

Photon Coupled Isolator H11C4, H11C5, H11C6

T=41-87

Ga As Infrared Emitting Diode & Light Activated SCR

The GE Solid State 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.

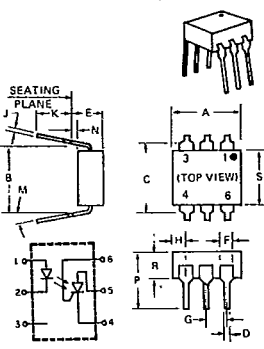
absolute maximum ratings: (25°C)

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.



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	8.38	8.69	.330	.350	1
B	7.62 REF.	—	.300 REF.	—	
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	2.60	.090	.110	4
H	—	2.16	—	.085	
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	6.66	.240	.270	—

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

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
Capacitance (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} = 100V, 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

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TYPICAL CHARACTERISTICS

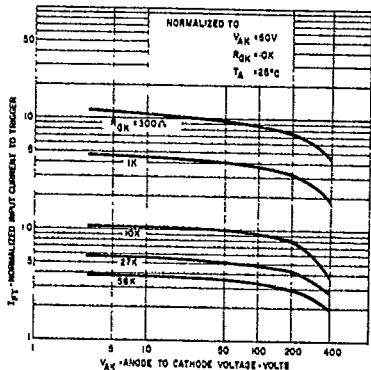


FIGURE 1. INPUT CURRENT TO TRIGGER VS. ANODE-CATHODE VOLTAGE

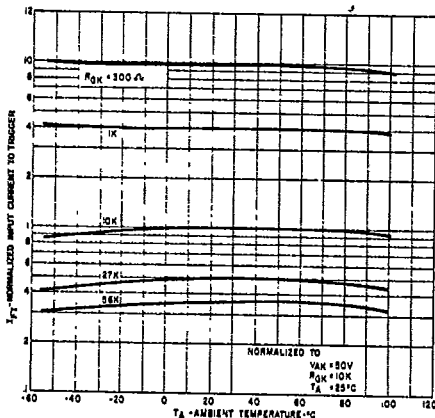


FIGURE 2. INPUT CURRENT TO TRIGGER VS. TEMPERATURE

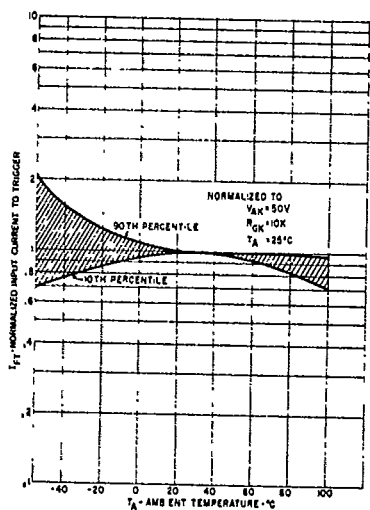


FIGURE 3. INPUT CURRENT TO TRIGGER DISTRIBUTION VS. TEMPERATURE

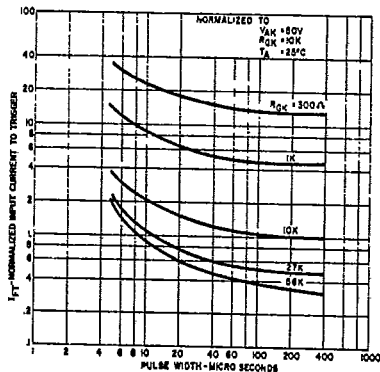


FIGURE 4. INPUT CURRENT TO TRIGGER VS. PULSE WIDTH

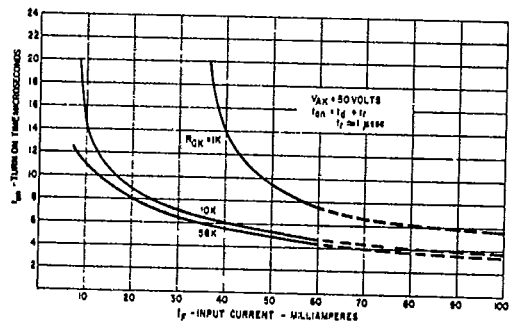


FIGURE 5. TURN-ON TIME VS. INPUT CURRENT

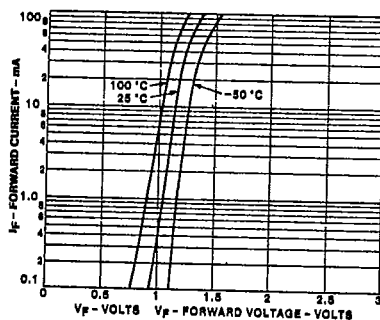


FIGURE 6. INPUT CHARACTERISTICS I_F VS. V_F

HARRIS SEMICONDUCTOR SECTOR 37E D 430227J 0027J8J 5 HAS



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HAS
4302271 0027162 7
37E D
HARRIS SEMICONDUCTOR

TYPICAL CHARACTERISTICS OF OUTPUT (SCR)

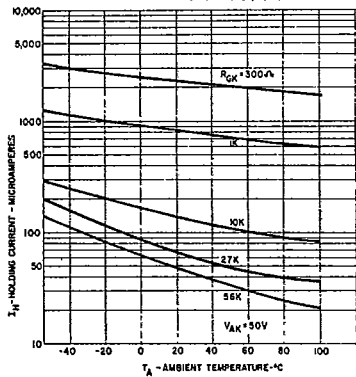


FIGURE 7. HOLDING CURRENT VS. TEMPERATURE

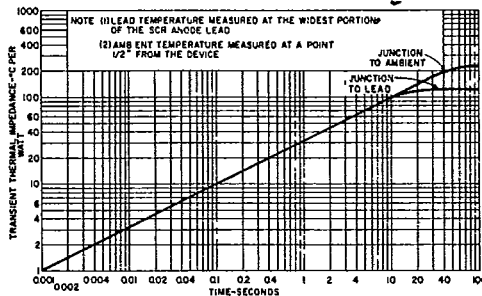


FIGURE 8. MAXIMUM TRANSIENT THERMAL IMPEDANCE

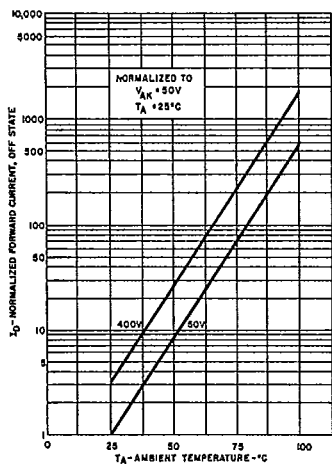


FIGURE 9. OFF-STATE FORWARD CURRENT VS. TEMPERATURE

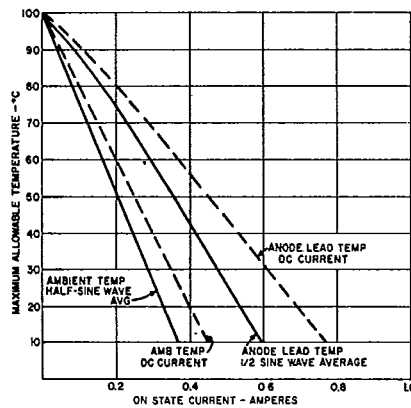


FIGURE 10. ON-STATE CURRENT VS. MAXIMUM ALLOWABLE TEMPERATURE

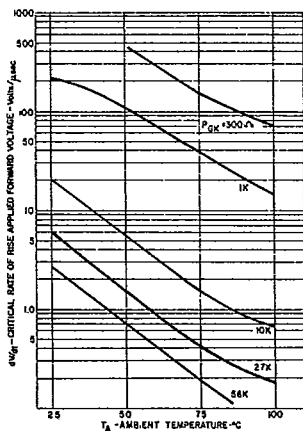


FIGURE 11. dv/dt VS. TEMPERATURE

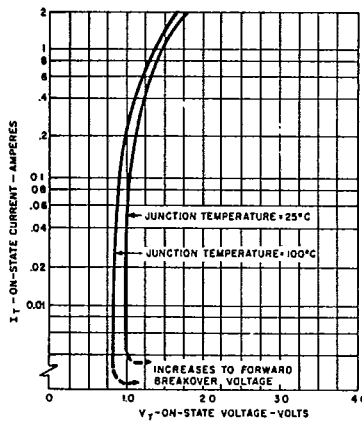


FIGURE 12. ON-STATE CHARACTERISTICS

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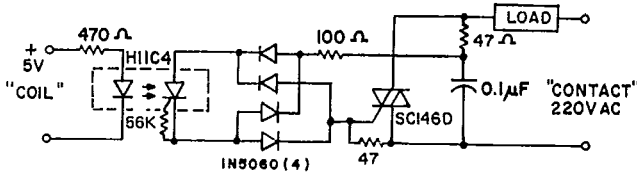
TYPICAL APPLICATIONS

HARRIS SEMICOND SECTOR

37E D ■ 4302271 0027183 9 ■ HAS

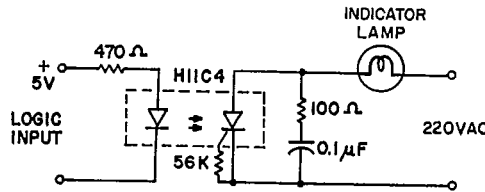
10A, T²L COMPATIBLE, SOLID STATE RELAY

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 T²L 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, T²L 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.

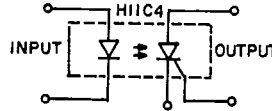
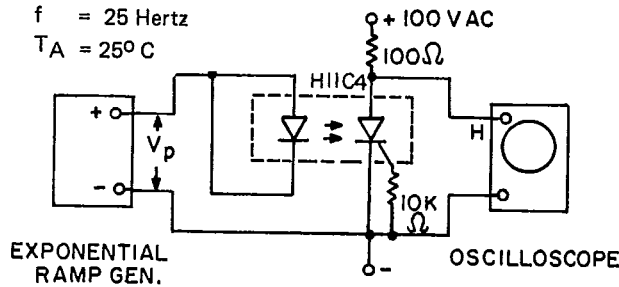
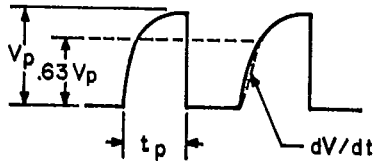


FIGURE 13
COUPLED dv/dt - TEST CIRCUIT

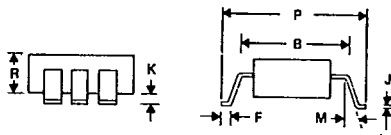
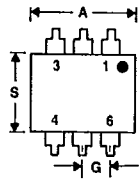
10

$V_p = 800$ Volts
 $t_p = .010$ Seconds
 $f = 25$ Hertz
 $T_A = 25^\circ$ C



T-91-20

Surface-Mount Optoisolators



Surface-mount packaging for the entire 6-pin DIP optoisolator line!

Add the "SMA" or "SMB" suffix to any 6-pin optoisolator part number when ordering.

DIMENSIONAL OUTLINE NO. 298
All Surface-Mount Types

SMB (Standard)
Surface-Mount Package

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0040	0.0098	0.102	0.249	
M	—	15°	—	15°	
P	0.375	0.395	9.53	10.03	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42862

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.

SMA (Low Profile)
Surface-Mount Package

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0005	0.0040	0.013	0.102	
M	—	15°	—	15°	
P	0.373	0.393	9.47	9.98	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42861

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.

