

### ■ Features

- High isolation 5000 VRMS
- DC input with transistor output
- Operating temperature range - 55 °C to 100 °C
- RoHS & REACH Compliance
- MSL class 1
- Regulatory Approvals
  - UL - UL1577
  - VDE - EN60747-5-5
  - CQC – GB4943.1, GB8898

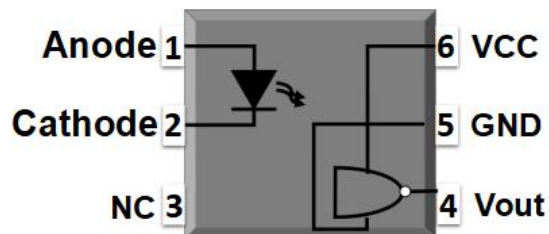
### ■ Description

The H11LX 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 different lead forming options.

### ■ Applications

- Logic to logic isolator
- Programmable current level sensor
- Line receiver – eliminate noise and transient problems
- AC to TTL conversion – square wave shaping
- Digital programming of power supplies
- Interfaces computers with peripherals

### ■ Schematic





# H11LX Series

## DIP6,DC Input Schmitt Trigger Optocoupler

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT	Note
INPUT				
Forward Current	IF	60	mA	
Peak Transient Current	IF(trans)	1	A	1
Reverse Voltage	VR	6	V	
Input Power Dissipation	PI	120	mW	
OUTPUT				
Supply Voltage	VCC	3 to 16	V	
Output Voltage	VO	0 to 16	V	
Output Current	IO	50	mA	
Output Power Dissipation	PO	150	mW	
COMMON				
Total Power Dissipation	Ptot	250	mW	
Isolation Voltage	Viso	5000	Vrms	2
Operating Temperature	Topr	-55~100	°C	
Storage Temperature	Tstg	-55~150	°C	
Soldering Temperature	Tsol	260	°C	3

Note 1.  $\leq 1\mu\text{s}$  P.W,300pps

Note 2. AC For 1 Minute, R.H. = 40 ~ 60%

Note 3. For 10 seconds

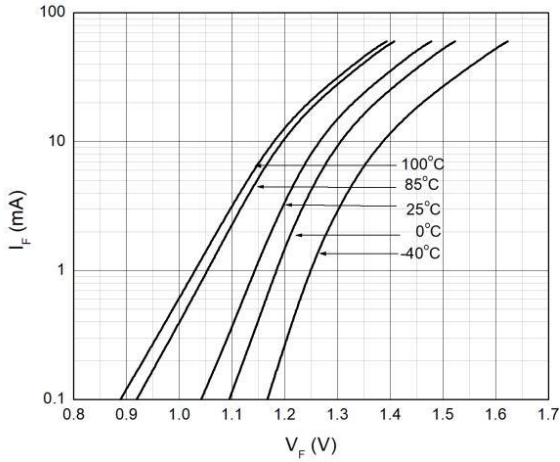


# H11LX Series

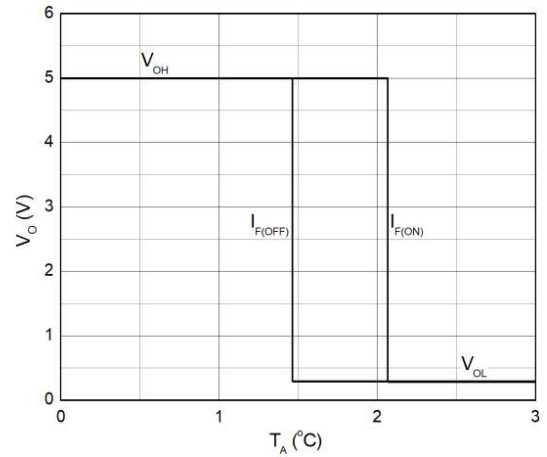
## DIP6,DC Input Schmitt Trigger Optocoupler

ELECTRICAL OPTICAL CHARACTERISTICS at Ta=25°C							
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
INPUT							
Forward Voltage	VF	-	1.24	1.5	V	IF=10mA	
Reverse Current	IR	-	-	10	μA	VR=5V	
Input Capacitance	Cin	-	60	-	pF	V=0, f=1MHz	
OUTPUT							
Operation Voltage Range	VCC	3	-	15	V		
Off State Supply Current	ICC(off)	-	1.6	5	mA	IF=0mA, VCC=5V	
On State Supply Current	ICC(on)	-	1.6	5	mA	IF=10mA, VCC=5V	
High Level Output Current	IOH	-	-	100	μA	IF=10mA, VCC=VO=15V	
TRANSFER CHARACTERISTICS (Ta=-40 to 85°C)							
Low Level Output Voltage	VOL	-	0.35	0.6	V	VCC=5.5V, IF=5mA, VE=2.0V, ICL=13mA	
Turn On Threshold Current	H11L1	IFon	-	-	1.6	mA	VCC=5V, RL=270Ω
	H11L2		-	-	10		
	H11L3		-	-	5		
Turn Off Threshold Current	IFoff	-	1	-	mA	VCC=5V, RL=270Ω	
Turn On Time	ton	-	-	4	μs	VCC=5V, IF=IFon, RL=270Ω	
Fall Time	tr	-	0.1	-	μs		
Turn Off Time	toff	-	-	4	μs		
Rise Time	tr	-	0.1	-	μs		
Data Rate		-	1	-	MHz		
Isolation Resistance	Riso	10 <sup>12</sup>	10 <sup>14</sup>	-	Ω	DC500V, 40 ~ 60% R.H.	
Floating Capacitance	CIO	-	0.3	1	pF	V=0, f=1MHz	

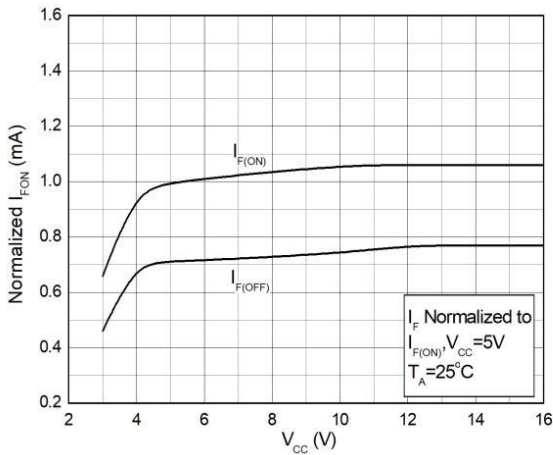
### CHARACTERISTIC CURVES



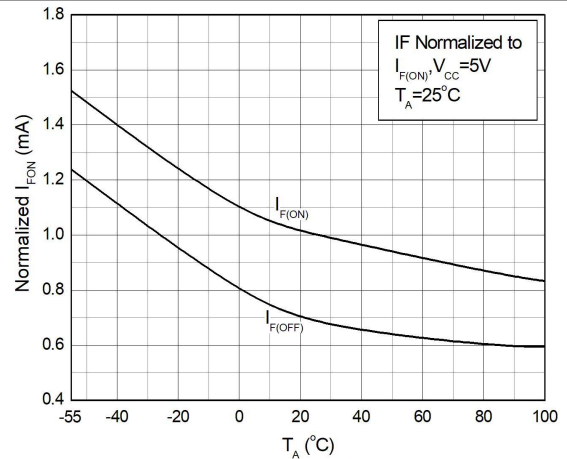
**Fig.1 Forward Current vs. Forward Voltage**



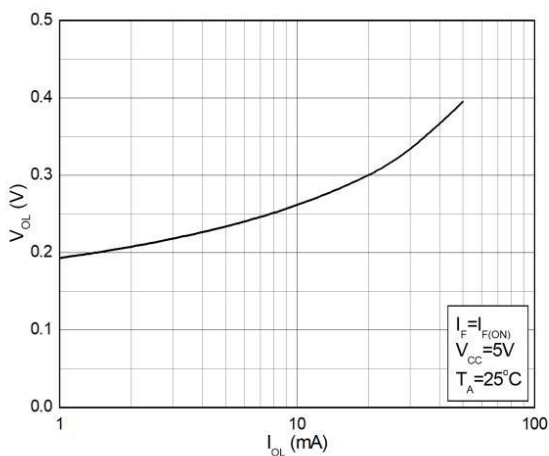
**Fig.2 Output Voltage vs. Forward Current**



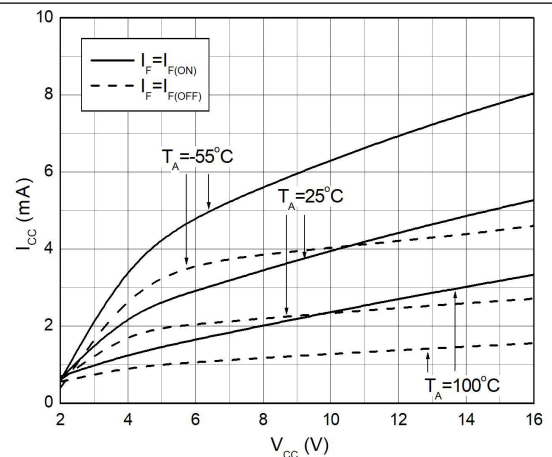
**Fig.3 Normalized Turn on Threshold Current vs. Supply Voltage**



**Fig.4 Normalized Turn on Threshold Current vs. Ambient Temperature**



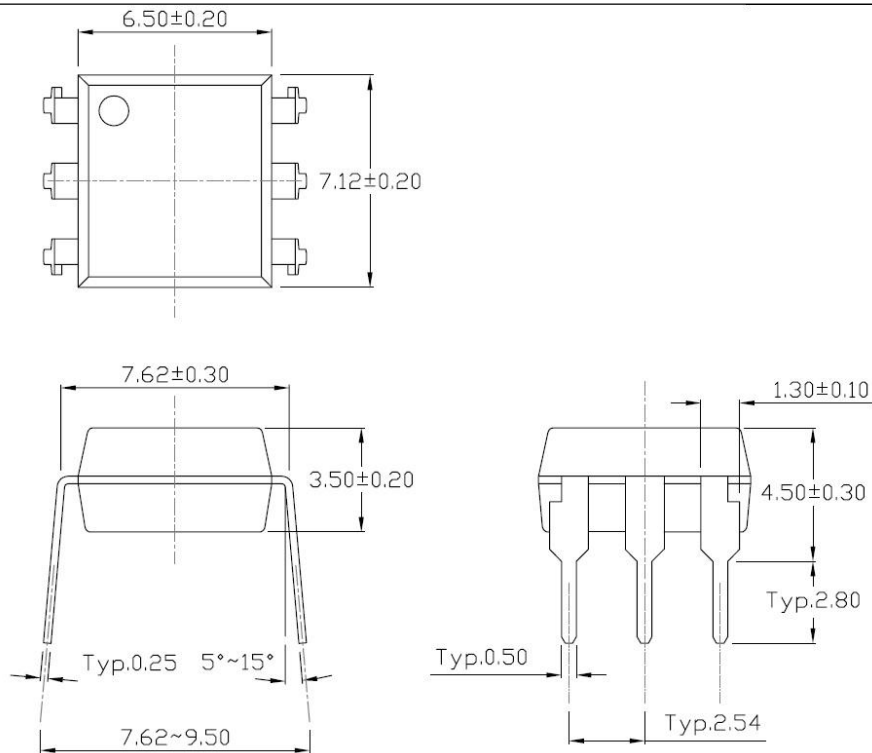
**Fig.5 Low Level Output Voltage vs. Load Current**



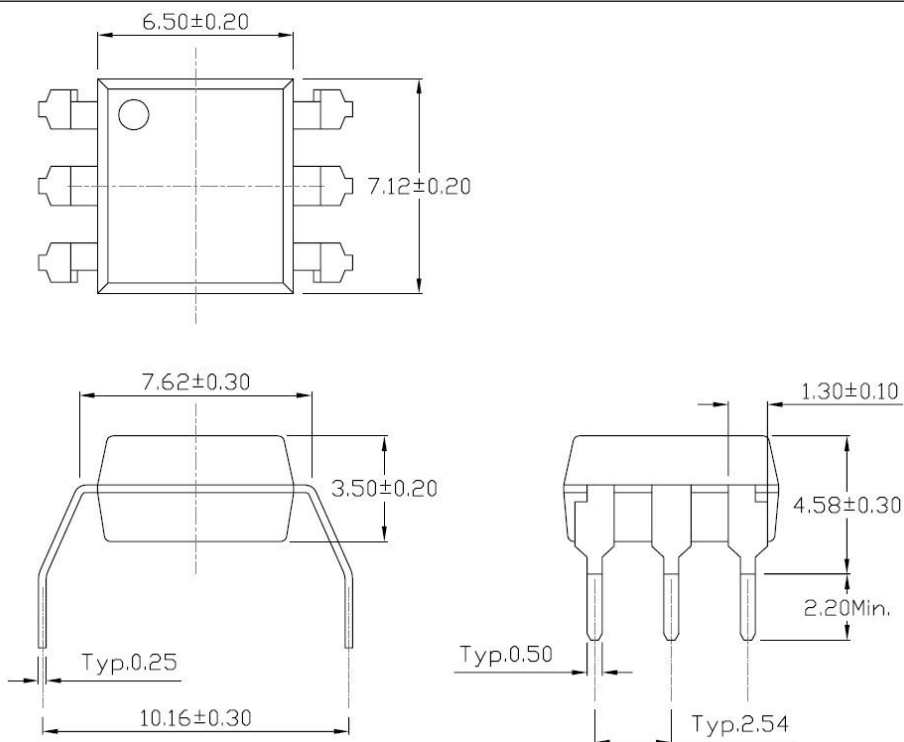
**Fig.6 Supply Current vs. Supply Voltage**

**PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)**

**Standard DIP – Through Hole (DIP Type)**

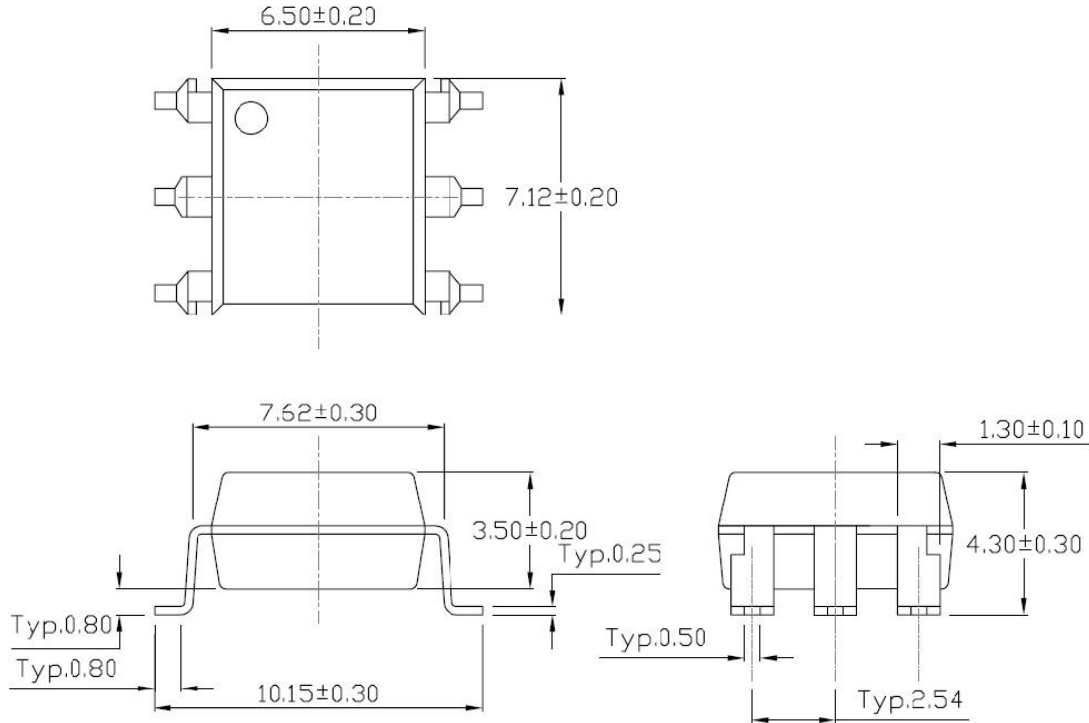


**Gullwing (400mil) Lead Forming – Through Hole (M Type)**

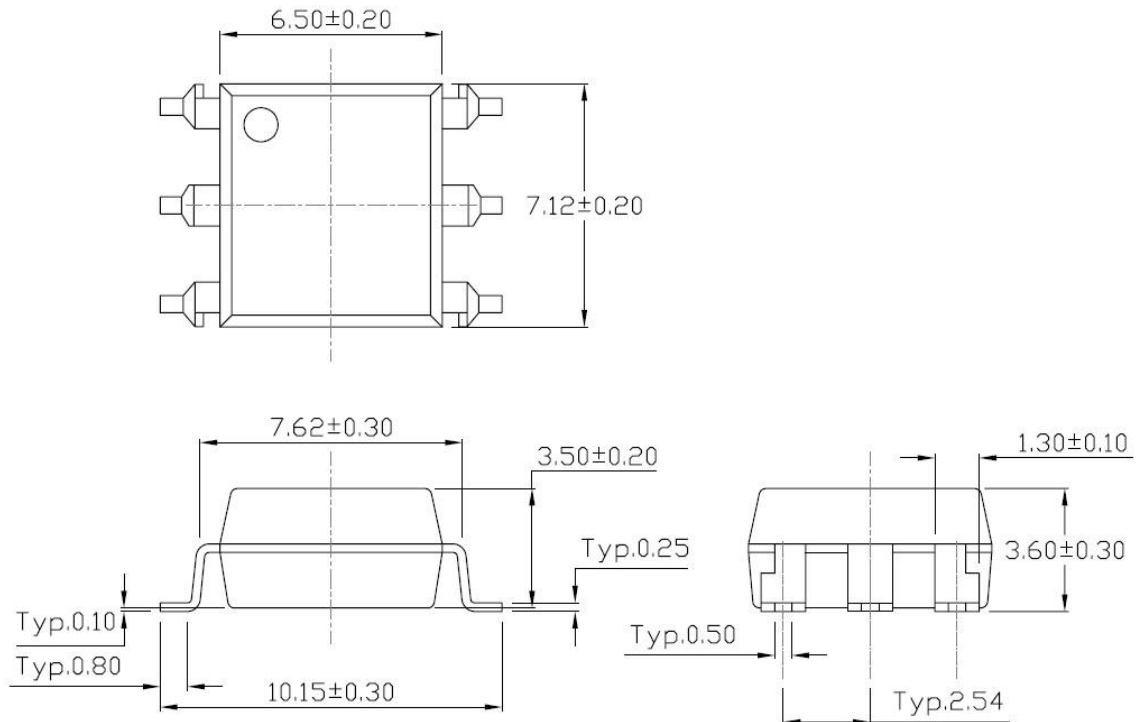


**PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)**

**Surface Mount Lead Forming (S Type)**

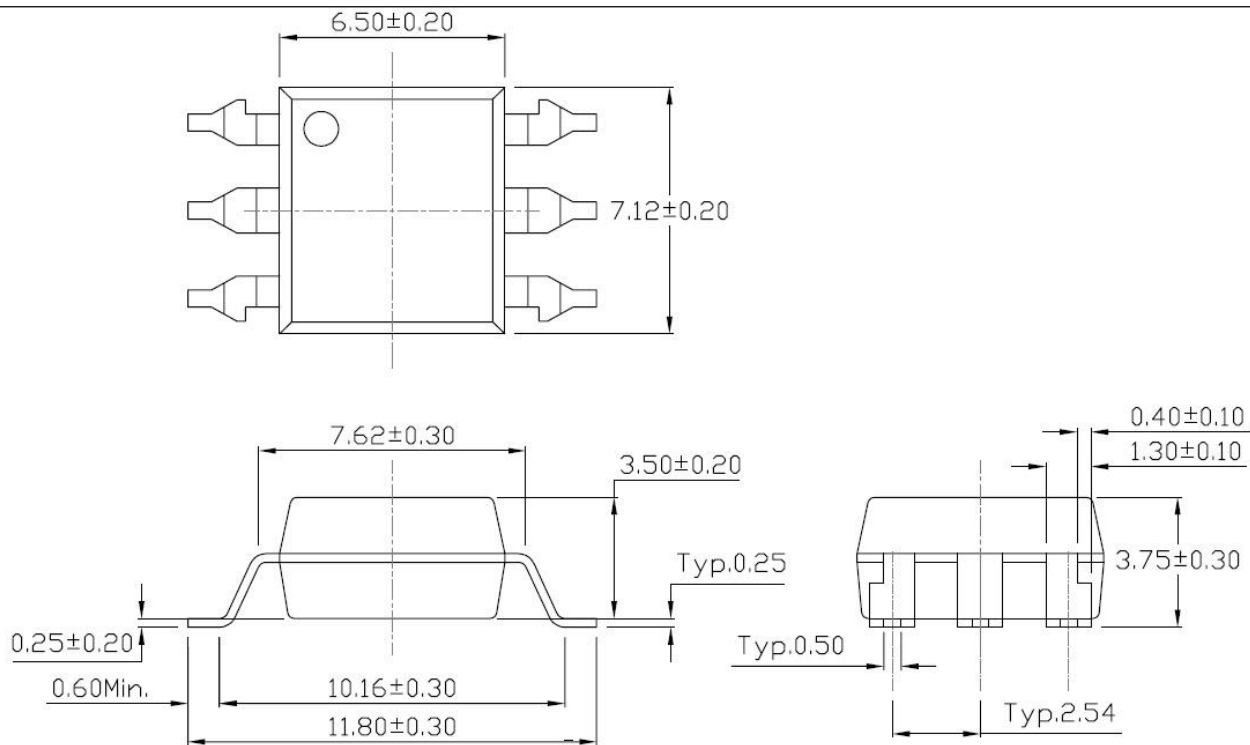


**Surface Mount (Low Profile) Lead Forming (SL Type)**



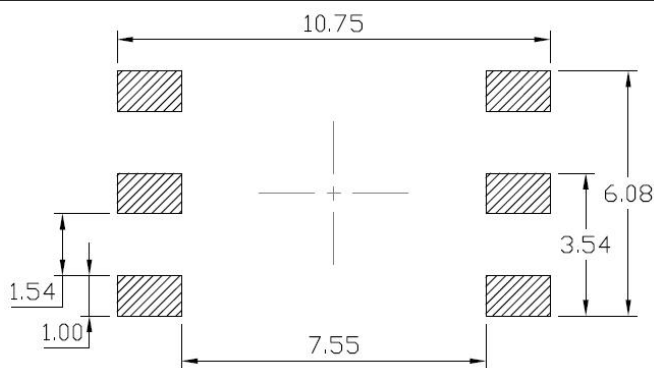
### PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

#### Surface Mount (Gullwing) Lead Forming (SLM Type)

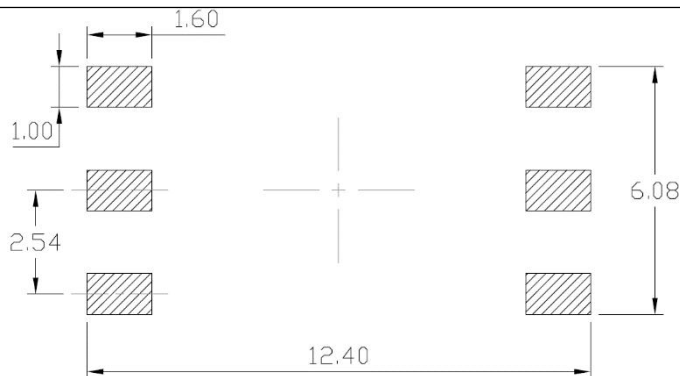


### Recommended Solder Mask (Dimensions in mm unless otherwise stated)

#### Surface Mount Lead Forming & Surface Mount (Low Profile) Lead Forming

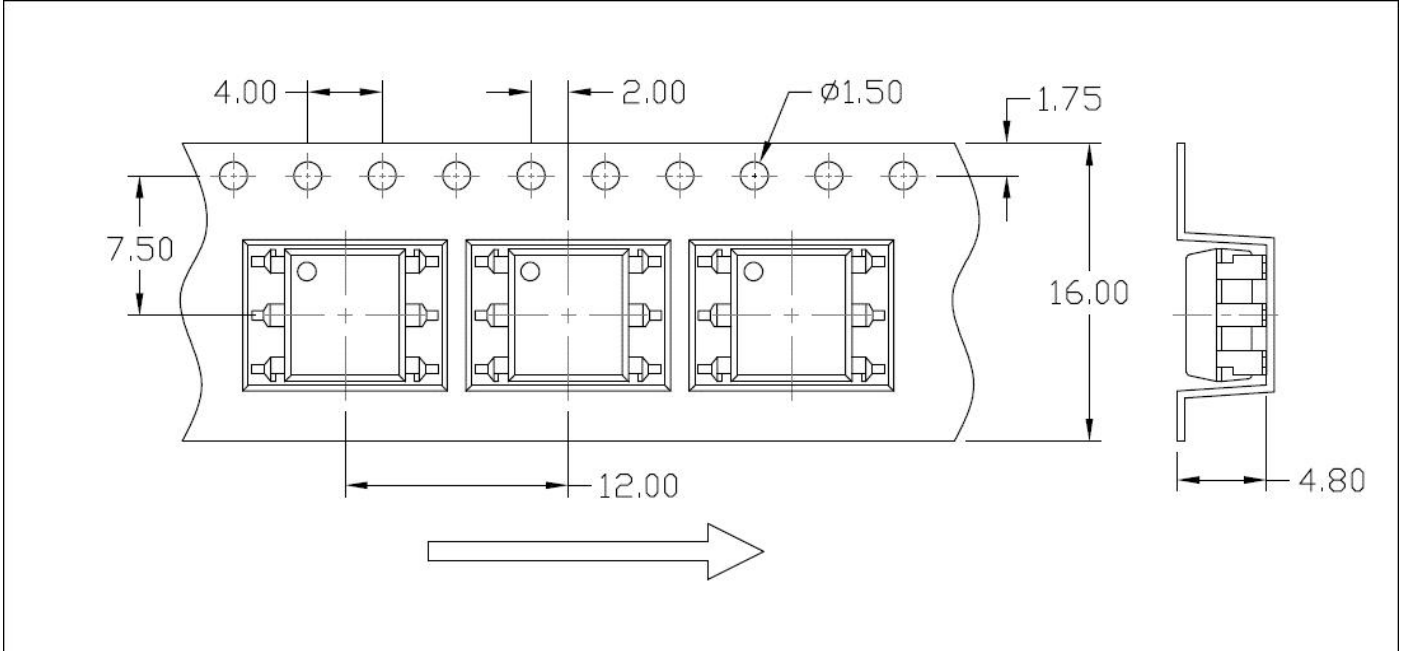


#### Surface Mount (Gullwing) Lead Forming

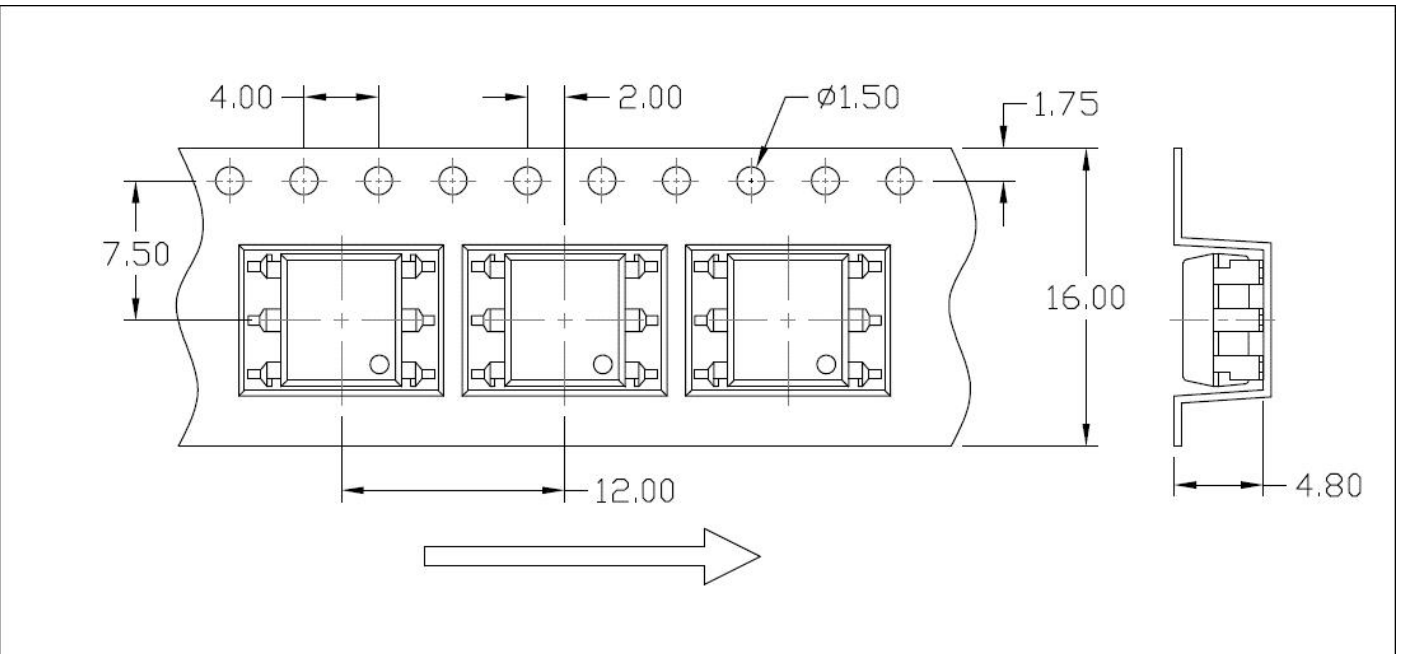


**Carrier Tape Specifications (Dimensions in mm unless otherwise stated)**

**Option S(T1) & SL(T1)**



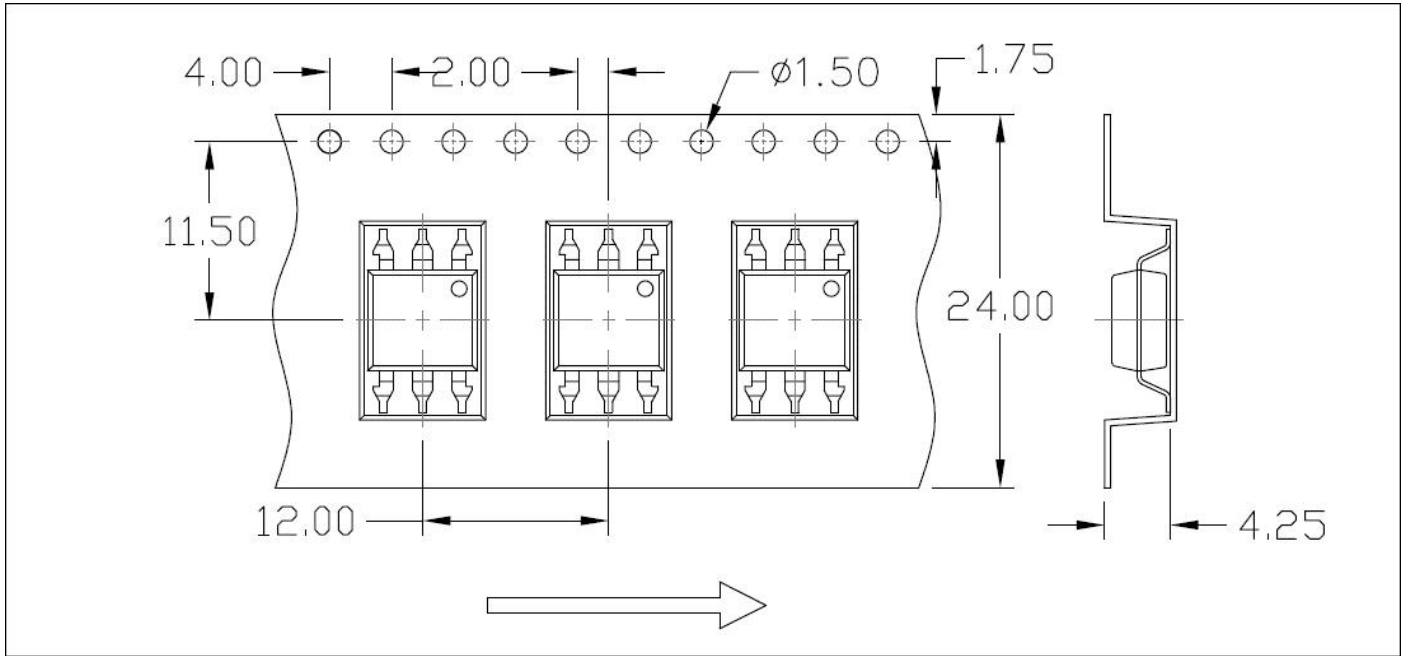
**Option S(T2) & SL(T2)**



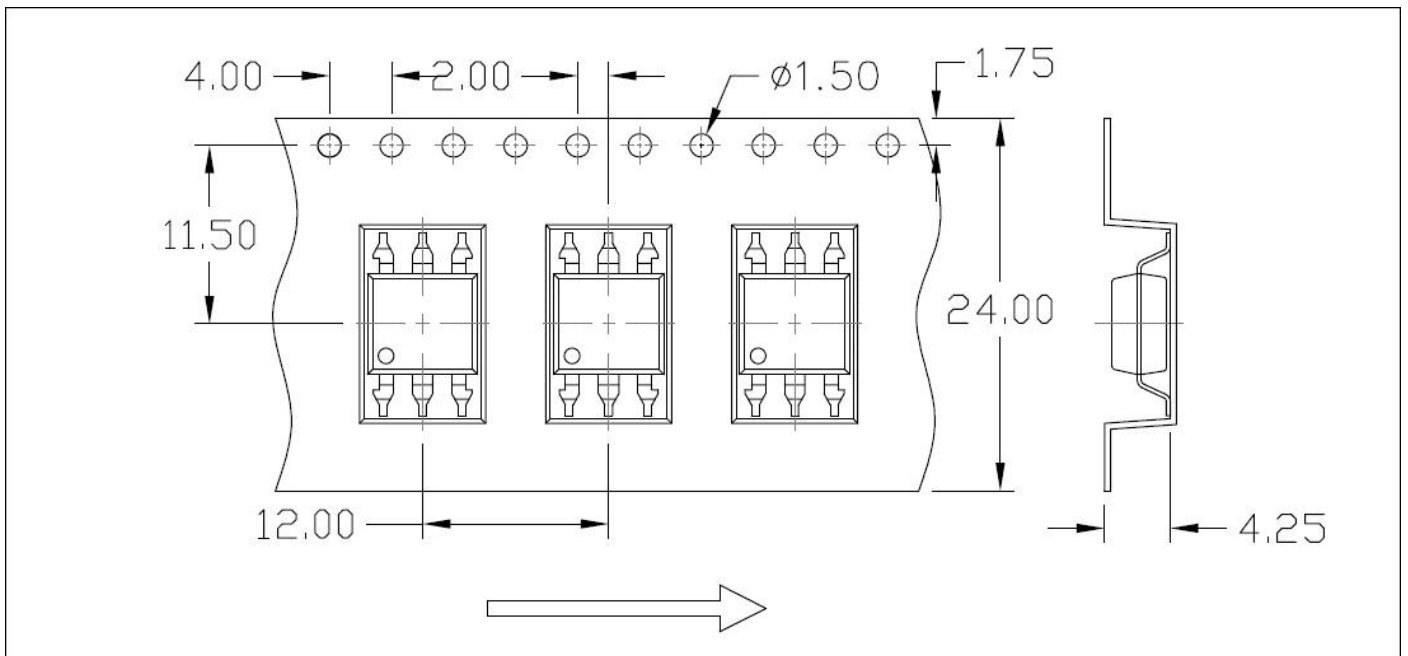


### Carrier Tape Specifications (Dimensions in mm unless otherwise stated)

#### Option SLM(T1)

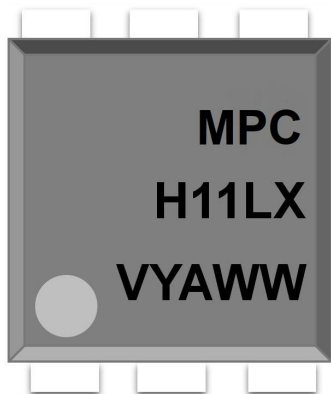


#### Option SLM(T2)



### ORDERING AND MARKING INFORMATION

#### MARKING INFORMATION



**MPC** : Company Abbr.  
**H11LX** : Part Number  
**V** : VDE Option  
**Y** : Fiscal Year  
**A** : Manufacturing Code  
**WW** : Work Week

#### ORDERING INFORMATION

### H11LX(Y)(Z)-GV

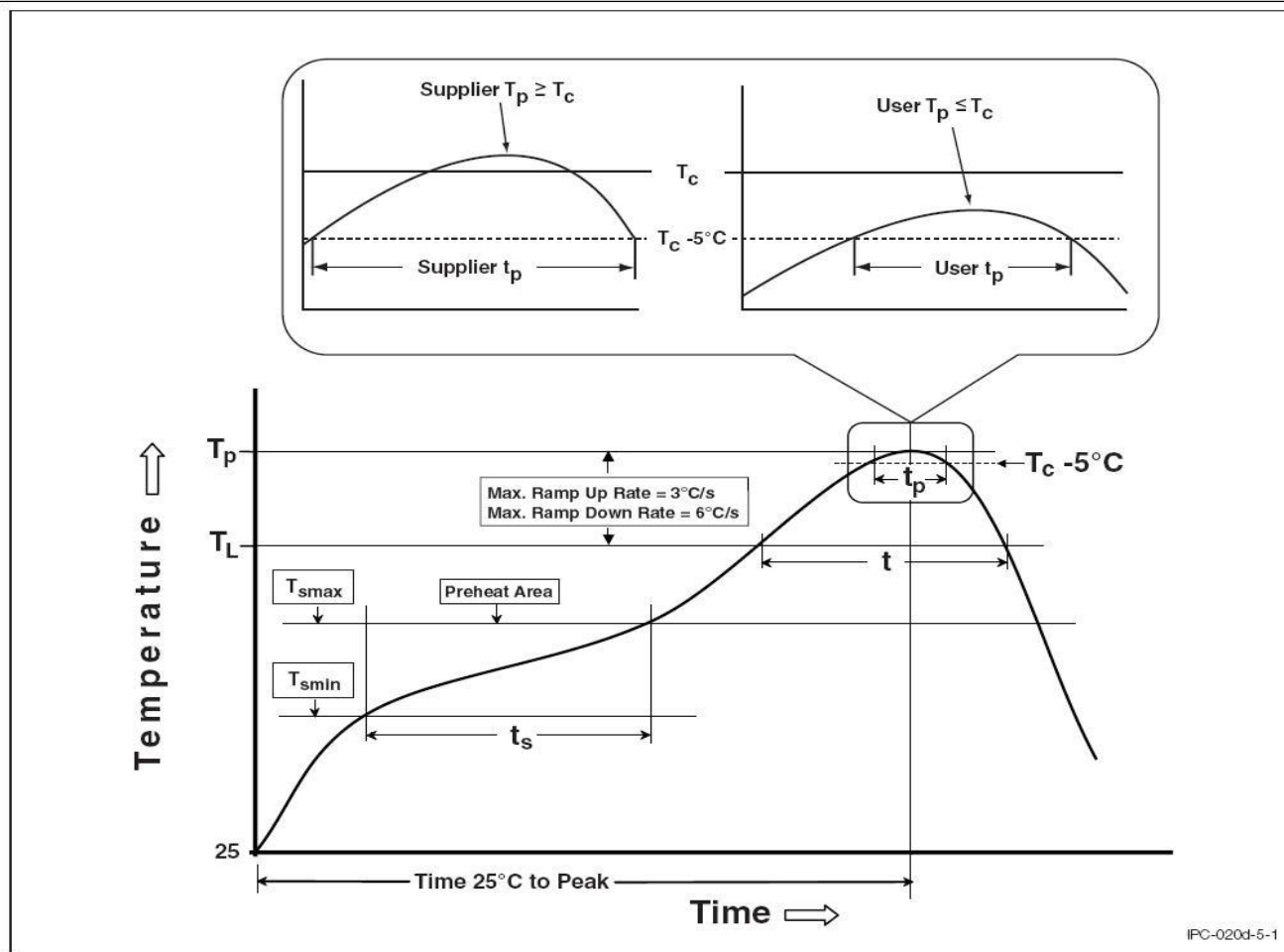
MPC– Company Abbr.  
H11LX – Part Number  
Y – Lead Form Option (M/S/SL/None)  
Z – Tape and Reel Option (T1/T2)  
G – Material Option (G:Green, None:Non-Green)  
V – VDE Option (V or None)

#### Packing Quantity

Option	Description	Quantity
P(T1)	Surface Mount Lead Forming – With Option 1 Taping	3000 Units/Reel
P(T2)	Surface Mount Lead Forming – With Option 2 Taping	3000 Units/Reel
W(T1)	Surface Mount Lead Forming – With Option 1 Taping	3000 Units/Reel
W(T2)	Surface Mount Lead Forming – With Option 2 Taping	3000 Units/Reel

### REFLOW INFORMATION

#### REFLOW PROFILE



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	100	150°C
Temperature Max. ( $T_{smax}$ )	150	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.



# *H11LX Series*

## *DIP6, DC Input Schmitt Trigger Optocoupler*

### DISCLAIMER

- Our company is continually improving the quality, reliability, function and design. Our company reserves the right to make changes without further notices.
- The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.
- This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or lifesaving applications or any other application which can result in human injury or death.
- Immerge unit's body in solder paste is not recommended.
- Discoloration might be occurred on the package surface after soldering, reflow or long-time use. It neither impacts the performance nor reliability.

### ■ Revision History

Version	Date	Subjects (major changes since last revision)
1.0	2022-07-21	Datasheet Complete