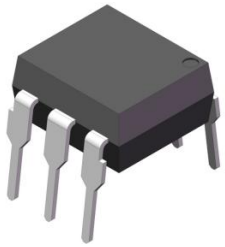
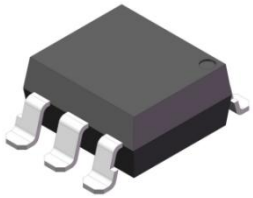
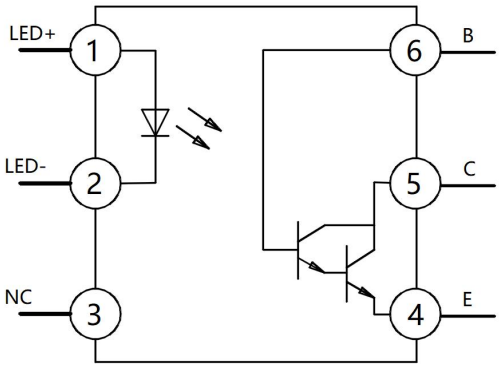
Product packaging logic diagram



DIP6



SMD6



Pin Configuration

Features

- Current transfer ratio
  (CTR: ≥100% at IF = 10mA, VCE = 10V)
- High isolation voltage between input and output (Viso =5000Vrms)
- Operating Temperature: -55℃~100℃
- Environmentally friendly products, compliant with CQC, UL, and VDE requirements

Mechanical Data

- Case: DIP6, SMD6
- 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 loops of switching power supplies and the isolation between main circuits and control circuits, ensuring stable output voltage and quickly transmitting fault signals to trigger protection mechanisms in the event of overload or short circuit.
- Photovoltaic energy storage system
- Data collection, inverter control, protection circuit
- Industrial automation control
- Relay drive, motor control, PLC interface
- Power management
- Switching power supply feedback isolation、Home appliance power control

Ordering Information

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

① Brand(XL)

② Product series(4N29,4N33)

③ Package type(DIP6:None, SMD6:S)

④ Halogen option(None :Halogen free)

⑤ Lead frame (None: Copper)

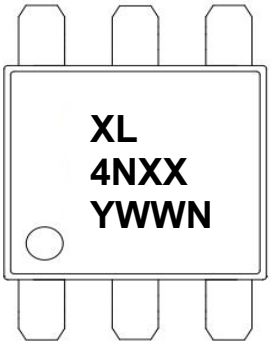
⑥ Customer option 1 (0-9 or A-Z or none)

⑦ Customer option 2 (0-9 or A-Z or none)

Part Number	Package	Shipping Quantity	Marking Code
XL4NXX	DIP6	65pcs / Tube	XL4NXX
XL4NXXS	SMD6	1000pcs / Tape & Reel	XL4NXX

Marking Information

- " XL" denotes brand.
- " 4NXX" denotes product series: 29, 33
- " Y" denotes Year : A(2024), B(2025), C(2026)
- " WW" denotes Week' s number .
- " N" denotes the day of Week.



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

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	60	mA
	Forward Peak Current*1	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	100	mW
Output	Collector Power Dissipatio	P_C	150	mW
	Collected Current	I_C	100	mA
	Collector-Base Voltage	V_{CBO}	50	V
	Emitter-Base Voltage	V_{EBO}	8	V
	Collector-Emitter Voltage	V_{CEO}	30	V
	Eemitter-Collector Voltage	V_{ECO}	5	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Total Power Dissipation	P_{TOT}	350	mW
Isolation Voltage *2	V_{ISO}	5000	Vrms
Operating Temperature	T_{OPR}	-55 ~ +100	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature *3	T_{SOL}	260	°C

Notes:

1. Pulse width≤1μs, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute. At this time, pins 1, 2 & 3 are shorted, and pins 4, 5 & 6 are shorted together.
3. For 10 seconds

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter			Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage		V_F	I_F = 10mA	-	1.2	1.5	V
	Reverse Current		I_R	V_R = 3V	-	-	10	μA
	Input Capacitance		C_t	V = 0V, f = 1kHz	-	50	-	pF
Output	Collector Dark Current		I_{CEO}	V_{CE}=10V	-	-	100	nA
	Collector-Base Breakdown Voltage		BV_{CBO}	I_B=0.1mA, I_F=0	50	-	-	V
	Collector-Emitter Breakdown Voltage		BV_{CEO}	I_C=0.1mA, I_F=0	40	-	-	V
	Emitter-Collector Breakdown Voltage		BV_{ECO}	I_E=0.1mA, I_F=0	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	4N29	CTR	I_F=10mA ,V_{CE}=10V	100	-	-	%
		4N33			500	-	-	
	Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_F=8mA,I_C=2mA	-	-	1	V
	Isolation Resistance		R_{ISO}	DC500V,40~60%R.H.	-	10^{11}	-	Ω
	Isolation Capacitance		C_f	V=0, f=1MHz	-	0.8	-	pF
	Turn On Time		T_{on}	V_{CE}=10V I_C=50mA,R_L=100Ω	-	-	5	μs
	Turn Off Time		T_{off}		-	-	100	μs

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

Fig.1 Forward Current vs. Forward Voltage

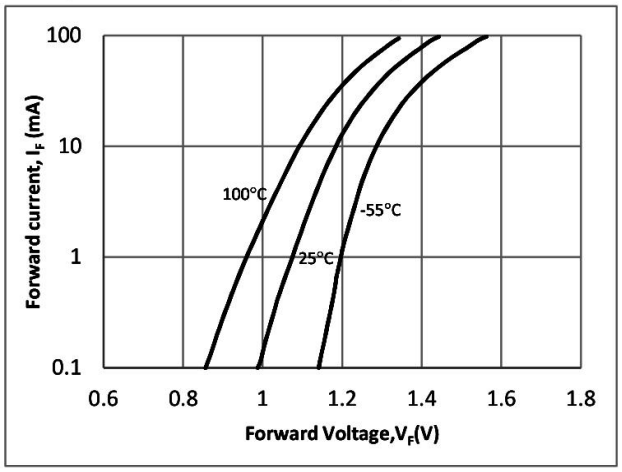


Fig.2 Turn on time vs. Forward Voltage

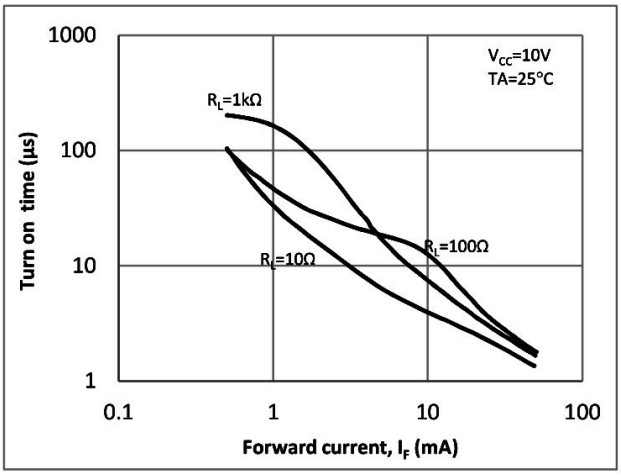


Fig.3 Current Transfer Ratio vs. Forward Current

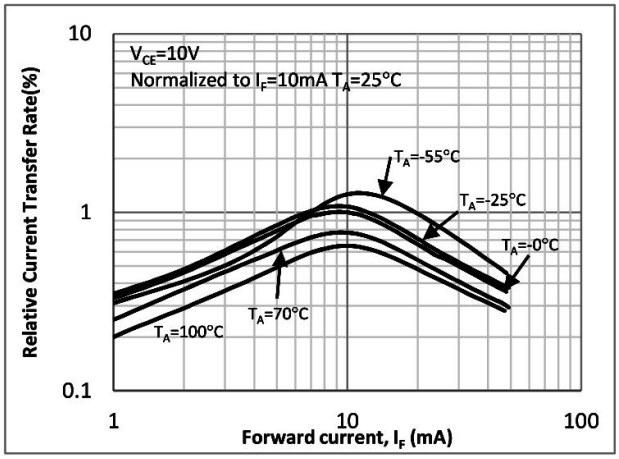


Fig4 Turn off time vs. Forward Voltage

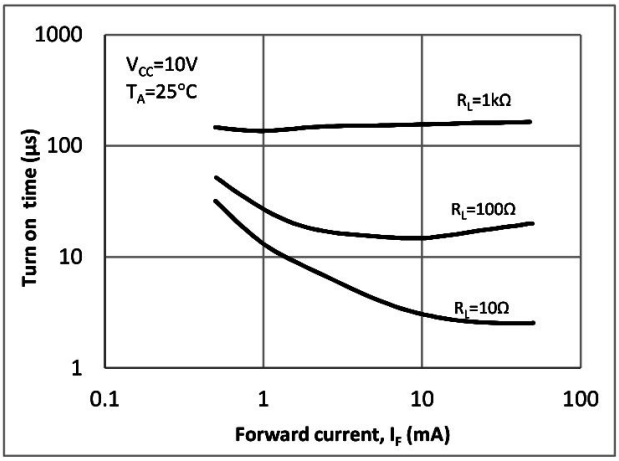


Fig.5 Collector Dark Current vs. Ambient Temperature

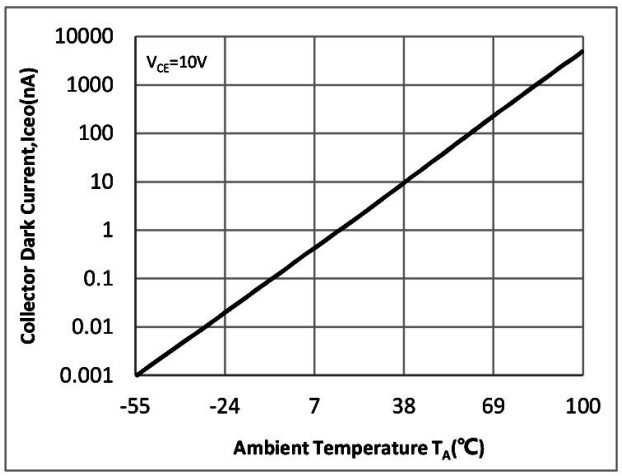
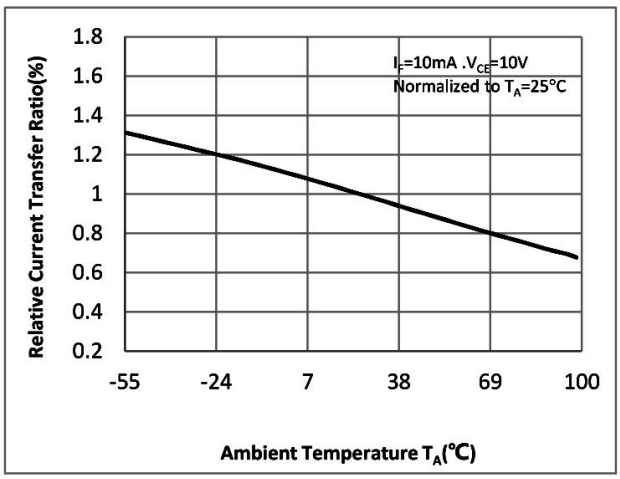
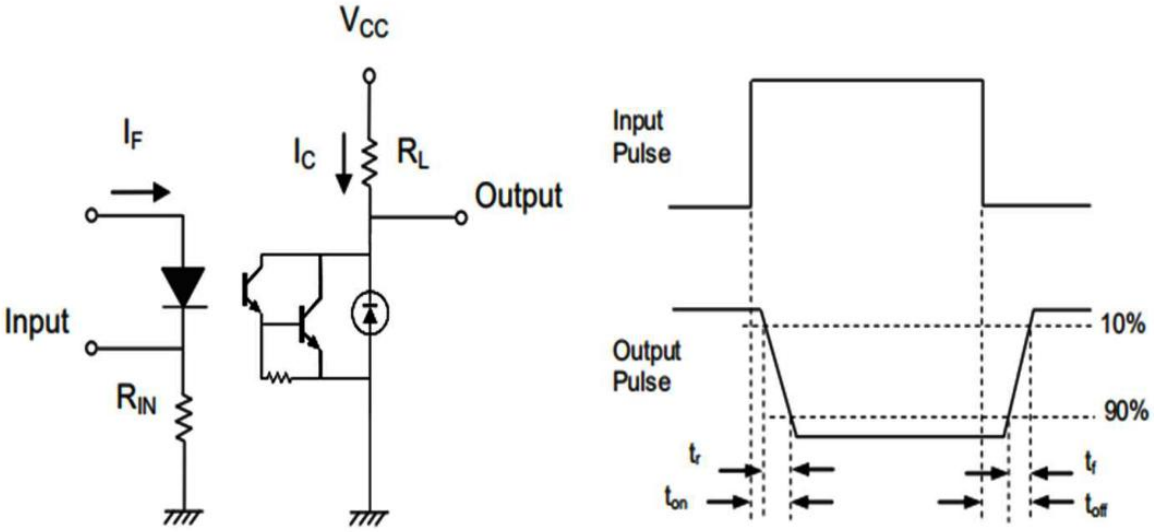


Fig.6 Relative Current Transfer Ratio vs. Ambient Temperature



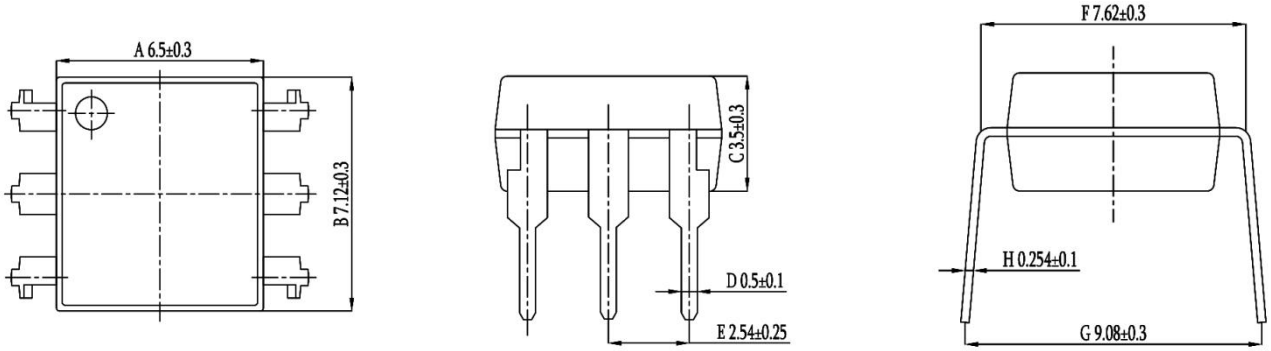
Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

Fig.7 Test circuit diagram

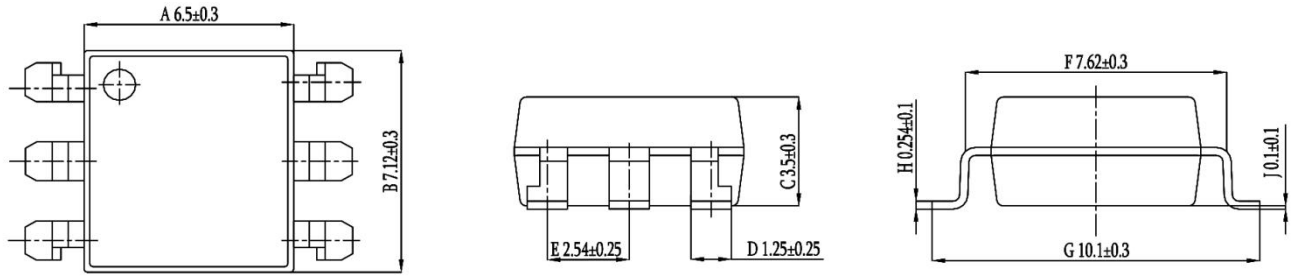


Package Outline Dimensions (unit: mm)

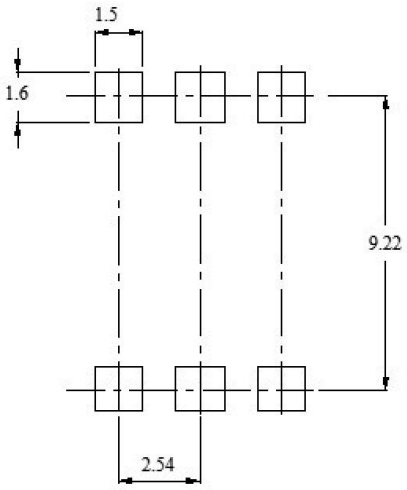
DIP6



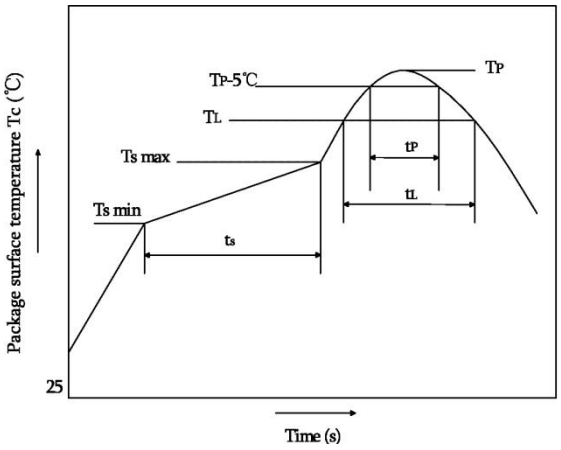
SMD6



SOLDERING FOOTPRINT (unit: mm)



Reflow soldering

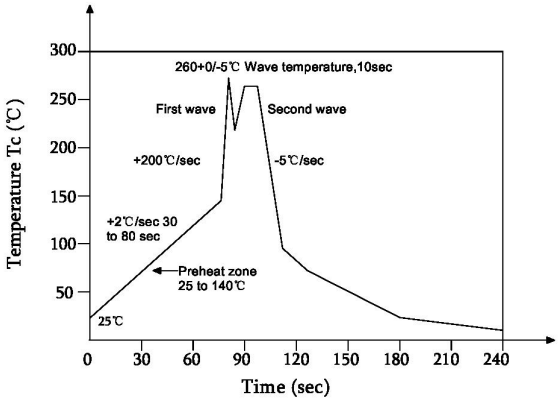


	Symbol	Min	Max	Unit
Preheat temperayure	Ts	150	200	℃
Preheat time	ts	60	120	s
Ramp-up ratea(T_L to T_P)	-	-	3	℃/s
Liquidus temperature	T_L	217		℃
Time above T_L	t_L	60	150	s
Peak temperature	Tp	-	260	℃
Time during which Tc is between (T_P-5) and T_P	t_p	-	30	s
Ramp-down rate(T_P to T_L)	-	-	6	℃/s

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℃/s
Heating rate during preheat	1℃/s to 2℃/s typical;4℃/s maximum
Final preheat temperature Ts	~130℃
Preheat time (25℃ to Ts)	>60s
Peak temperature Tp	260℃
Time within peak temperature tp	10s
Ramp-down rate	5℃/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 ℃+5℃ within 3s.

Packing

Package Type	Packing Form	Quantity per Tube & Red	Quantity per box	Quantity per carton	Antistatic Bag Specification	BOX Specification	Carton Specification	Note
DIP6	Tube(500mm)	65pcs/tube	50 tube/box	10 boxes/ctn	190*670mm	520*105*50mm	545*372*235mm	Straight insert type Material tube
SMD6	Reel(Ø330mm)	1000pcs/reel	2 reels/box	10 boxes/ctn	380*420mm	350*340*60mm	365*330*370mm	Guard band 200mm/min

■ **Summary table**

■ **DI6 (Tube)**

Qty/ tube：65pcs. Qty/box：3250pcs.

Qty/ctn：32500pcs.

Schematic： (unit:mm)

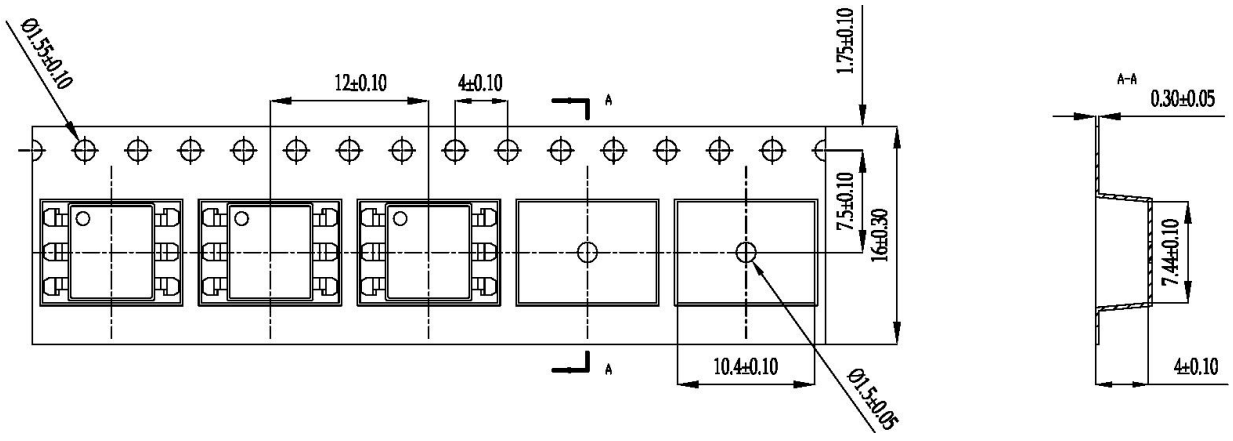
■ **SMD6 (Reel)**

Qty/reel：1000pcs. Qty/box：2000pcs.

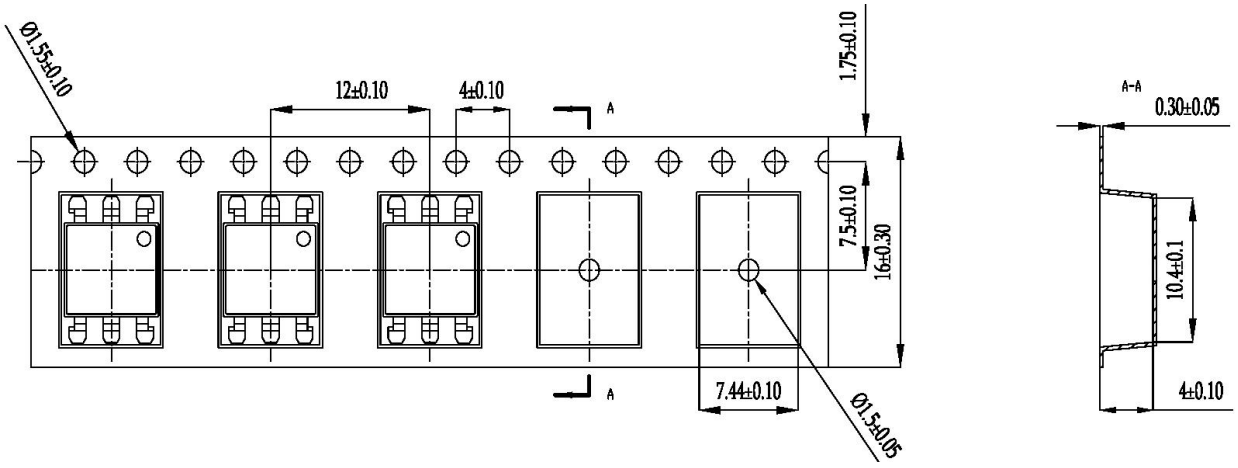
Qty/ctn：20000pcs.

Schematic： (unit:mm)

Tape $ Reel Packing Option T1



Tape $ Reel Packing Option T2



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: