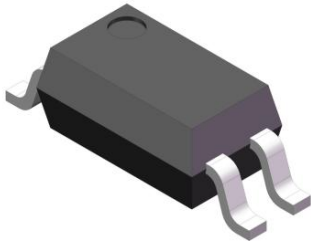
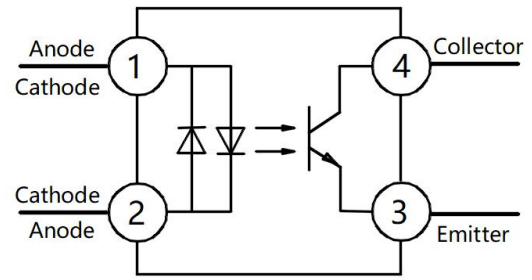


Product packaging logic diagram



SSOP4



Pin Configuration

Features

- Current transfer ratio(CTR: 20~300% at $I_F = \pm 1\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output ($V_{iso} = 3750\text{Vrms}$)
- Collector - emitter breakdown voltage $BV_{CEO} \geq 80\text{V}$
- Operating Temperature: $-55^\circ\text{C} \sim 100^\circ\text{C}$
- Environmentally friendly products, compliant with CQC, UL, and VDE requirements

Mechanical Data

- Case: SSOP4
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solder ability-per MIL-STD-202, Method 208

Applications

- It is widely used in the feedback control loop of switching power supply and the isolation between the main circuit and the control circuit, ensuring the stability of the output voltage and quickly transmitting the fault signal to trigger the protection mechanism in the case of overload or short circuit.
- In applications such as PLCs (Programmable Logic Controllers), motor drives, and sensor interfaces, it is used for signal isolation to prevent high-voltage noise from interfering with low-voltage control logic.
- For signal isolation in serial communication interfaces (e.g., RS-232,) to improve anti-interference capability.
- Consumer electronics: household appliances, smart home devices (smart lighting, smart sockets), computers and peripherals (printers, monitors), etc.
- Lighting control: AC transistor optocoupler is suitable for dimming control, smart switching, and wireless control, supporting AC input.



Ordering Information

XL 3H4 (X) (X) (X) - (U) (N) (Y)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Brand(XL)
- ② Product series(3H4)
- ③ Package type(None:(SSOP4))
- ④ Halogen option(None :Halogen free)
- ⑤ CTR Bank(A,B or None)
- ⑥ Lead frame (None: Copper)
- ⑦ Customer option 1 (0-9 or A- Z or none)
- ⑧ Customer option 2 (0-9 or A- Z or none)

Part Number	Package	Shipping Quantity	Marking Code
XL3H4A	SSOP4	5000pcs / Tape & Reel	XL3H4A

Marking Information

- " XL" denotes brand.
- " 3H4" denotes Product series.
- " X" denotes CTR Rank : A, B , None.
- " Y" denotes Year : A(2024), B(2025), C(2026)
- " WW" denotes Week' s number .
- " N" denotes the day of Week.



Maximum Ratings (@ Ta = 25°C unless otherwise specified)

Parameter		Symbol	Value	Unit
Input	Forward Current	I _F	±50	mA
	Power Dissipation	P _D	70	mW
	Power dissipation Derating factor (above Ta = 100°C)	P _{DD}	2.9	mW/°C
	Thermal Resistance Junction-Ambient	R _{thJA}	325	°C/W
	Thermal Resistance Junction-Case	R _{thJC}	200	°C/W
Output	Power Dissipation	P _C	150	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	V _{CEO}	80	V
	Emitter-Collector Voltage	V _{ECO}	7	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Total Power Dissipation	P_{TOT}	200	mW
Isolation Voltage *1	V_{ISO}	3750	Vrms
Operating Temperature	T_{OPR}	-55 ~ +100	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature *2	T_{SOL}	260	°C

Notes:

1. 40 to 60% RH, AC for 1 minute

2. For 10 seconds

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F = \pm 20\text{mA}$	-	1.2	1.4	V
	Terminal Capacitance	C_t	$V = 0, f = 1\text{kHz}$	-	30	250	pF
Output	Collector-Emitter Dark Current	I_{CEO}	$V_{CE} = 20\text{V}, I_F = 0$	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 0.1\text{mA}, I_F = 0$	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E = 10\mu\text{A}, I_F = 0$	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$	20	-	300	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = \pm 20\text{mA}, I_C = 1\text{mA}$	-	0.1	0.2	V
	Isolation Resistance	R_{ISO}	DC500V, 40~60%R.H	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	C_f	$V = 0, f = 1\text{MHz}$	-	0.6	1.0	pF
	Cut-off Frequency	F_c	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	-	80	-	kHz
	Rise Time	T_r	$V_{CE} = 2\text{V}, R_L = 100\Omega, I_C = 2\text{mA}$	-	-	18	μs
	Fall Time	T_f		-	-	18	

Rank Table of Current Transfer Ratio CTR

Rank Mark	Min. (%)	Max. (%)	Condition
A	50	150	$I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$
B	100	300	
No mark	20	300	

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Fig.1 Relative Current Transfer Ratio vs Forward Current

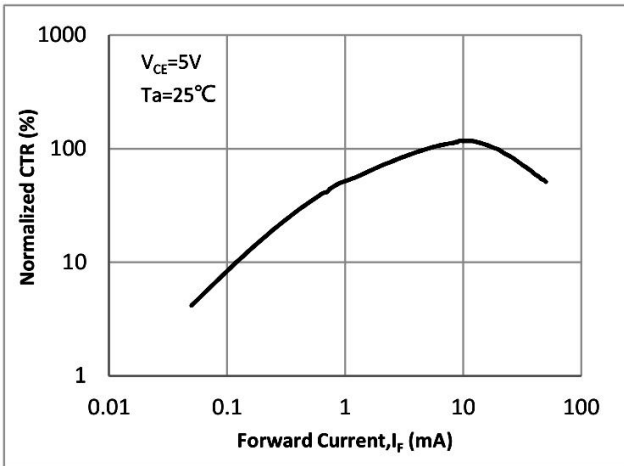


Fig.2 Forward Current vs Forward Voltage

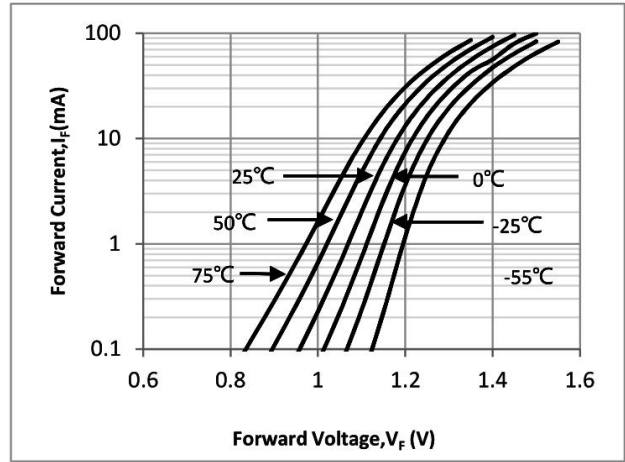


Fig.3 Collector Current vs Collector Emitter voltage

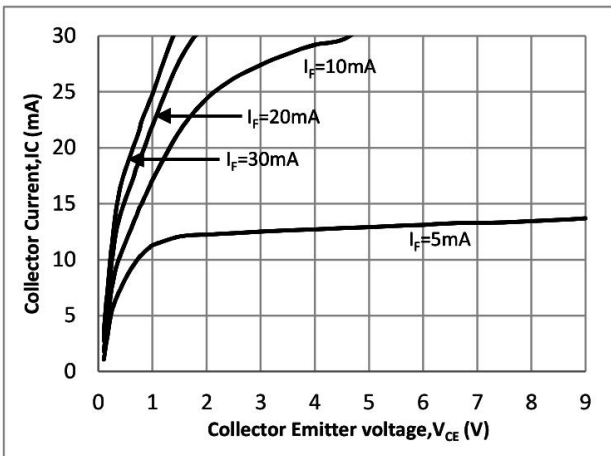


Fig.4 Relative Current Transfer Ratio vs Ambient Temperature

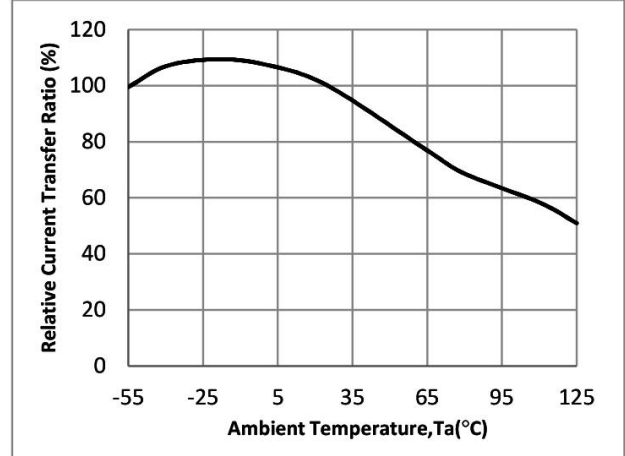


Fig.5 Collector-emitter saturation voltage vs. Ambient Temperature

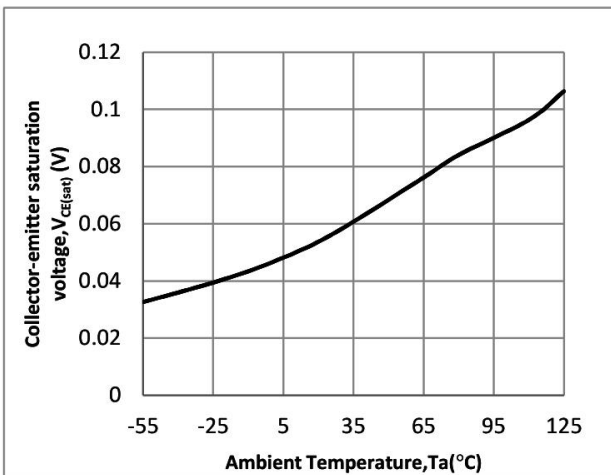
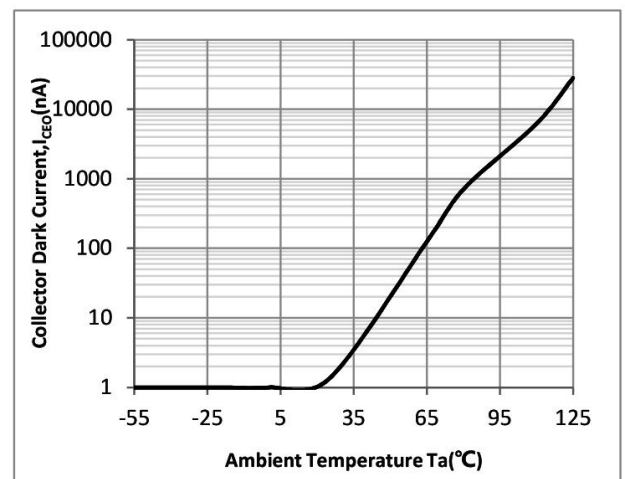


Fig.6 Collector Dark Current vs. Ambient Temperature



XL3H4

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Fig.7 Response Time vs. Load Resistance

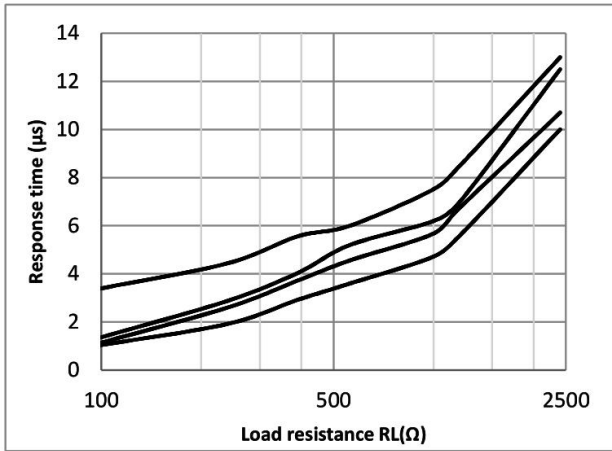


Fig.8 Frequency Response

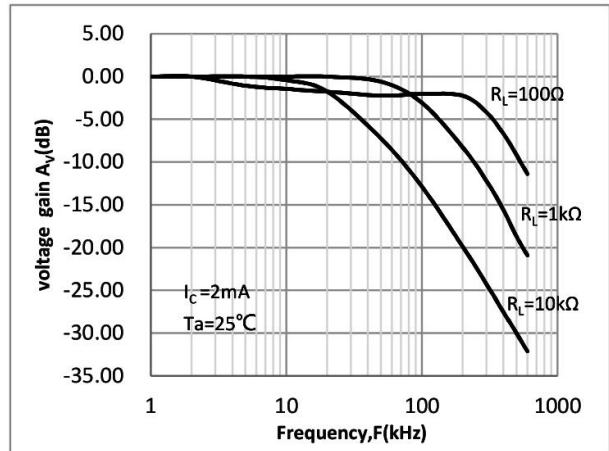


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

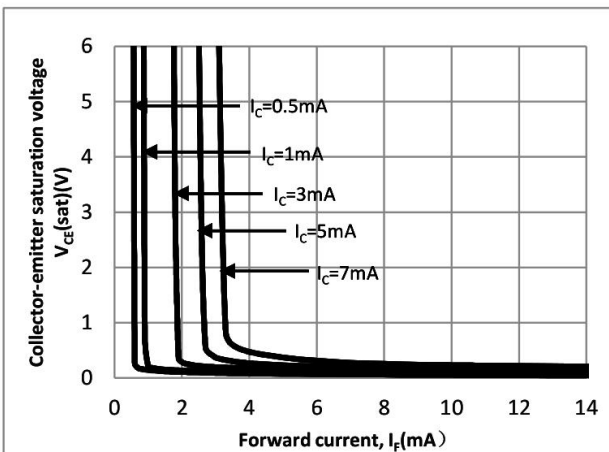
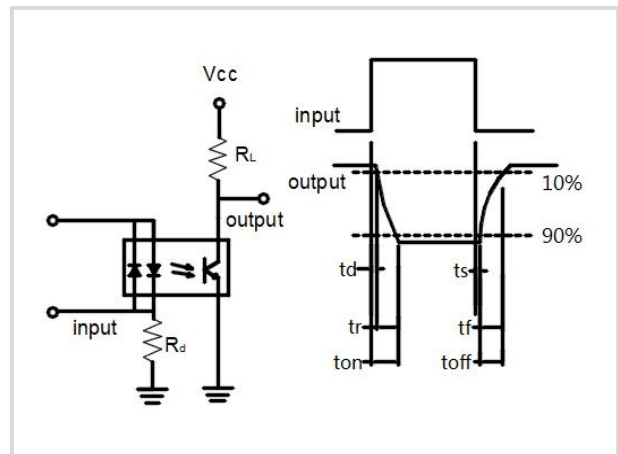
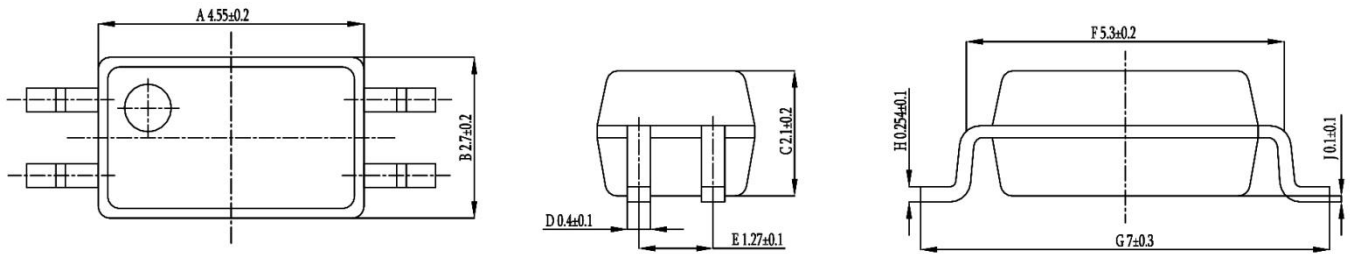


Fig.10 Switching Time Test Circuit & Waveforms

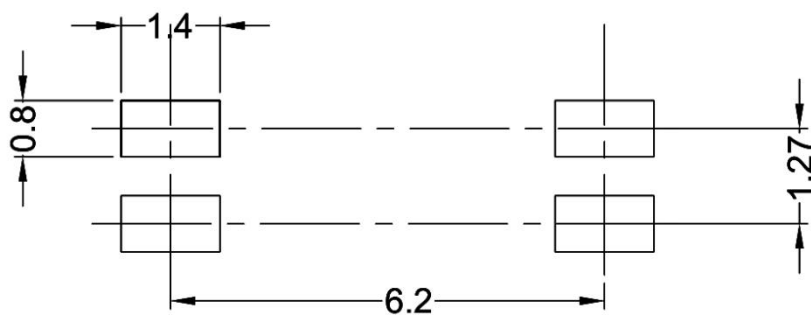


Package Outline Dimensions (unit: mm)

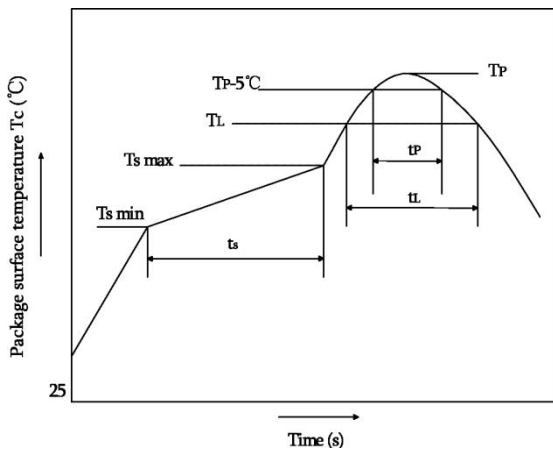
SSOP4



SOLDERING FOOTPRINT (unit: mm)



Reflow soldering

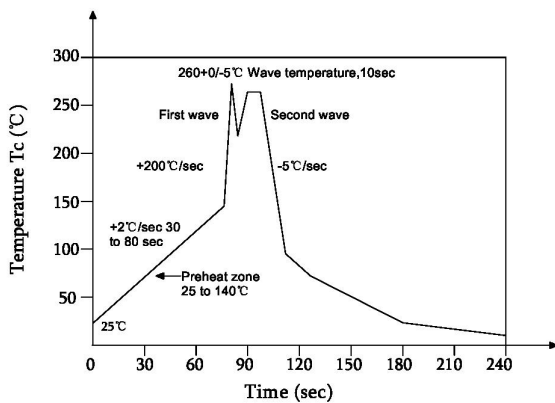


	Symbol	Min	Max	Unit
Preheat temperature	Ts	150	200	°C
Preheat time	ts	60	120	s
Ramp-up rate(T _L to T _P)			3	°C/s
Liquidus temperature	T _L	217		°C
Time above T _L	t _L	60	150	s
Peak temperature	T _p		260	°C
Time during which T _c is between (T _P -5) and T _P	t _p		30	s
Ramp-down rate(T _P to T _L)			6	°C/s

Note:

Reflow soldering is recommended at the temperatures and times shown, no more than three times.

Wave soldering



Profile feature	
Average ramp-up rate	~200°C/s
Heating rate during preheat	1°C/s to 2°C/s typical; 4°C/s maximum
Final preheat temperature T _s	~130°C
Preheat time (25°C to T _s)	> 60s
Peak temperature T _p	260°C
Time within peak temperature t _p	10s
Ramp-down rate	5°C/s maximum

Soldering with hand soldering iron

- A. Hand soldering iron is only used for product rework or sample testing.
- B. Hand soldering iron requirements: Temperature: 360 °C±5°C within 3s.

Packing

Package Type	Packing Form	Quantity per Tube & Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SSOP4	Reel(φ330mm)	5000pcs/reel	2 reels /box	10 boxes /ctn	380*420mm	350*340*60mm	365*330*370mm	Leave 50 Spaces at the beginning and 100 Spaces at the end

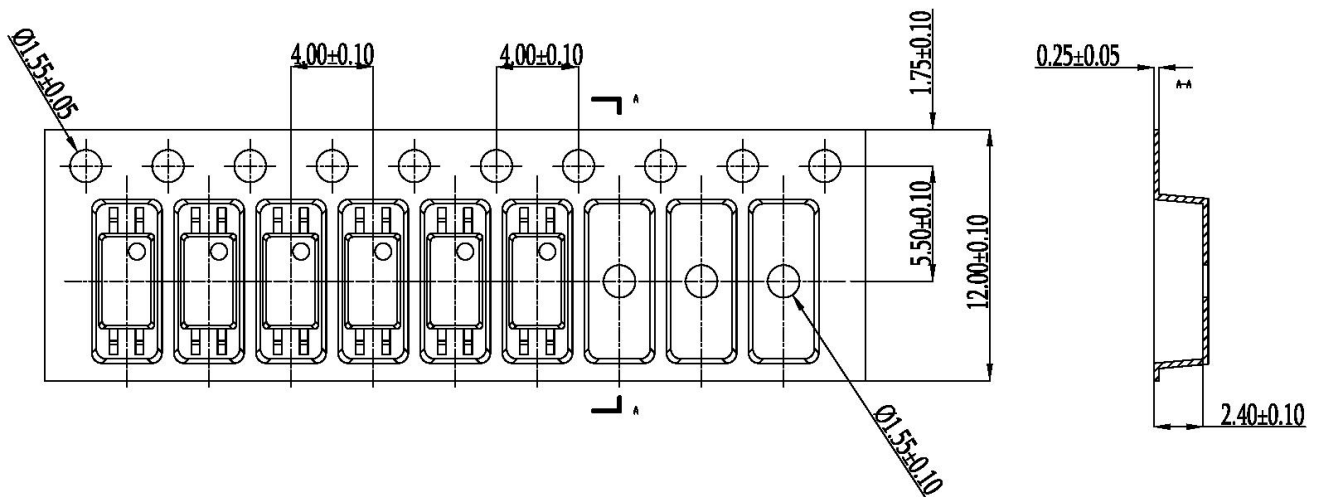
- Summary table

- SSOP4 (Reel)

Qty/reel: 5000 pcs. Qty/box: 10000 pcs.

Qty/ctn: 100000 pcs.

Schematic: (unit:mm)



Attention

- XINGLIGHT implements dynamic technical updates. Specifications are subject to change. Refer to the official website for the latest version.
- Users must strictly adhere to specified conditions. Failures caused by misuse (overload, high temperature, incompatible circuits) are excluded from warranty.
- Contact technical support for customized validation in critical applications (medical devices, industrial control).
- This document is valid until Dec 31, 2026. Updates will be notified on the official website.
- For further clarification on technical specifications or application solutions, please contact us through official channels: