

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.

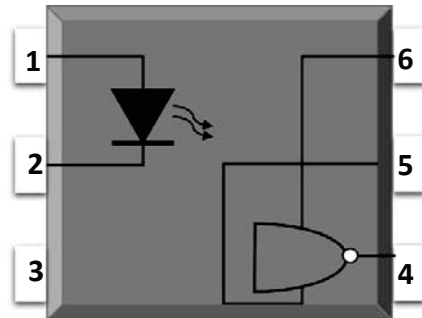
Features

- 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 No. 5A

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

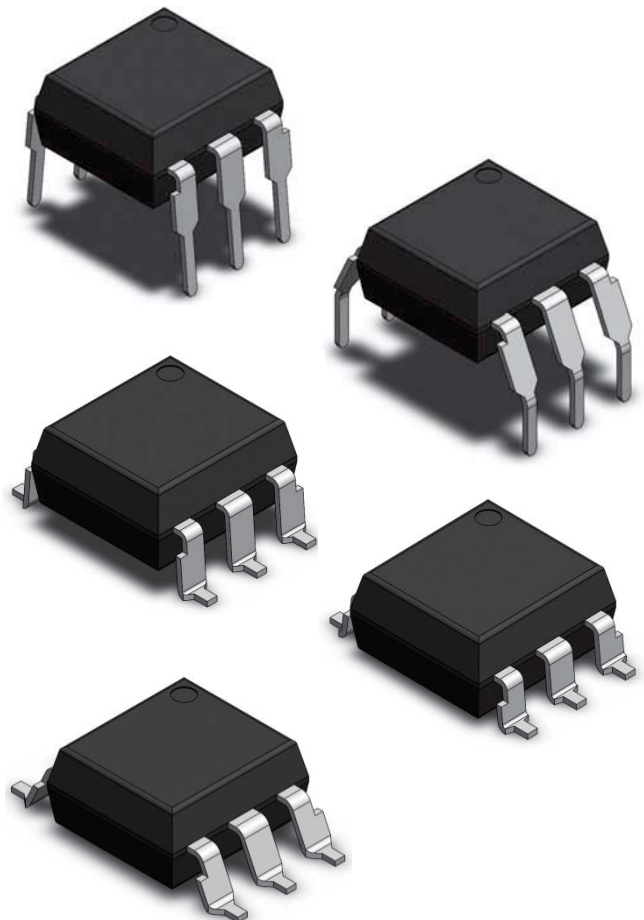
SCHEMATIC

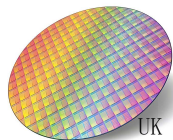


PIN DEFINITION

- | | |
|------------|---------|
| 1. Anode | 6. VCC |
| 2. Cathode | 5. GND |
| 3. NC | 4. VOUT |

PACKAGE OUTLINE





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

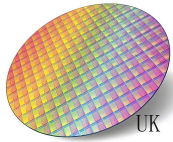
Note 1. $\leq 1\mu\text{s}$ P.W,300pps

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

Note 3. For 10 seconds

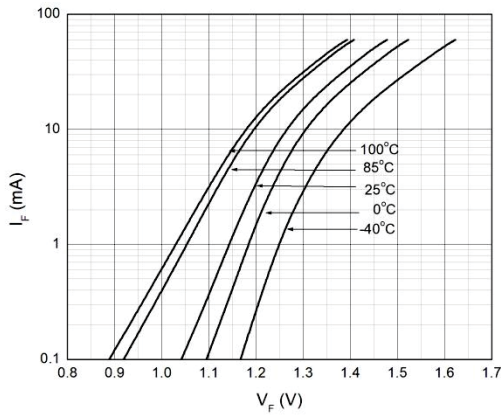
ELECTRICAL OPTICAL CHARACTERISTICS at Ta=25°C

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	NOTE
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 to 85°C)							
Low Level Output Voltage	V _{OL}	-	0.35	0.6	V	V _{CC} =5.5V, I _F =5mA, V _E =2.0V, I _{CL} =13mA	
Turn On Threshold Current	H11L1	I _{Fon}	-	-	1.6	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 _r	-	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	DC500V, 40 ~ 60% R.H.	
Floating Capacitance	C _{IO}	-	0.3	1	pF	V=0, f=1MHz	

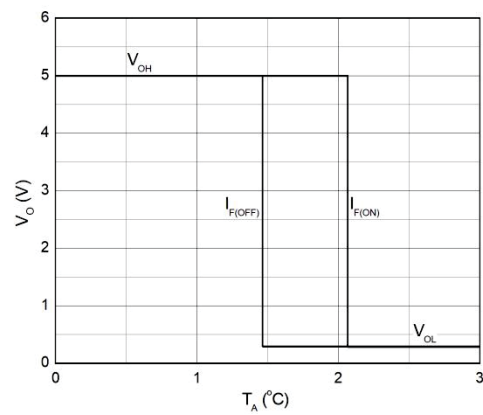


CHARACTERISTIC CURVES

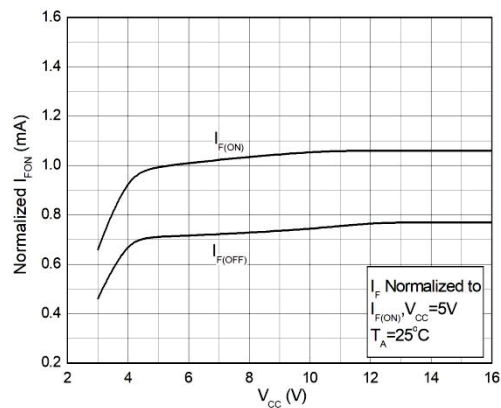
**Fig.1 Forward Current
vs. Forward Voltage**



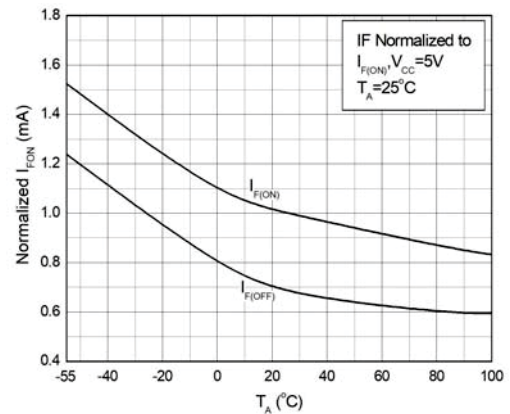
**Fig.2 Output Voltage
vs. Forward Current**



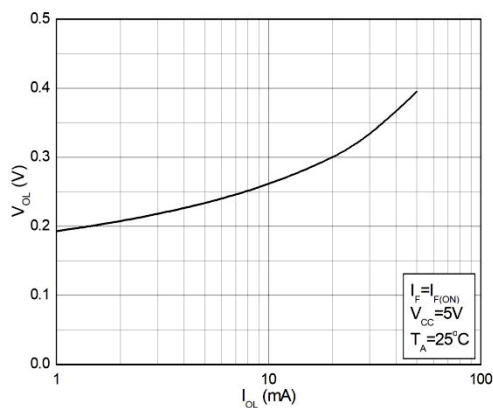
**Fig.3 Normalized Turn on Threshold Current
vs. Supply Voltage**



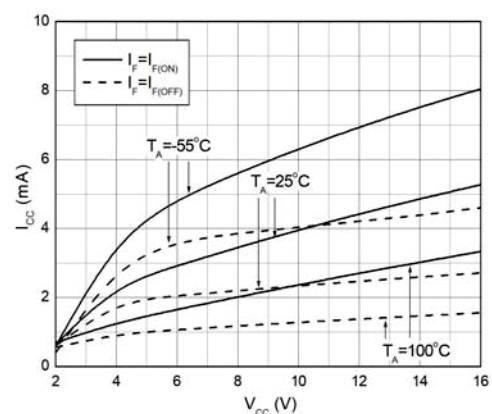
**Fig.4 Normalized Turn on Threshold Current
vs. Ambient Temperature**

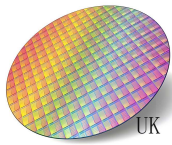


**Fig.5 Low Level Output Voltage
vs. Load Current**



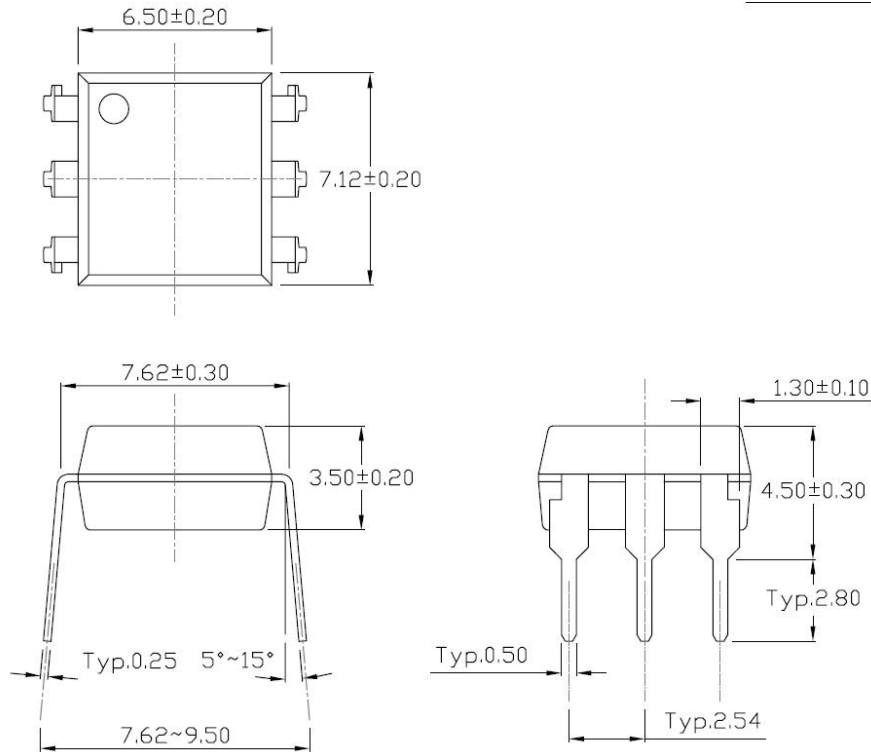
**Fig.6 Supply Current
vs. Supply Voltage**



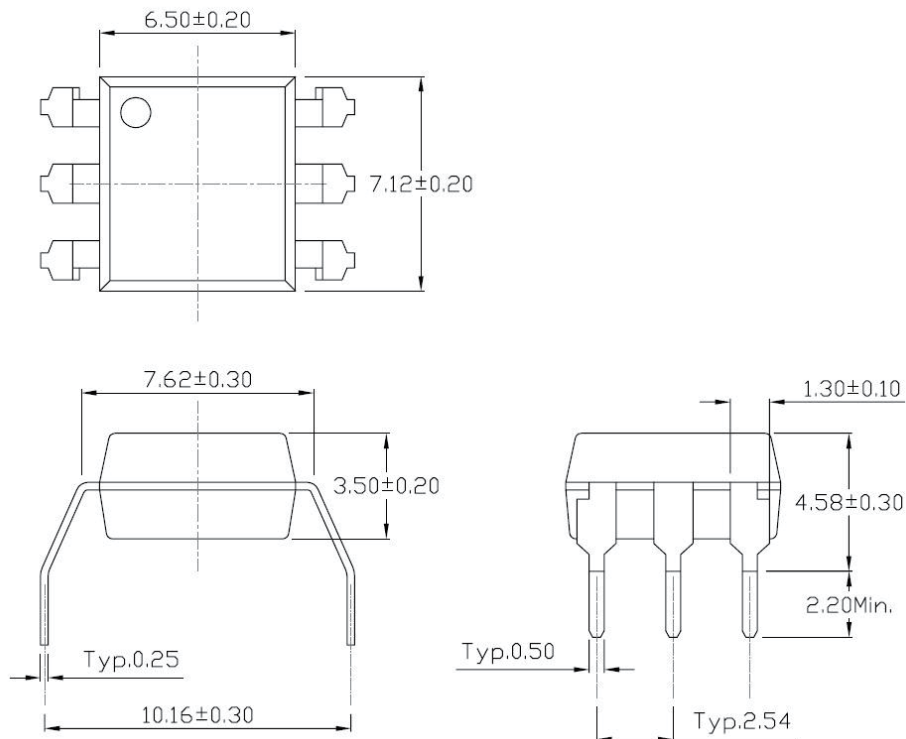


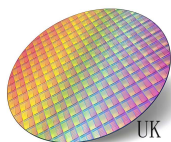
PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Standard DIP – Through Hole (DIP Type)



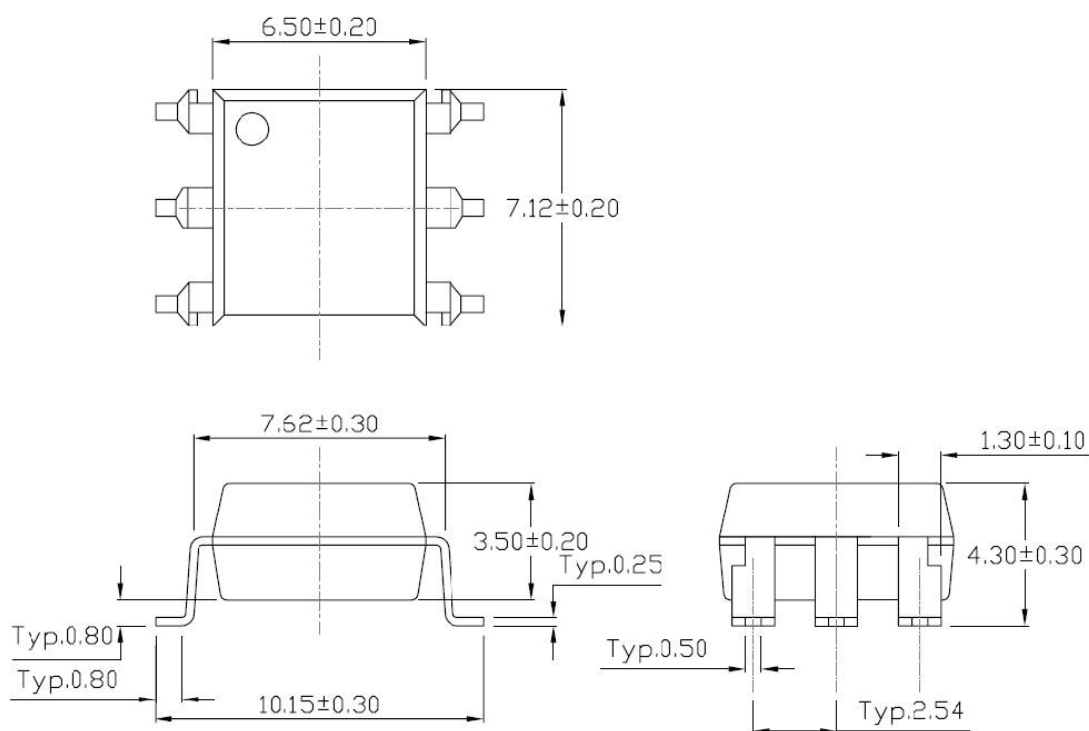
Gullwing (400mil) Lead Forming – Through Hole (M Type)



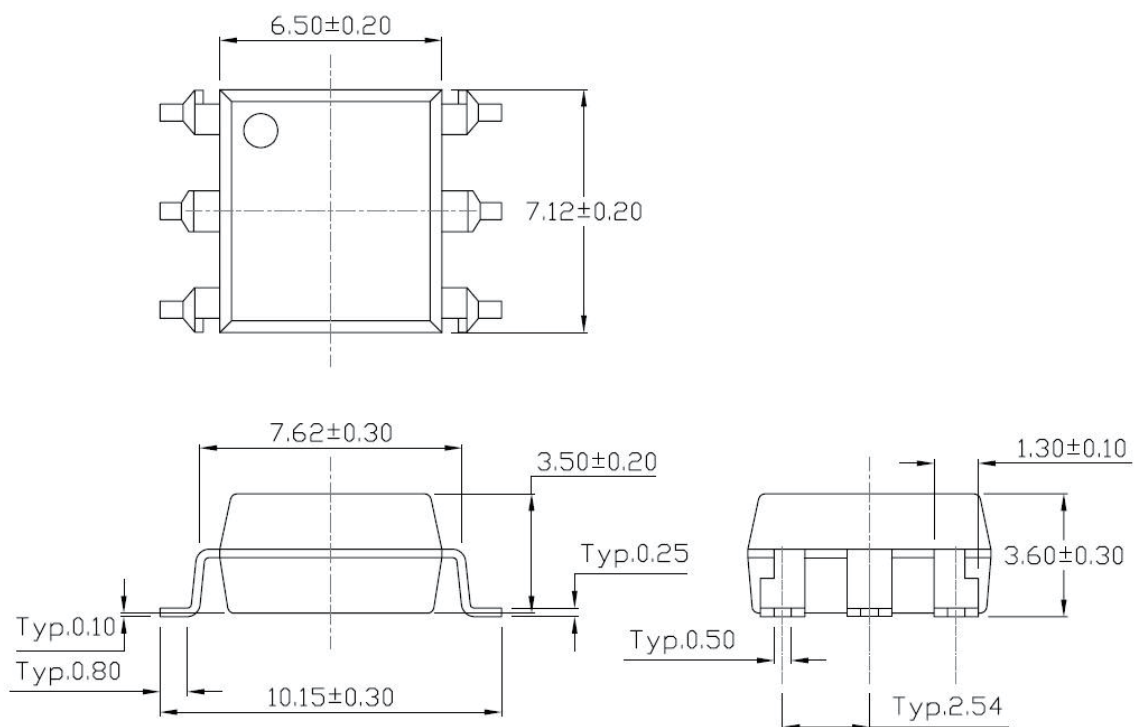


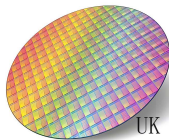
PACKAGE DIMENSIONS (Dimensions in mm unless otherwise stated)

Surface Mount Lead Forming (S Type)



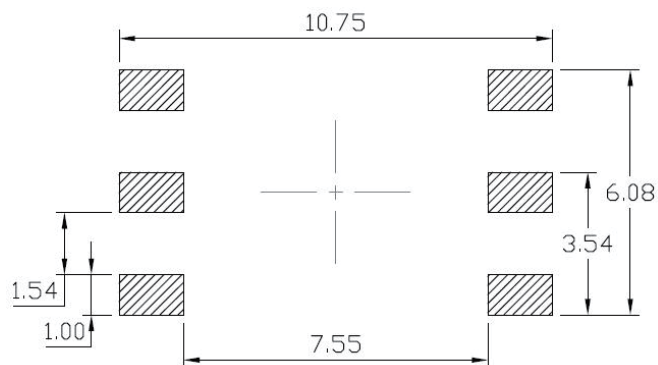
Surface Mount (Low Profile) Lead Forming (SL Type)



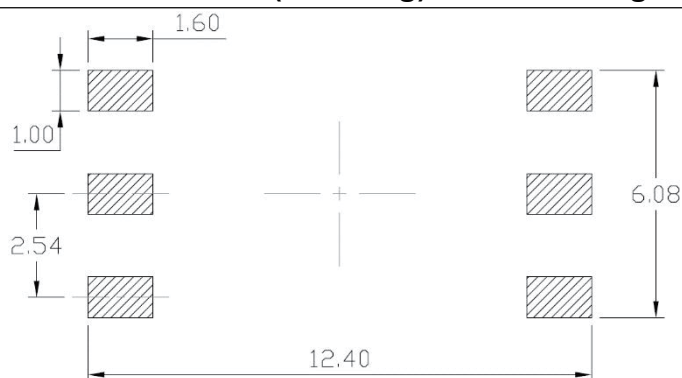


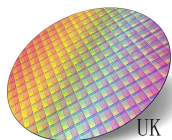
RECOMMENDED SOLDER MASK (Dimensions in mm unless otherwise stated)

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



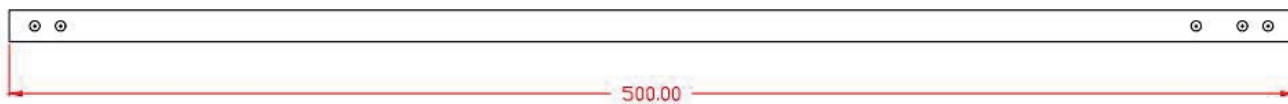
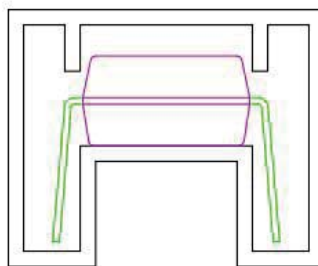
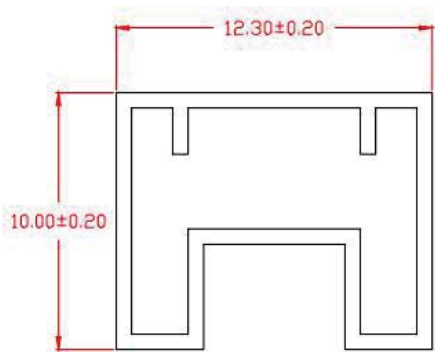
Surface Mount (Gullwing) Lead Forming

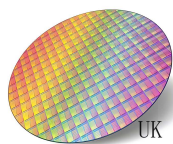




TUBE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Standard DIP



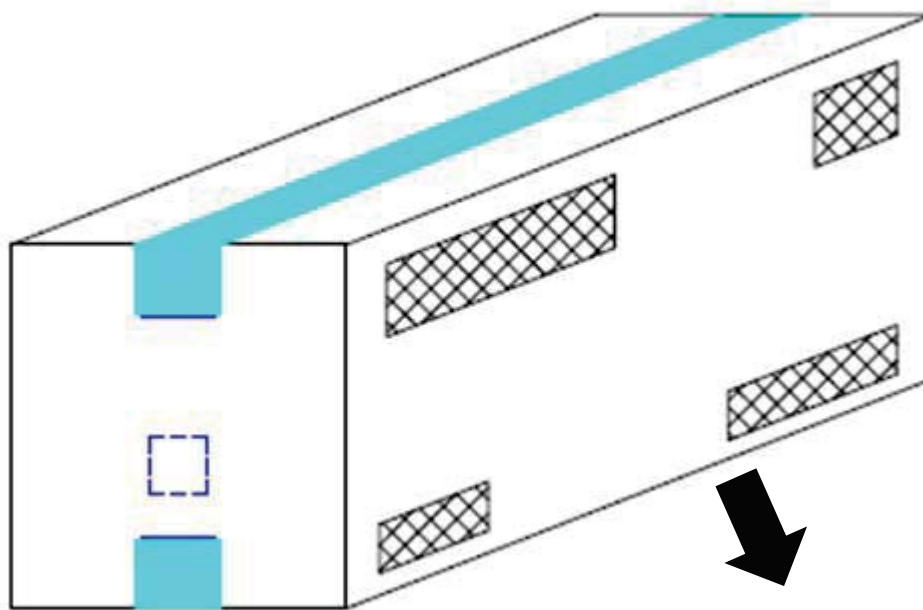


BOX SPECIFICATIONS (Tube Type)

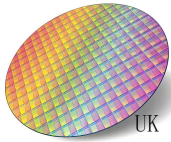
Inner Box

- L x W x H = 52.5cm x 10.7cm x 4.7cm

Outer Box

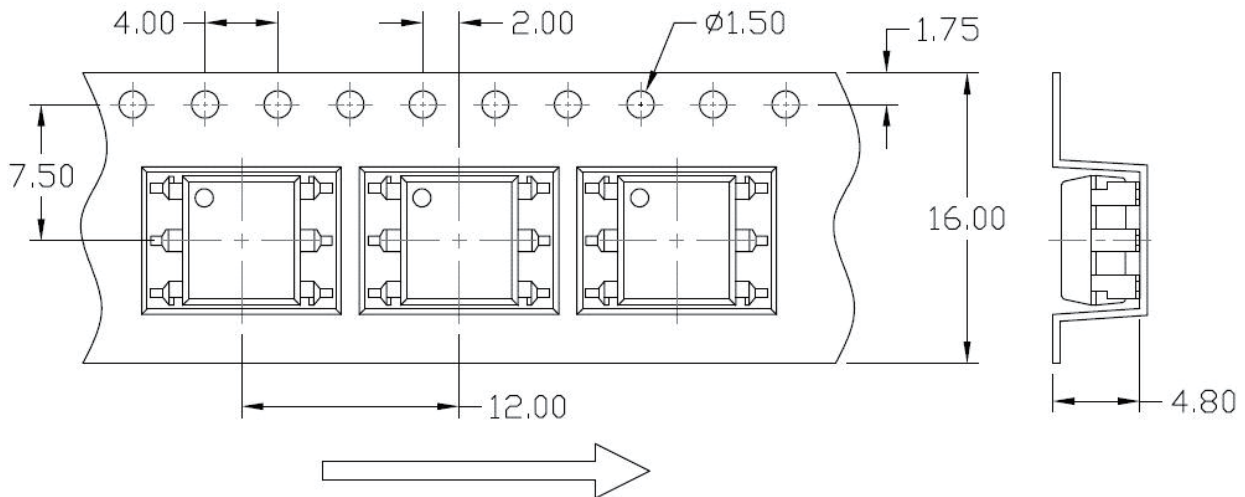


- L x W x H = 53.5cm x 23.5cm x 25.5cm

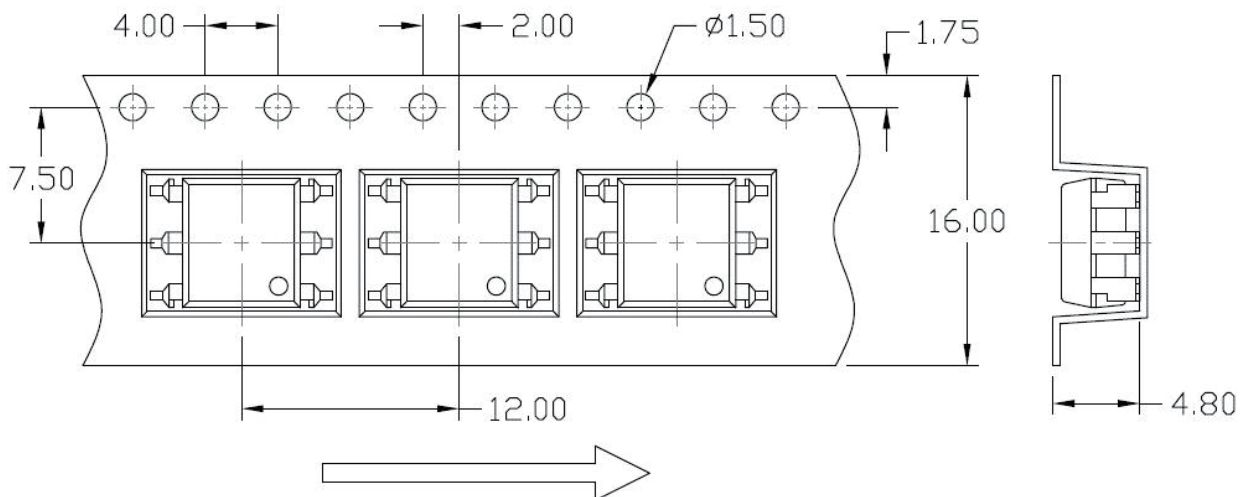


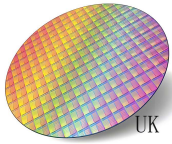
CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S(T1) & SL(T1)



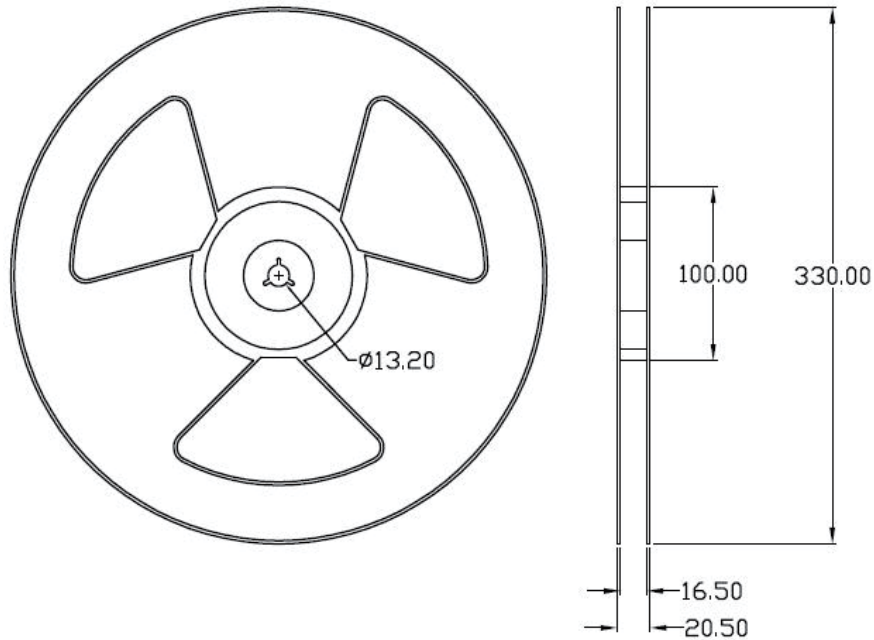
Option S(T2) & SL(T2)



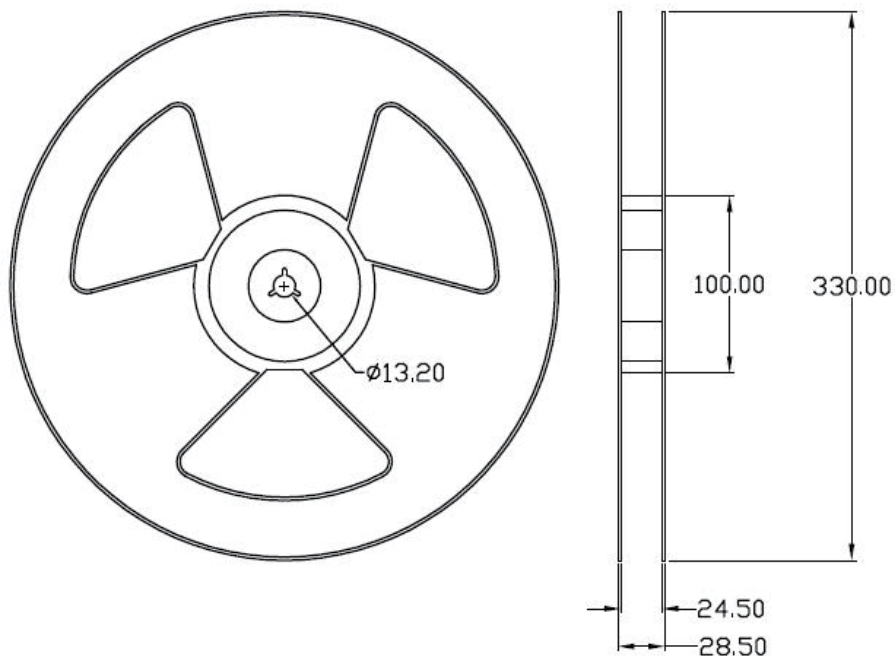


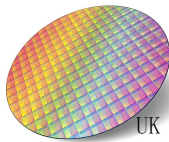
REEL SPECIFICATIONS (Dimensions in mm unless otherwise stated)

Option S & Option SL



Option SLM



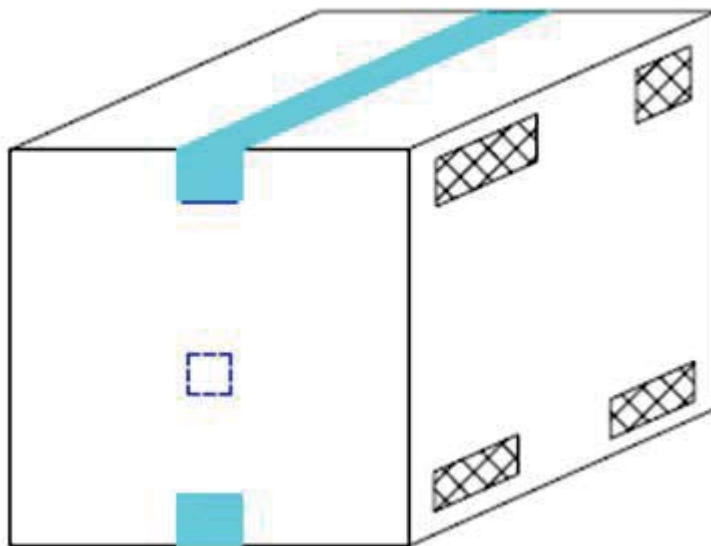


BOX SPECIFICATIONS (Reel Type)

Inner Box

- L x W x H = 36cm x 36cm x 6.9cm

Outer Box



- L x W x H = 45cm x 38cm x 38cm

ORDERING AND MARKING INFORMATION

MARKING INFORMATION



H11LX : Part Number & Rank
V – VDE Option (V or None)
/ : Company Abbr.
Y : Year Code
WW : Work Week

ORDERING INFORMATION

H11LX(V)(L)(TR)

H11LX – Part Number (X=1/2/3)
V – VDE Option (V or None)
L – Lead Form Option (SM/S/SL/No)
TR – Tape and Reel Option (T&R/T1)

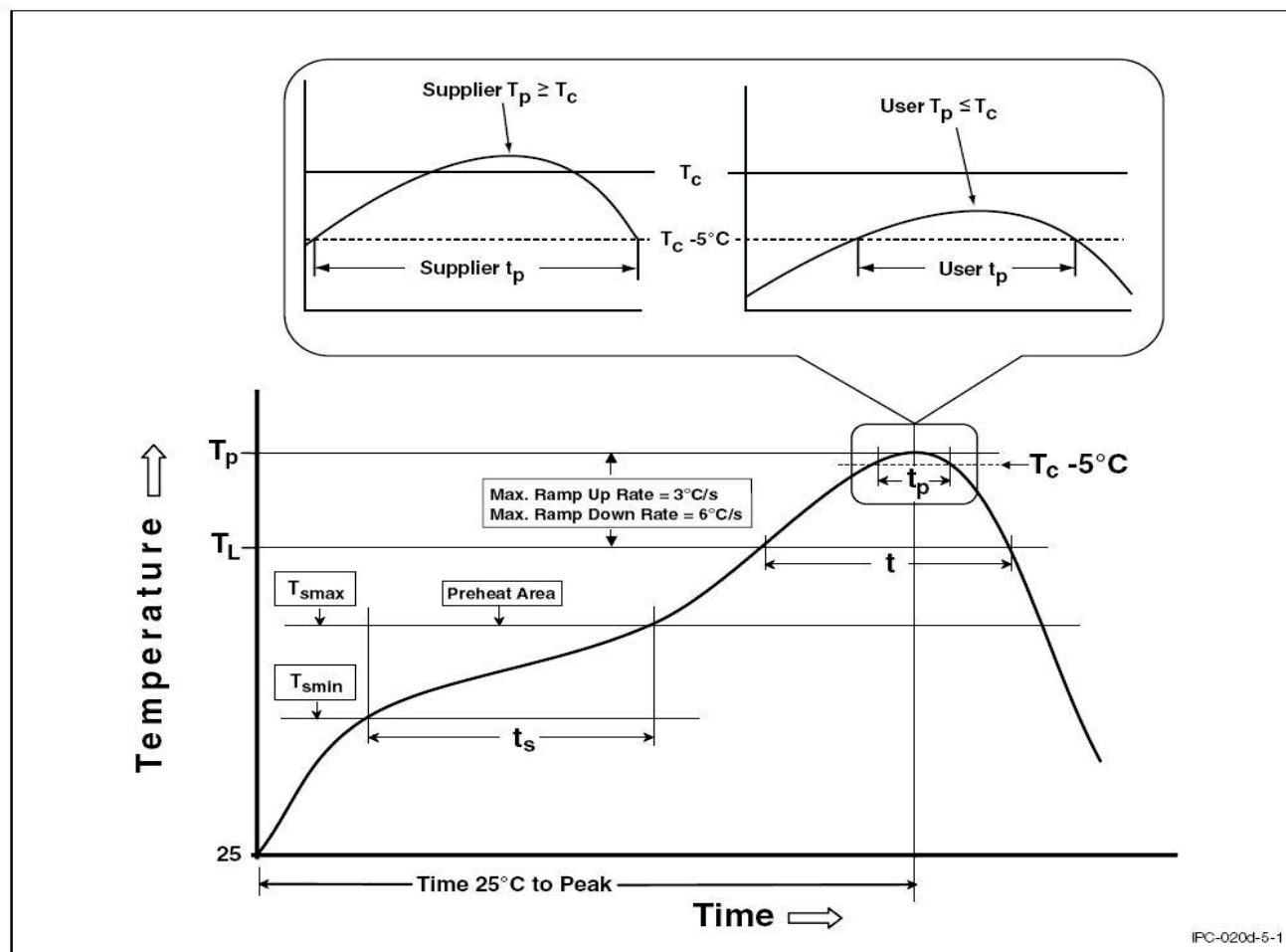
LABEL INFORMATION

Packing Quantity

Option	Quantity	Quantity – Inner box	Quantity – Outer box
None	50 Units/Tube	32 Tubes/Inner box	10 Inner box/Outer box = 16k Units
SM	50 Units/Tube	28 Tubes/Inner box	10 Inner box/Outer box = 14k Units
SMT&R	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units
S(T2)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units
SL(T1)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units
SL(T2)	1000 Units/Reel	3 Reels/Inner box	5 Inner box/Outer box = 15k Units

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.

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- The characteristic curves shown in this datasheet are representing typical performance which are not guaranteed.
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- 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.
- Please contact ASG sales agent for special application request.
- Immerge unit's body in solder paste is not recommended.
- Parameters provided in datasheets may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated in each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify ASG's terms and conditions of purchase, including but not limited to the warranty expressed therein.
- Discoloration might be occurred on the package surface after soldering, reflow or long-time use. It neither impacts the performance nor reliability.