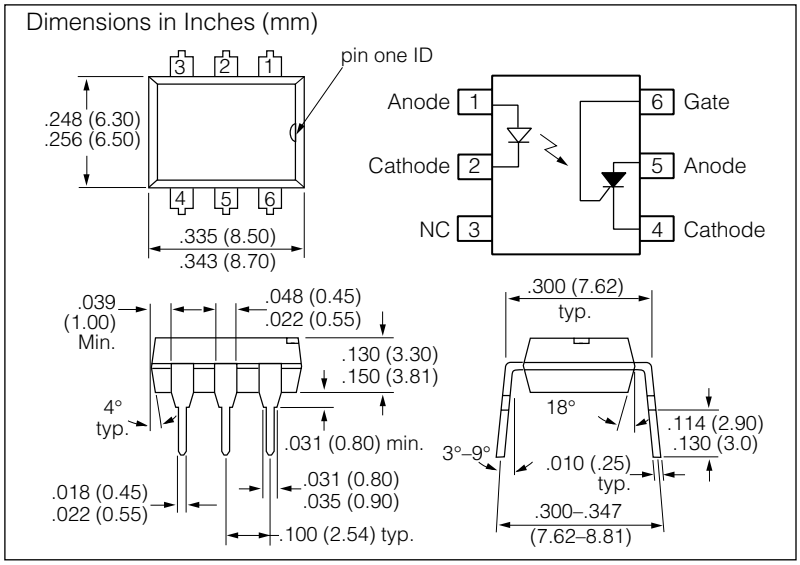
H11C4/H11C5/H11C6

Photo SCR Optocoupler



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 Voltage, 5300 V_{RMS}**
- **Solid State Reliability**
- **Standard DIP Package**
- **Underwriters Lab File #E52744**

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.

Maximum Ratings

Emitter

Peak Reverse Voltage ..... 6.0 V
Continuous Forward Current ..... 60 mA
Peak Forward Current (1.0 ms, 1% Duty Cycle)..... 3.0 A
Power Dissipation at 25°C ..... 100 mW
Derate Linearly from 25°C ..... 1.33 mW/°C

Detector

Reverse Gate Voltage..... 6.0 V
Anode Voltage (DC or AC Peak) ..... 400 V
RMS Forward Current..... 300 mA
Surge Anode Current (10 ms duration)..... 5.0 A
Peak Forward Current (100 µs, 1% Duty Cycle) .. 10 A
Surge Gate Current (5.0 ms duration)..... 200 mA
Power Dissipation, 25°C case..... 1000 mW
Derate Linearly from 25°C ..... 13.3 mW/°C

Package

Isolation Test Voltage..... 5300 V_{RMS}
(between emitter and detector referred to Standard Climate23°C/50%RH, DIN 50014)
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_A=25°C..... ≥10^{12} Ω
V_{IO}=500 V, T_A=100°C..... ≥10^{11} Ω
Total Package Dissipation ..... 400 mW
Derate Linearly from 25°C ..... 5.3 mW/°C
Operating Temperature Range..... –55°C to +100°C
Storage Temperature Range ..... –55°C to +150°C
Lead Soldering Time at 260°C ..... 10 sec.

Characteristics T_A=25°C

Parameters	Sym	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V_F	—	1.2	1.5	V	I_F=10 mA
Reverse Current	I_R	—	—	10	µA	V_R=3.0 V
Capacitance	C_O	—	50	—	pF	V_R=0, f=1.0 MHz
Detector						
Forward Blocking Voltage	V_{DM}	400	—	—	V	R_{GK}=10 KΩ T_A=100°C I_d=150 µA
Reverse Blocking Voltage	V_{DM}	400	—	—	V	
On-state Voltage	V_t	—	1.1	1.3	V	I_T=300 mA
Holding Current	I_H	—	—	500	µA	R_{GK}=27 KΩ V_{FX}=50 V
Gate Trigger Voltage	V_{GT}	—	0.6	1.0	V	V_{FX}=100 V R_{GK}=27 KΩ R_L=10 KΩ
Forward Leakage Current	I_R	—	150	—	µA	R_{GK}=10 KΩ V_{RM}=400 V I_F=0, T_A=100°C
Reverse Leakage Current	I_R	—	150	—	µA	R_{GK}=10 KΩ V_{RX}=400 V I_F=0, T_A=100°C
Gate Trigger Current	I_{GT}	—	20	50	µA	V_{FX}=100 V R_{GK}=27 KΩ, R_L=10 KΩ
Capacitance Anode to Gate Gate to Cathode	—	—	 20 350	—	 pF pF	V=0, f=1.0 MHz
Package						
Turn-0n Current H11C4/H11C5 H11C6	I_{FT}	—	—	 20 30	 mA mA	 V_{DM}=50 V R_{GK}=10 KΩ
Turn-0n Current H11C4/H11C5 H11C6	I_{FT}	—	 5.0 7.0	 11 14	 mA mA	 V_{DM}=100 V R_{GK}=27 KΩ

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