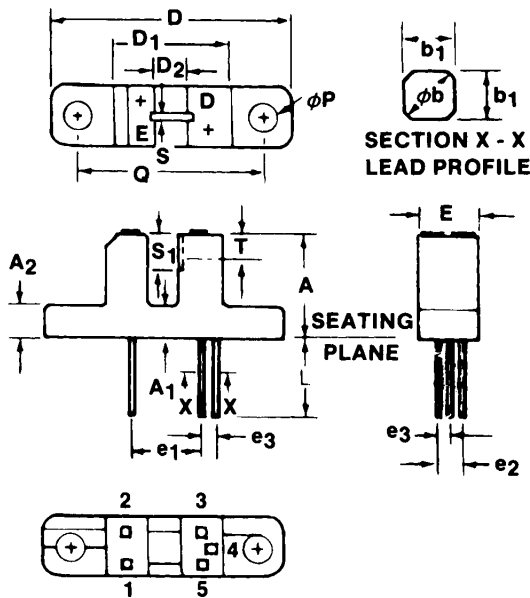


**PACKAGE DIMENSIONS**



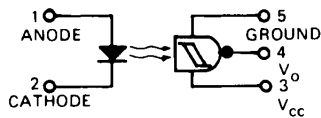
SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	10.7	11.0	.422	.433	
A <sub>1</sub>	3.0	3.2	.119	.125	
A <sub>2</sub>	3.0	3.2	.119	.125	
@b	.600	.750	.024	.030	2
b	.50 NOM.		.020 NOM.		2
D	24.3	24.7	.957	.972	
D <sub>1</sub>	11.6	12.0	.457	.472	
D <sub>2</sub>	3.0	—	.119	—	
e	6.9	7.5	.272	.295	
e <sub>2</sub>	2.3	2.8	.091	.110	
e <sub>3</sub>	1.14	1.40	.045	.055	
E	6.15	6.35	.243	.249	
L	8.00	—	.315	—	
@p	3.2	3.4	.126	.133	
Q	18.9	19.2	.745	.755	
S	.85	1.0	.034	.039	
S	3.94 NOM.		.155 NOM.		
T	2.6 NOM.		.103 NOM.		3

**NOTES**

1. INCH DIMENSIONS ARE DERIVED FROM MILLIMETERS.
2. FIVE 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 "S" DIMENSION AND BY DIMENSION "T" ±0.75 mm (±.030 INCH).

ST1344

**PACKAGE OUTLINE**



ST1610

**DESCRIPTION**

The H21L Slotted Optical Switch is a gallium arsenide light emitting diode coupled to a high speed integrated circuit detector in a plastic housing. The output incorporates a Schmitt trigger which provides hysteresis for noise immunity and pulse shaping. The packaging system is designed to optimize the mechanical resolution, coupling efficiency, ambient light rejection, cost and reliability. The gap in the housing provides a means of interrupting the signal with an opaque material, switching the output from an "ON" to an "OFF" state.

**FEATURES**

- Opaque housing
- Low cost
- .035" apertures

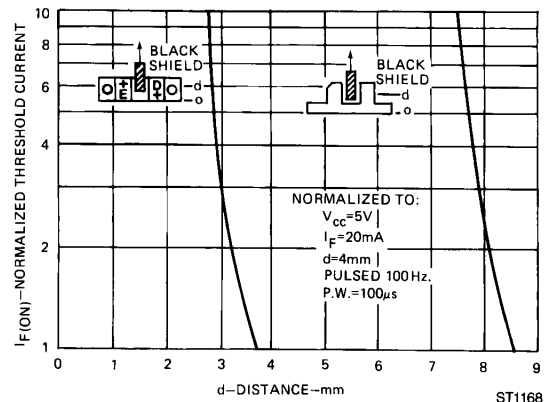
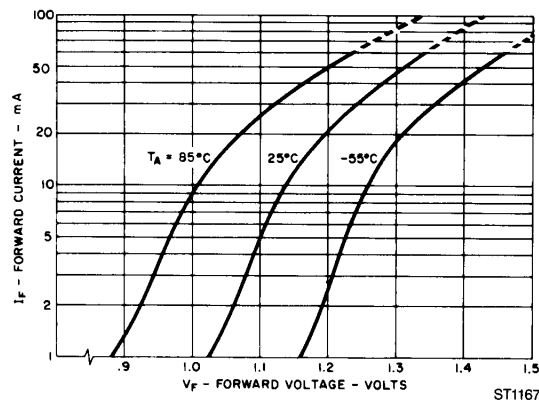
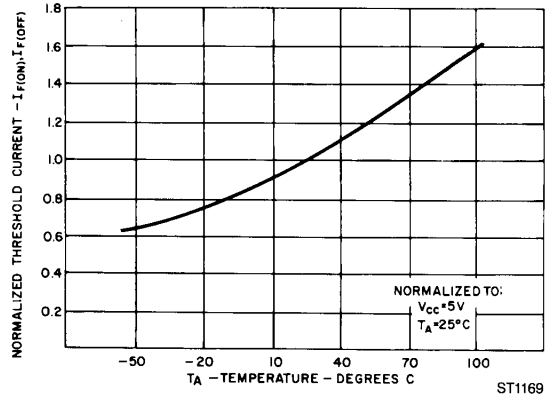
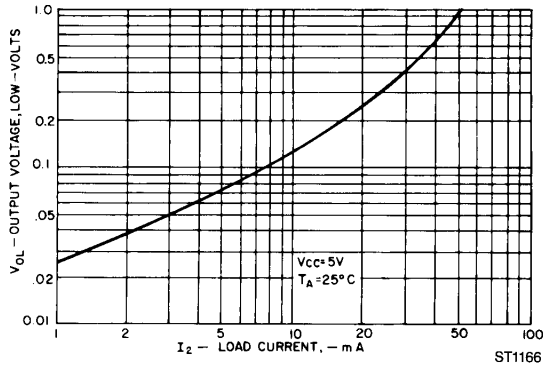
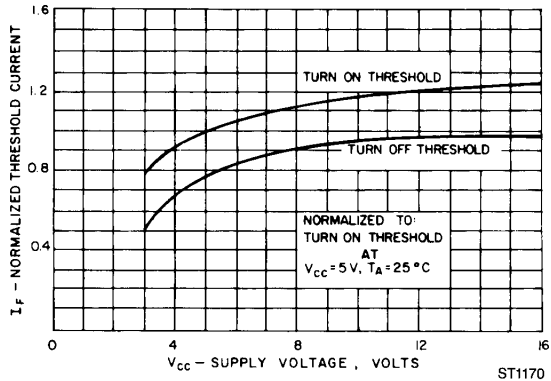
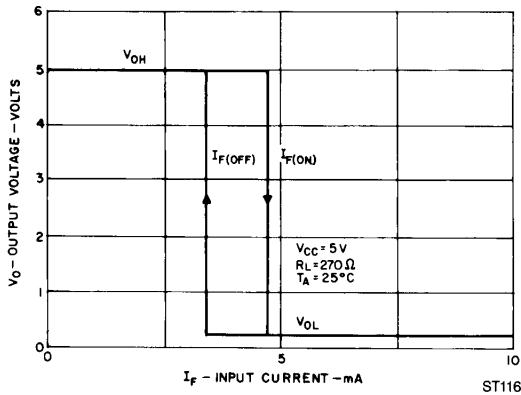
<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)	
Storage Temperature .....	$-55^\circ\text{C}$ to $+85^\circ\text{C}$
Operating Temperature .....	$-55^\circ\text{C}$ to $+85^\circ\text{C}$
Soldering:	
Lead Temperature (Iron) .....	$240^\circ\text{C}$ for 5 sec. <sup>(3,4,5)</sup>
Lead Temperature (Flow) .....	$260^\circ\text{C}$ for 10 sec. <sup>(3,4)</sup>
<b>INPUT DIODE</b>	
Continuous Forward Current .....	60 mA
Reverse Voltage .....	6.0 Volts
Power Dissipation .....	100mW <sup>(1)</sup>
<b>OUTPUT OPTOLOGIC™</b>	
Output Current $I_A$ .....	50 mA
Allowed Range $V_{35}$ .....	4 to 16 Volts
Allowed Range $V_{45}$ .....	2.4 to 16 Volts
Power Dissipation .....	150 mW (2)

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
<b>INPUT DIODE</b>						
Forward Voltage	$V_F$	—		1.6	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	$I_R$	—		10	$\mu\text{A}$	$V_R = 3\text{V}$
<b>OUTPUT OPTOLOGIC™</b>						
Operating Voltage Range	$V_C$	4		16	V	
Supply Current	$I_{S(\text{OFF})}$	—		5.0	mA	$I_F = 0, V_{CC} = 5\text{V}$
Supply Current	$I_{S(\text{ON})}$	—		5.0	mA	$I_F = 30\text{mA}, V_{CC} = 5\text{V}$

<b>NOTES</b>
<ol style="list-style-type: none"> <li>Derate power dissipation linearly 1.33mW/°C above 25°C.</li> <li>Derate power dissipation linearly 2.00mW/°C above 25°C.</li> <li>RMA flux is recommended.</li> <li>Methanol or Isopropyl alcohols are recommended as cleaning agents.</li> <li>Soldering iron tip 1/16" (1.6 mm) minimum from housing.</li> </ol>

<b>COUPLED ELECTRICAL CHARACTERISTICS</b>						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Output Current High	$I_{OH}$	—		100	$\mu A$	$I_F = 0, V_{CC} = 5V, V_O = 16V$
Output Voltage, Low	$V_{OL}$	—	0.2	0.4	V	$R_L = 270\Omega, V_{CC} = 5V, I_F = 30mA$
<b>TURN-ON THRESHOLD CURRENT</b>						
H21L1	$I_{F(ON)}$	—		30	mA	$R_L = 270\Omega, V_{CC} = 5V$
H21L2	$I_{F(ON)}$	—		15.0	mA	$R_L = 270\Omega, V_{CC} = 5V$
<b>TURN-OFF THRESHOLD CURRENT</b>						
H21L1	$I_{F(OFF)}$	0.5	15	—	mA	$R_L = 270\Omega, V_{CC} = 5V$
H21L2	$I_{F(OFF)}$	0.5	8	—	mA	$R_L = 270\Omega, V_{CC} = 5V$
Hysteresis Ratio	$I_{F(OFF)}/I_{F(ON)}$	0.50	0.75	0.90	—	$R_L = 270\Omega, V_{CC} = 5V$
<b>SWITCHING SPEEDS</b>						
Rise Time	$t_r$	—	0.1	—	$\mu S$	$R_L = 270\Omega, V_{CC} = 5V, I_F = 20mA$
Fall Time	$t_f$	—	0.1	—	$\mu S$	$R_L = 270\Omega, V_{CC} = 5V, I_F = 20mA$

**TYPICAL CHARACTERISTICS**





## SLOTTED OPTICAL SWITCH

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.