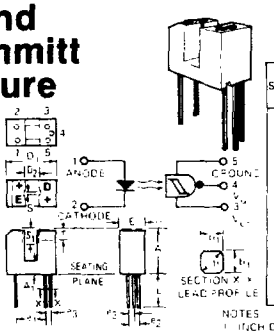
H22L1, H22L2

Optointerrupter GaAs Infrared Emitting Diode and Microprocessor Compatible Schmitt Trigger Module with 1mm Aperture

The H22L series is a gallium arsenide, infrared emitting diode coupled to a high-speed integrated circuit detector. The output incorporates a Schmitt trigger which provides hysteresis for noise immunity and pulse shaping. The gap in the plastic housing provides a means of interrupting the signal with an opaque material, switching the output from an "ON" into an "OFF" state.



SYMBOL	MILLIMETERS MIN	MILLIMETERS MAX.	INCH MIN	INCH MAX	NOTES
A	10.7	11.0	.422	.433	
A1	3.0	3.2	.119	.125	
A2	6.00	7.60	.024	.030	2
B	.50 NOM		.020 NOM		2
B1	11.6	12.0	.457	.472	
B2	3.0	-	.119		
C1	6.8	7.2	.272	.295	
C2	2.5	2.8	.091	.110	
C3	1.14	1.4	.045	.055	
E	6.15	6.35	.243	.249	
F	8.00	-	.315	-	
S	.85	1.0	.034	.039	
S1	3.64 NOM		.165 NOM		
T	2.6 NOM		.103 NOM		3

NOTES
1. INCH DIMENSIONS ARE DERIVED FROM MILLIMETERS
2. FOUR LEADS. LEAD CROSS SECTION IS CONTROLLED BETWEEN 1.27 MM (.050") FROM SEATING PLANE AND THE END OF THE LEADS
3. THE SENSING AREA IS DEFINED BY THE .5 DIMENSION AND BY DIMENSION T: 0.75 MM (.030 INCH)

TOTAL DEVICE			
Storage Temperature	T_{STG}	-55°C to +85°C	
Operating Temperature	T_J	-55°C to +85°C	
Lead Soldering Temperature (5 seconds maximum)	T_L	260°C	

INFRARED EMITTING DIODE			
Power Dissipation	P_E	*100	mW
Forward Current (Continuous)	I_F	60	mA
Forward Current (Peak) (Pulse width ≤ 1 μs PRR ≤ 300 pps)	I_F	3	A
Reverse Voltage	V_R	6	V

*Derate 1.33 mW/°C above 25°C ambient

PHOTO DETECTOR			
Power Dissipation	P_D	**150	mW
Output Current	I_4	50	mA
Allowed Range	V_{45}	0 to 16	V
Allowed Range	V_{43}	0 to 16	V

**Derate 2.0 mW/°C above 25°C ambient

individual electric characteristics: (0-70° C) (See Note 1)

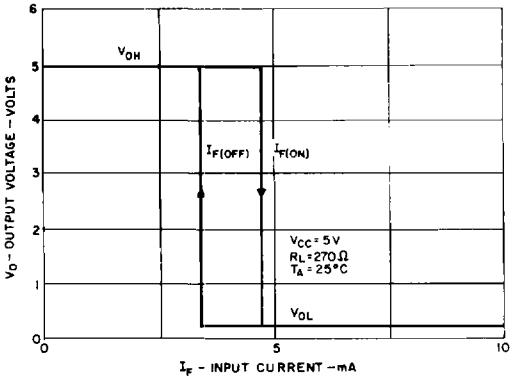
EMITTER		MIN.	TYP.	MAX.	UNITS
Forward Voltage (I_F = 20 mA)	V_F	—	1.10	1.60	volts
Reverse Current (V_R = 3V)	I_R	—	—	10	micro-ampere
Capacitance (V = 0, f = 1 MHz)	C_J	—	—	100	pico-farads

DETECTOR		MIN.	TYP.	MAX.	UNITS
Operating Voltage Range	V_C	4	—	15	volts
Supply Current (I_F = 0, V_{CC} = 5V)	$I_{S(off)}$	—	1.0	5.0	milli-ampere
Output Current, High (I_F = 0, V_{CC} = V_O = 15V)	I_{OH}	—	—	100	micro-ampere

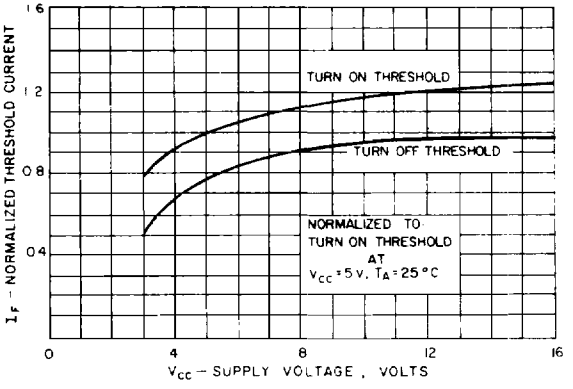
			MIN.	TYP.	MAX.	UNITS
Supply Current (I_F = 20mA, V_{CC} = 5V)	$I_{S(on)}$		—	1.6	5.0	milliampere
Output Voltage, Low (R_L = 270Ω V_{CC} = 5V, I_F = 30 mA)	V_{OL}		—	0.2	0.4	volts
Turn-On Threshold Current (R_L = 270Ω, V_{CC} = 5V)	$I_{F(on)}$	H22L1	—	20	30	milliampere
		H22L2	—	10	15.0	milliampere
Turn-Off Threshold Current (R_L = 270Ω, V_{CC} = 5V)	$I_{F(off)}$ / $I_{F(on)}$	H22L1	0.5	15	—	milliampere
		H22L2	0.5	8	—	milliampere
Hysteresis Ratio (R_L = 270Ω, V_{CC} = 5V)	$I_{F(off)}/I_{F(on)}$		0.50	0.75	0.90	—
Switching Speeds: (R_L = 270Ω, V_{CC} = 5V, T_A = 25°C, I_F = 20 mA)						
Rise Time	t_r		—	0.1	—	μsec
Fall Time	t_f		—	0.1	—	μsec

Note 1: Stray irradiation can alter values of characteristics. Adequate shielding should be provided.

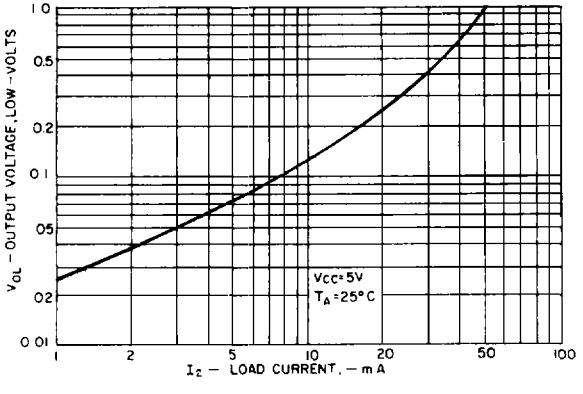
TYPICAL CHARACTERISTICS



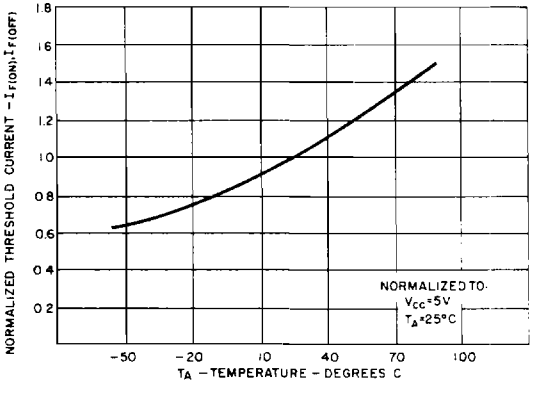
TRANSFER CHARACTERISTICS



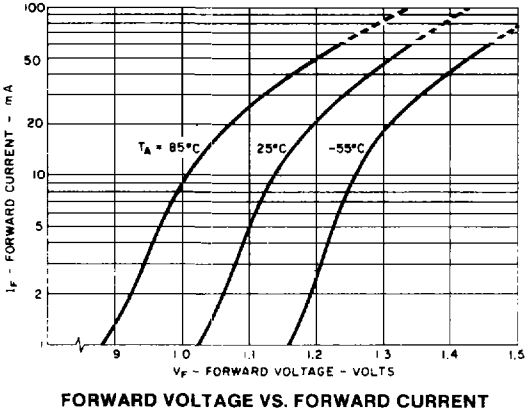
THRESHOLD CURRENT VS. SUPPLY VOLTAGE



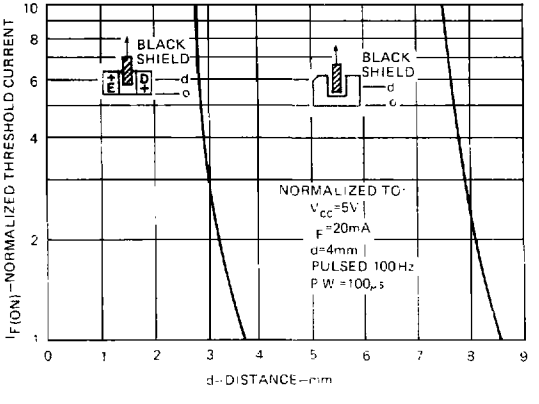
ON VOLTAGE VS. LOAD CURRENT



THRESHOLD CURRENTS VS. TEMPERATURE



FORWARD VOLTAGE VS. FORWARD CURRENT



THRESHOLD CURRENT VS. SHIELD DISTANCE

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