



BRIGHTTEK

BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET



- ▶ DC Input Photo Coupler
- ▶ DIP6 Gullwing 400mil
- ▶ Schmitt Trigger

H11LX(M)-GV



Release Date: 30 August 2024 Version: A00



H11LX(M) Series

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DESCRIPTION:

The H11LX(M) series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a Schmitt Trigger detector in a plastic DIP6 package with Gullwing lead forming option.



FEATURES:

- High isolation 5000 Vrms
- DC input with Schmitt Trigger output
- Operating temperature range -55°C to +100°C
- REACH & RoHS compliance
- MSL class 1
- Regulatory Approvals:
 - UL - UL1577
 - VDE - EN60747-5-5 (VDE0884-5)
 - CQC - GB4943.1, GB8898
 - cUL - CSA Component Acceptance Service Notice 5A
- Packing: 50pcs/tube

APPLICATIONS:

- Logic to logic isolator
- Programmable current level sensor
- Line receiver - eliminate noise and transient problems
- AC to TTL conversion square wave shaping
- Power Supply digital programming
- Interfaces computer peripherals



Partner with: 

**NAMING & ORDERING INFORMATION:**

Naming Information:

H11L X (M) - G V	
H11L	Part Number
X	Selection: Turn On Threshold Current (X=1/2/3)
M	Lead Form Option: DIP6 Gullwing
G	Green Option
V	VDE Option

Ordering Information:

H11L X (M) -GV						
<u>X</u> = Selection: Turn On Threshold Current (X=1/2/3)						
Part Number	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
H11L1(M)(T1)-GV	I _{Fon}	---	---	1.6	mA	V _{CC} =5V, R _L =270Ω
H11L2(M)(T1)-GV		---	---	10		
H11L3(M)(T1)-GV		---	---	5		

Version No.	Original Release Date
Rev: A00	22/06/2021

SCHEMATIC DIAGRAM & MARKING:

Schematic Diagram:

PIN Definition	
1	Anode
2	Cathode
3	NC
4	VOUT
5	GND
6	VCC

Marking Information:

Marking Definition	
TD	Manufacturer Code
H11LX	Part Number & Rank
V	VDE Applicable
Y	Fiscal Year
A	Manufacturing Code
WW	Work Week

Labelling Information:

 福建天电光电有限公司 FUJIAN LIGHTNING OPTOELECTRONIC CO.,LTD Part No.:XXXXXXXXX Bin Code: X Lot No.: XXXXXXXXXXXX Date Code: XXXX QTY: XXX PCS MSL: 1 Made in Quanzhou Fujian	This product is manufactured, tested, and packed by
	

ABSOLUTE CHARACTERISTICS:

Absolute Maximum Ratings:

Parameter	Symbol	Ratings	Unit
INPUT			
Forward Current	I_F	60	mA
Peak Transient Current	$I_{F(trans)}$	1 * ¹	A
Reverse Voltage	V_R	6	V
Input Power Dissipation	P_I	120	mW
OUTPUT			
Supply Voltage	V_{CC}	3 to 16	V
Output Voltage	V_O	0 to 16	V
Output Current	I_O	50	mA
Output Power Dissipation	P_O	150	mW
COMMON			
Total Power Dissipation	P_{tot}	250	mW
Isolation Voltage	V_{iso}	5000 * ²	Vrms
Operating Temperature	T_{opr}	-55~+100	°C
Storage Temperature	T_{stg}	-55~+150	°C
Soldering Temperature	T_{sol}	260 * ³	°C

*1. $\leq 1\mu s$ P.W., 300pps

*2. AC for 1 minute, R.H.=40~60%

*3. For 10 seconds

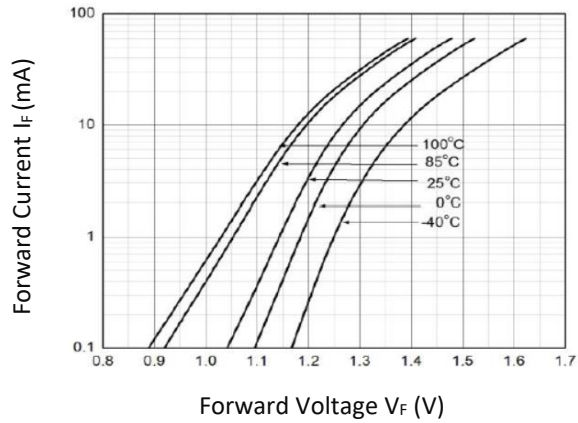
ELECTRICAL CHARACTERISTICS:

Electrical Optical Characteristics at Ta=25°C:

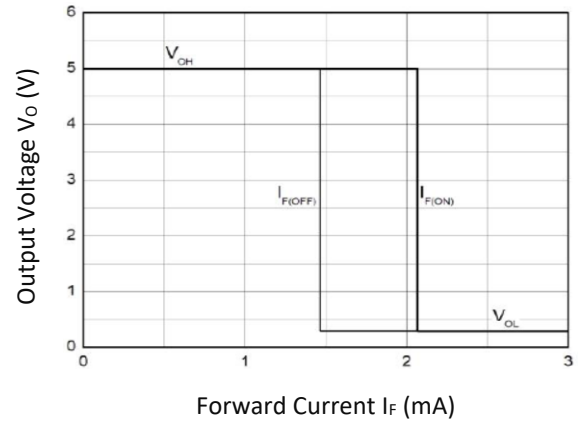
Parameter		Symbol	Values			Unit	Test Condition
			Min.	Typ.	Max.		
INPUT							
Forward Voltage		V _F	---	1.24	1.5	V	I _F =10mA
Reverse Current		I _R	---	---	10	μA	V _R =5V
Input Capacitance		C _{IN}	---	60	---	pF	V=0, f=1MHz
OUTPUT							
Operation Voltage Range		V _{CC}	3	---	15	V	---
Off State Supply Current		I _{CC(off)}	---	1.6	5	mA	I _F =0mA, V _{CC} =5V
On State Supply Current		I _{CC(on)}	---	1.6	5	mA	I _F =10mA, V _{CC} =5V
High Level Output Current		I _{OH}	---	---	100	μA	I _F =10mA, V _{CC} =V _O =15V
TRANSFER CHARACTERISTICS (Ta=-40~+85℃)							
Low Level Output Voltage		V _{OL}	---	0.35	0.6	V	V _{CC} =5.5V, V _E =2.0V I _F =5mA, I _{CL} =13mA
Turn On Threshold Current	H11L1	I _{Fon}	---	---	1.6	mA	V _{CC} =5V, R _L =270Ω
	H11L2		---	---	10		
	H11L3		---	---	5		
Turn Off Threshold Current		I _{Foff}	---	1	---	mA	V _{CC} =5V, R _L =270Ω
Turn On Time		t _{on}	---	---	4	μs	V _{CC} =5V, I _F =I _{Fon} , R _L =270Ω
Fall Time		t _f	---	0.1	---	μs	
Turn Off Time		t _{off}	---	---	4	μs	
Rise Time		t _r	---	0.1	---	μs	
Data Rate		---	---	1	---	MHz	---
Isolation Resistance		R _{iso}	10^12	10^14	---	Ω	DC=500V, 40~60% R.H.
Floating Capacitance		C _{IO}	---	0.3	1	pF	V=0, f=1MHz

CHARACTERISTIC CURVES:

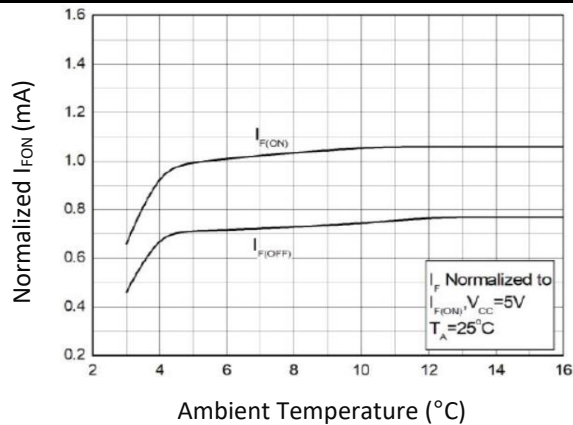
Forward Voltage v.s. Forward Current



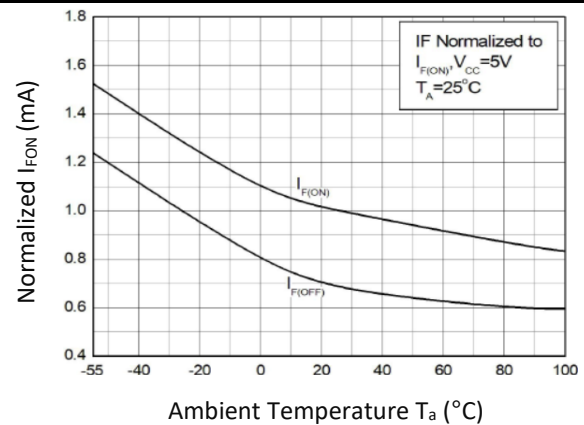
Output Voltage v.s. Forward Current



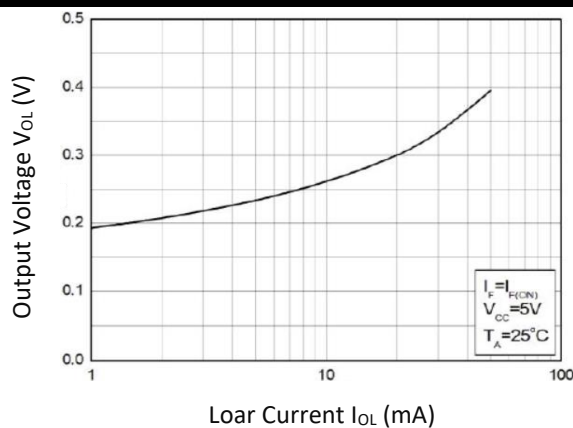
Normalized Turn-On Threshold Current v.s. Supply Voltage



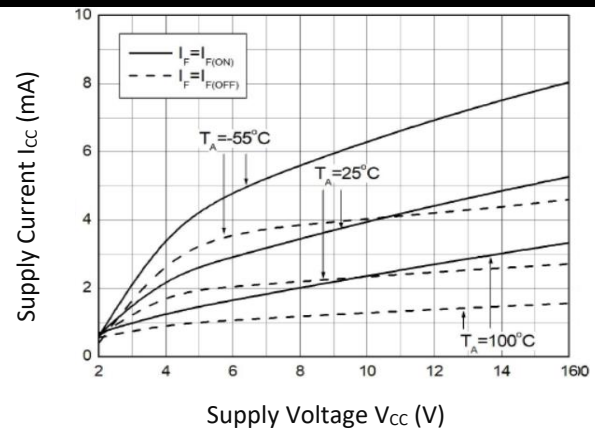
Normalized Turn-On Threshold Current v.s. Ambient Temperature



Low Level Output Voltage v.s. Load Current

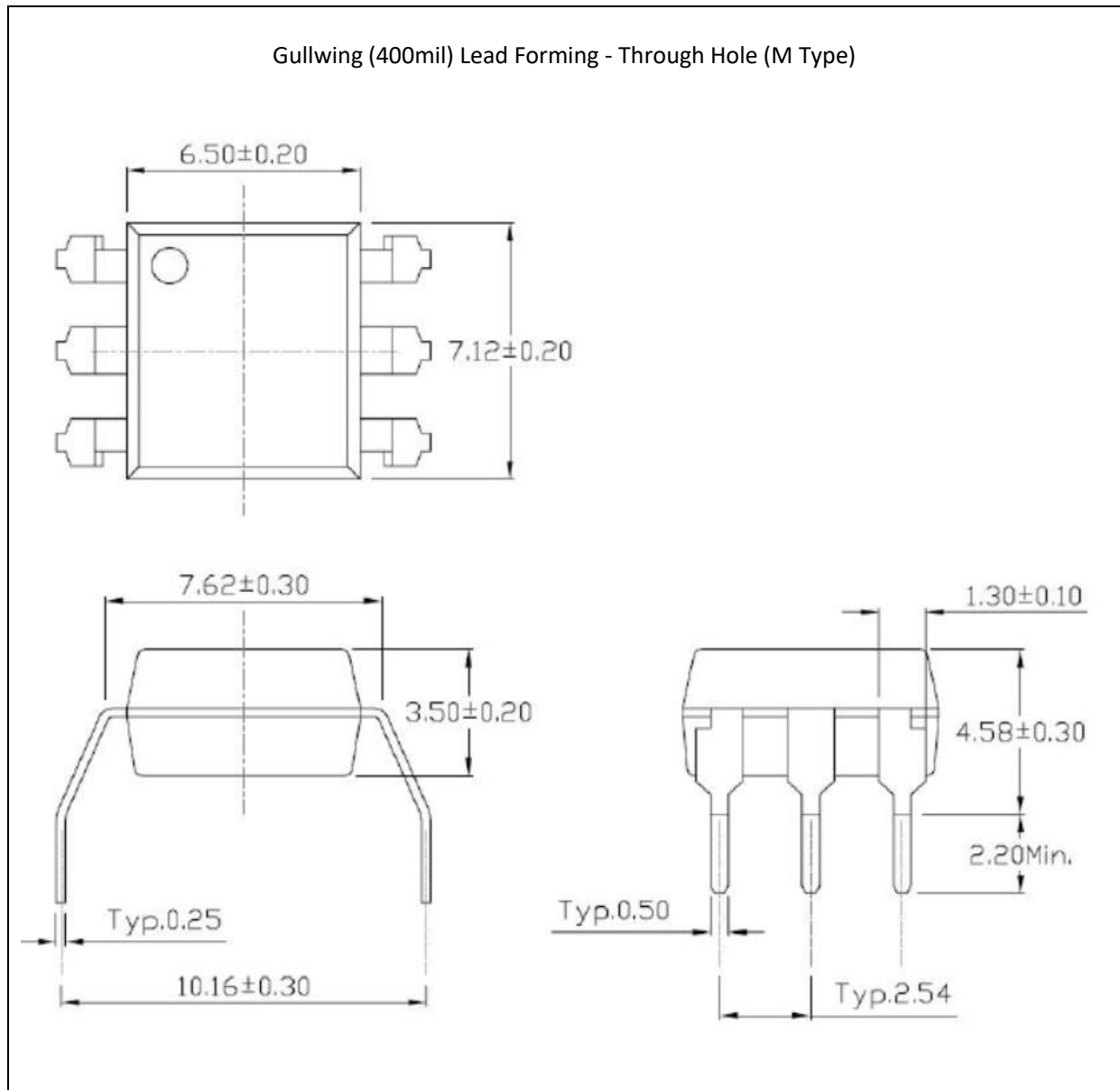


Supply Current v.s. Supply Voltage



OUTLINE DIMENSION:

Package Dimension:

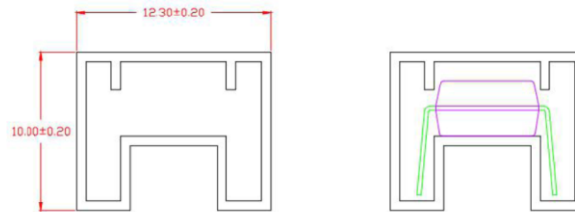


1. All dimensions are in millimetre (mm).

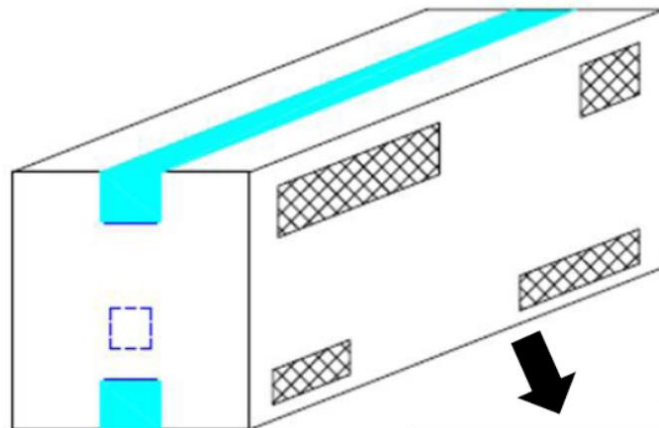
PACKING SPECIFICATION:

Tube Dimension:

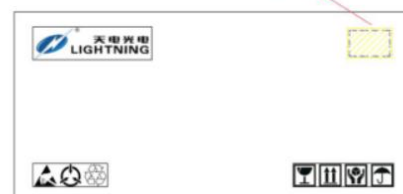
50pcs/tube, 28 tube/inner box, 10 inner box (14Kpcs)/carton



● L x W x H = 52.5cm x 10.7cm x 4.7cm



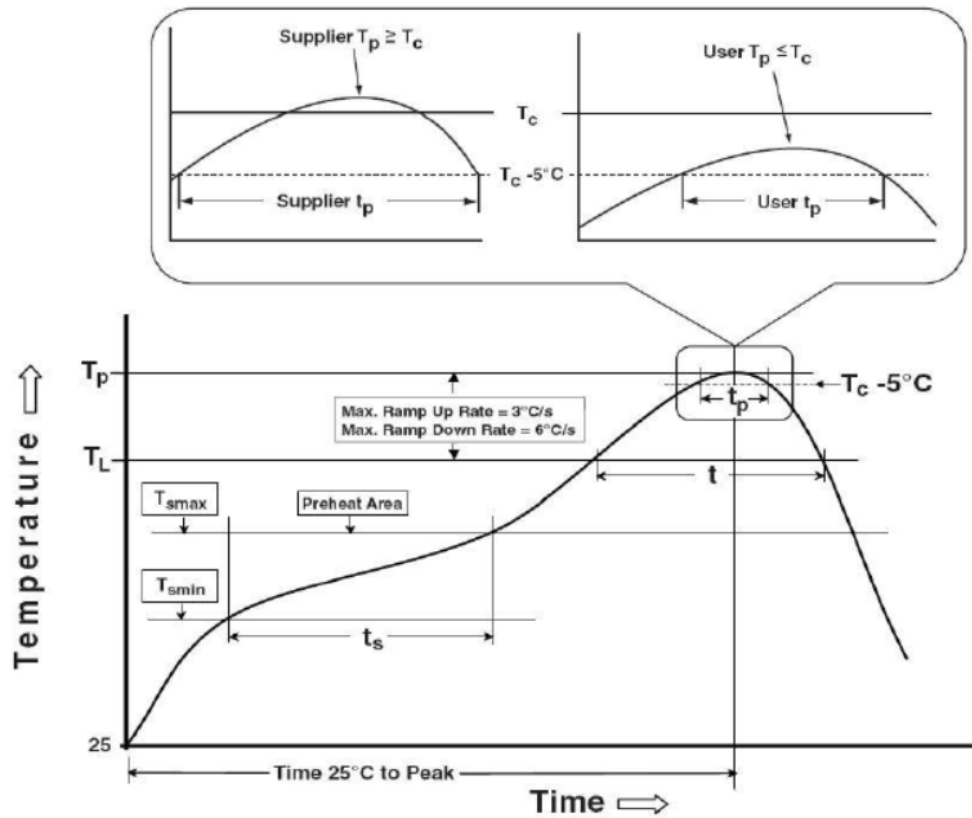
● L x W x H = 53.5cm x 23.5cm x 25.5cm





RECOMMENDED SOLDERING PROFILE:

Reflow Information:



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. (T_{smin})	100°C	150°C
Temperature Max. (T_{smax})	150°C	200°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up Rate (t_l to t_p)	3°C/second max.	3°C/second max.
Liquidous Temperature (T_L)	183°C	217°C
Time (t_L) Maintained Above (T_L)	60-150 seconds	60 – 150 seconds
Peak Body Package Temperature	235°C +0°C / -5°C	260°C +0°C / -5°C
Time (t_p) within 5°C of 260°C	20 seconds	30 seconds
Ramp-down Rate (T_p to T_L)	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.