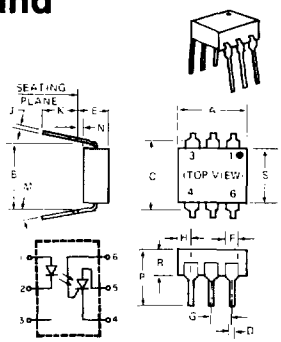
H11C4, H11C5, H11C6
Optoisolator
GaAs Infrared Emitting Diode and Light Activated SCR

The H11C4, H11C5 and H11C6 are gallium arsenide, infrared emitting diodes coupled with light activated silicon controlled rectifiers in a dual in-line package. These devices are also available in surface-mount packaging.



SYMBOL	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX	NOTES
A	8.38	8.89	.330	.350	
B	7.62 REF		.300 REF		1
C		8.64		.340	2
D	.406	.508	.016	.020	
E		5.08		.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	
H		2.16		.085	4
J	.203	.305	.008	.012	
K	2.54	-	.100		
M	-	15		15	
N	.381	-	.015	-	
P		9.53		.375	
R	2.92	3.43	.115	.135	
S	6.10	6.86	.240	.270	

NOTES:
1. INSTALLED POSITION LEAD CENTERS
2. OVERALL INSTALLED DIMENSION
3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE
4. FOUR PLACES

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	60	milliamps
Forward Current (Peak) (Pulse width 1μsec 300 P Ps)	3	ampere
Reverse Voltage	6	volts

*Derate 1.33mW/°C above 25°C ambient.

PHOTO – SCR		
Peak Forward Voltage	400	volts
RMS Forward Current	300	milliamps
Forward Current (Peak) (100μsec 1% duty cycle)	10	amperes
Surge Current (10m sec)	5	amperes
Reverse Gate Voltage	6	volts
Power Dissipation (25°C Ambient)	** 400	milliwatts
Power Dissipation (25°C Case)	***1000	milliwatts

**Derate 5.3mW/°C above 25°C ambient.
***Derate 13.3mW/°C above 25°C case.

TOTAL DEVICE
Storage Temperature -55 to 150°C
Operating Temperature -55 to 100°C
Lead Soldering Time (at 260°C) 10 seconds
Surge Isolation Voltage (Input to Output).
H11C4 $5656V_{(peak)}$ $4000V_{(RMS)}$
H11C5-H11C6 $3535V_{(peak)}$ $2500V_{(RMS)}$
Steady-State Isolation Voltage (Input to Output).
H11C4 $5300V_{(peak)}$ $3750V_{(RMS)}$
H11C5-H11C6 $3180V_{(peak)}$ $2250V_{(RMS)}$

individual electrical characteristics (25°C)

INFRARED EMITTING DIODE		TYP.	MAX.	UNITS
Forward Voltage (I_F = 10mA)	V_F	1.2	1.5	volts
Reverse Current (V_R = 3V)	I_R	–	10	microamps
Capacitance (V = 0,f = 1MHz)	C_J	50	–	picofarads

PHOTO – SCR	MIN.	TYP.	MAX.	UNITS
Off-State Voltage – V_{DM} (R_{GK} = 10KΩ, 100°C, I_D = 150μA)	400	–	–	volts
Reverse Voltage – V_{RM} (R_{GK} = 10KΩ, 100°C, I_D = 150μA)	400	–	–	volts
On-State Voltage – V_{TM} (I_{TM} = .3 amp)	–	1.1	1.3	volts
Off-state Current – I_{DM} (V_{DM} = 400V, T_A = 100°C, R_{GK} = 10K)	–	–	150	microamps
Reverse Current – I_{RM} (V_{RM} = 400V, T_A = 100°C, R_{GK} = 10K)	–	–	150	microamps
Capacitance (Anode-Gate)	–	20	–	picofarads
V=0V,f=1MHz (Gate-Cathode)	–	350	–	picofarads

coupled electrical characteristics (25°C)

		MIN.	TYP.	MAX.	UNITS
Input Current to Trigger (V_{AK} = 50V, R_{GK} = 10KΩ)	H11C4, C5	–	–	20	milliamps
	H11C6	–	–	30	milliamps
Input Current to Trigger (V_{AK} = 100 V, R_{GK} = 27KΩ)	H11C4, C5	–	–	11	milliamps
	H11C6	–	–	14	milliamps
Isolation Resistance (Input to Output Voltage = $500V_{DC}$)		100	–	–	gigaohms
Input to Output Capacitance (Input to Output Voltage = 0,f = 1MHz)		–	–	2	picofarads
Coupled dv/dt, Input to Output (See Figure 13)		500	–	–	volts/μsec

Covered under U.L. component recognition program, reference file E51868

VDE Approved to 0883/6.80/0110b Certificate # 35025

TYPICAL CHARACTERISTICS

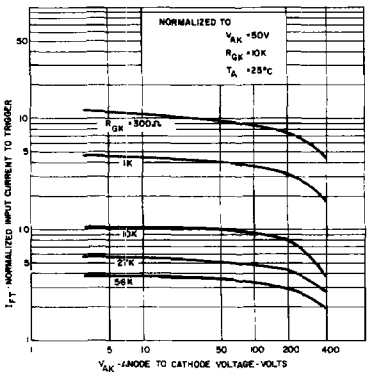


FIGURE 1. INPUT CURRENT TO TRIGGER VS. ANODE-CATHODE VOLTAGE

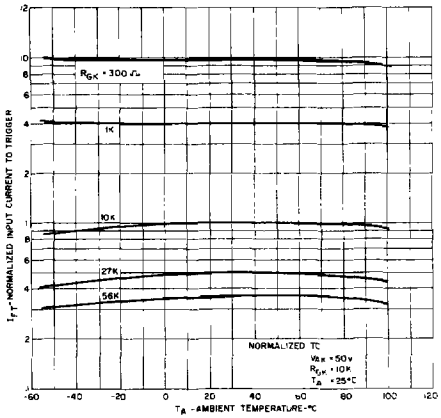


FIGURE 2. INPUT CURRENT TO TRIGGER VS. TEMPERATURE

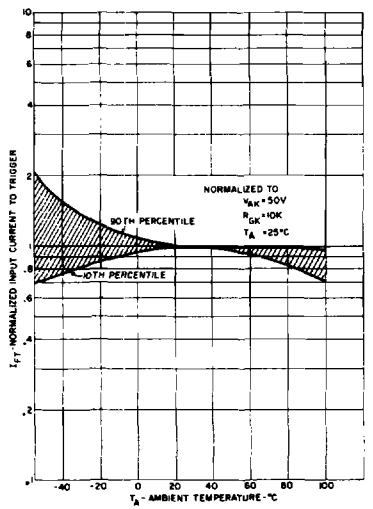


FIGURE 3. INPUT CURRENT TO TRIGGER DISTRIBUTION VS. TEMPERATURE

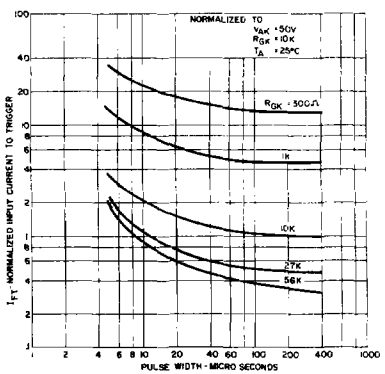


FIGURE 4. INPUT CURRENT TO TRIGGER VS. PULSE WIDTH

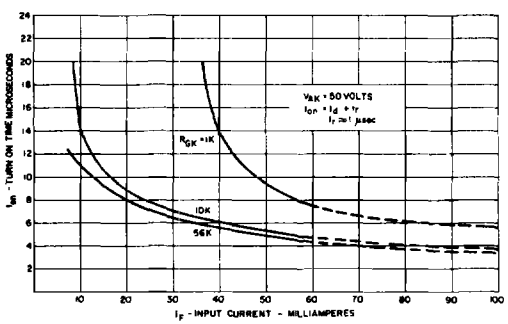


FIGURE 5. TURN-ON TIME VS. INPUT CURRENT

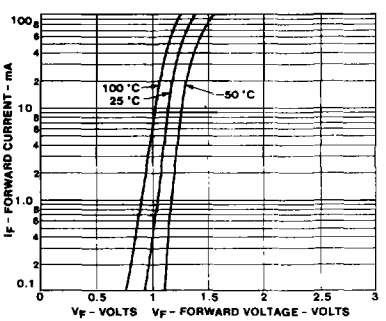


FIGURE 6. INPUT CHARACTERISTICS I_F VS. V_F

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H11C4, H11C5, H11C6

TYPICAL CHARACTERISTICS OF OUTPUT (SCR)

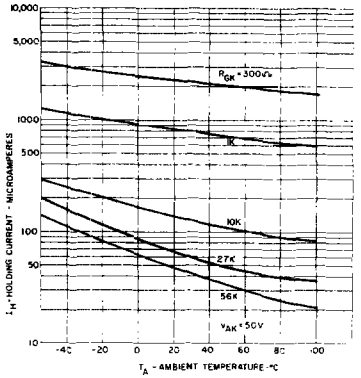


FIGURE 7. HOLDING CURRENT VS. TEMPERATURE

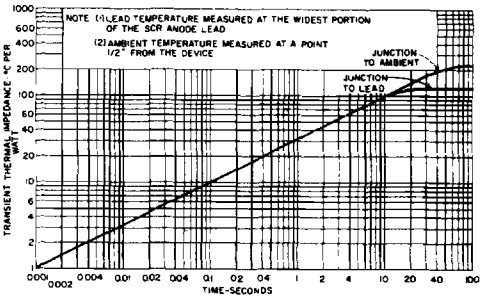


FIGURE 8. MAXIMUM TRANSIENT THERMAL IMPEDANCE

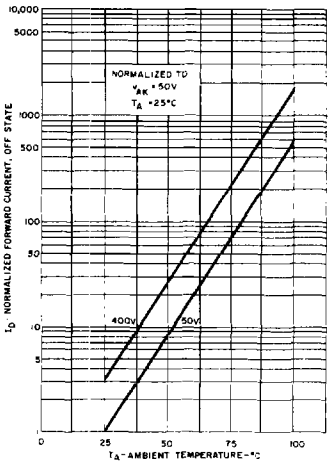


FIGURE 9. OFF-STATE FORWARD CURRENT VS. TEMPERATURE

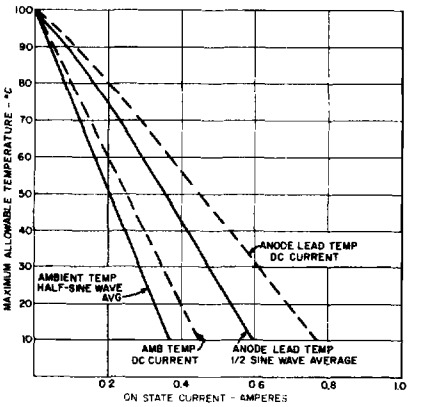


FIGURE 10. ON-STATE CURRENT VS. MAXIMUM ALLOWABLE TEMPERATURE

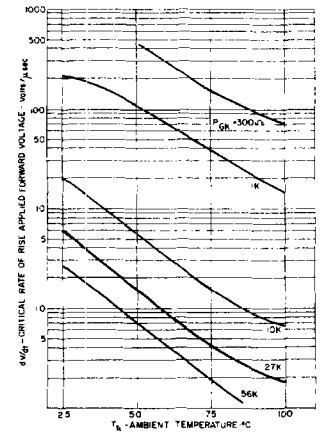


FIGURE 11. dv/dt VS. TEMPERATURE

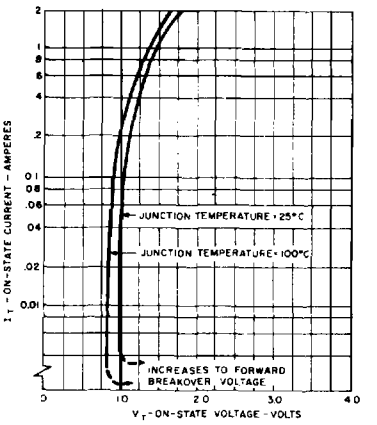
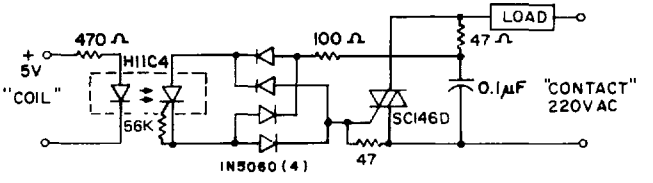


FIGURE 12. ON-STATE CHARACTERISTICS

TYPICAL APPLICATIONS

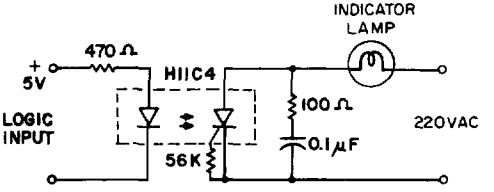
10A, T^2L COMPATIBLE, SOLID STATE RELAY

Use of the H11C4 for high sensitivity, 2500V isolation capability, provides this highly reliable solid state relay design. This design is compatible with 74, 74S and 74H series T^2L logic systems inputs and 220V AC loads up to 10A.



25W LOGIC INDICATOR LAMP DRIVER

The high surge capability and non-reactive input characteristics of the H11C allow it to directly couple, without buffers, T^2L and DTL logic to indicator and alarm devices, without danger of introducing noise and logic glitches.



400V SYMMETRICAL TRANSISTOR COUPLER

Use of the high voltage PNP portion of the H11C provides a 400V transistor capable of conducting positive and negative signals with current transfer ratios of over 1%. This function is useful in remote instrumentation, high voltage power supplies and test equipment. Care should be taken not to exceed the H11C 400 mW power dissipation rating when used at high voltages.

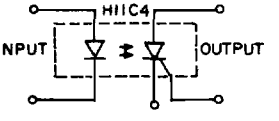
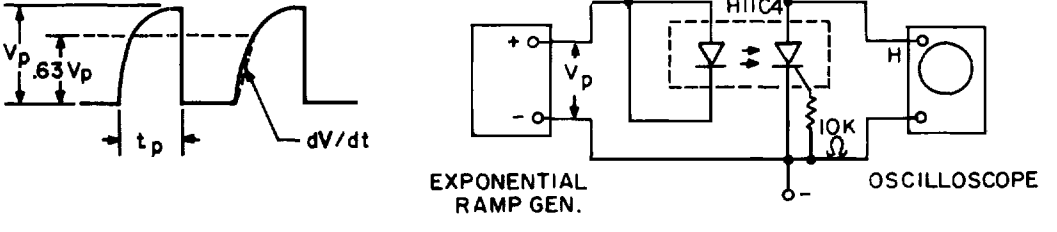


FIGURE 13
COUPLED dv/dt – TEST CIRCUIT



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