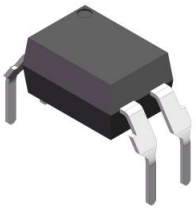
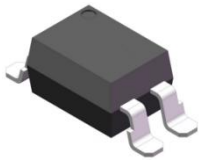
Product packaging logic diagram

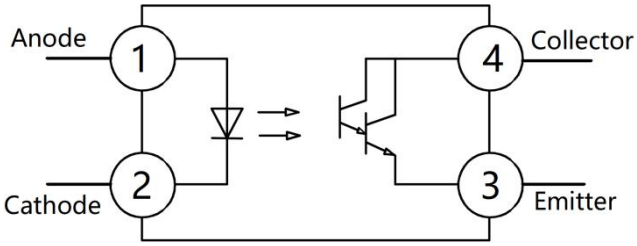
DIP4



DIP4-M



SMD4



Pin Configuration

Features

- Current transfer ratio
  (CTR: 600~7500% at IF =1mA, VCE = 2V)
- High isolation voltage between input and output (Viso =5000Vrms)
- Operating Temperature: -55℃~110℃
- Environmentally friendly products, compliant with CQC, UL, and VDE requirements

Mechanical Data

- Case: DIP4、DIP4-M、SMD4
- 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	815	(X)	(X)	(X)	-	(U)	(N)	(Y)
①	②	③	④	⑤		⑥	⑦	⑧

① Brand (XL)

② Product series (815)

③ Package type(None: (DIP4、DIP4-M、SMD4)

④ Halogen option(None : Halogen free)

⑤ CTR Bank(None: 600~7500%)

⑥ Lead frame (None: Copper)

⑦ Customer option 1 (0-9 or A- Z or none)

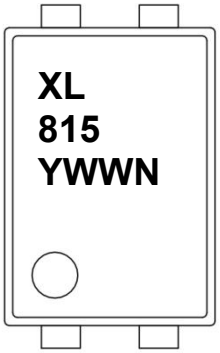
⑧ Customer option 2 (0-9 or A- Z or none)

Part Number	Package	Shipping Quantity	Marking Code
XL815	DIP4	100pcs / Tube	XL815
XL815M	DIP4-M	100pcs / Tube	XL815
XL815S	SMD4	2000pcs / Tape & Reel	XL815

Notes 1: X denotes CTR Rank : A, B or None.

Marking Information

- " XL" denotes brand.
- " 815" denotes Product series.
- " 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
	Reverse Voltage	V_R	6	V
	Peak Forward Current *1	I_{FP}	1	A
	Power Dissipation	P_D	100	mW
	Power dissipation Derating factor (above Ta = 100°C)	P_{DD}	5.8	mW/°C
	Thermal Resistance Junction-Ambient	Rth_{J-A}	325	°C/W
	Thermal Resistance Junction-Case	Rth_{J-C}	200	°C/W
Output	Collector Power Dissipation	P_C	150	mW
	Collector Current	I_C	80	mA
	Collector-Emitter Voltage	V_{CEO}	40	V
	Emitter-Collector Voltage	V_{ECO}	7	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Total Power Dissipation	PTOT	200	mW
Isolation Voltage *2	VISO	5000	Vrms
Operating Temperature	TOPR	-55 ~ +110	℃
Storage Temperature Range	TSTG	-55 ~ +125	℃
Soldering Temperature *3	TSOL	260	℃

Notes:

1. Pulse width≤1μs, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
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 = 20mA	-	1.2	1.4	V
	Reverse Current	I_R	V_R = 4V	-	-	10	μA
	Terminal Capacitance	C_t	V_R = 0V, f = 1kHz	-	30	250	pF
Output	Collector-Emitter Dark Current	I_{CEO}	V_{CE} = 10V	-	-	1000	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C = 0.1mA, I_F = 0	40	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E = 10μA, I_F = 0	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	I_F = 1 mA, V_{CE} = 2V	600	-	7500	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_F = 20mA, I_C = 5mA	-	0.8	1	V
	Isolation Resistance	R_{ISO}	V_{IO} = 500Vdc 40~60% R.H.	5×10^{10}	-	-	Ω
	Isolation Capacitor	C_f	V_{IO} = 0, f = 1MHz	-	0.6	1.0	pF
	Cut-off frequency	f_C	V_{CE} = 5V, I_C = 2mA RL=100Ω, -3dB	-	6	-	kHz
	Turn on Time	T_{on}	V_{CE}=2V, RL= 100Ω I_C=10mA	-	60	300	μs
	Turn off Time	T_{off}		-	53	250	

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

Fig.1 Current Transfer Ratio vs. Forward Current

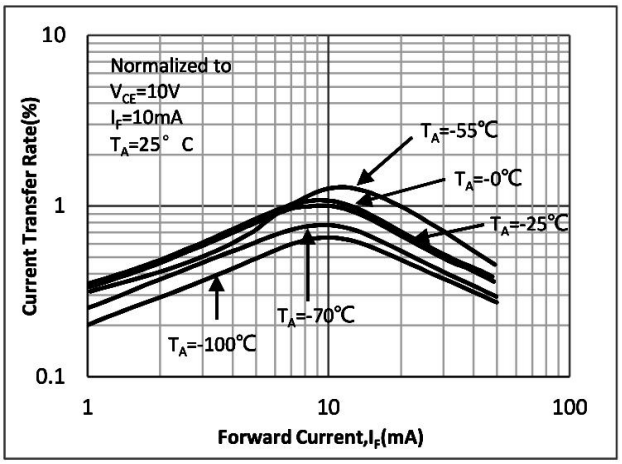


Fig.2 Forward Current vs. Forward Voltage

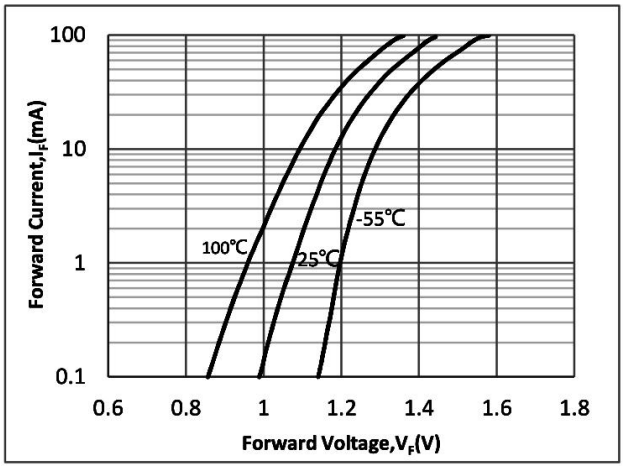


Fig.3 Turn On Time vs. Forward Current

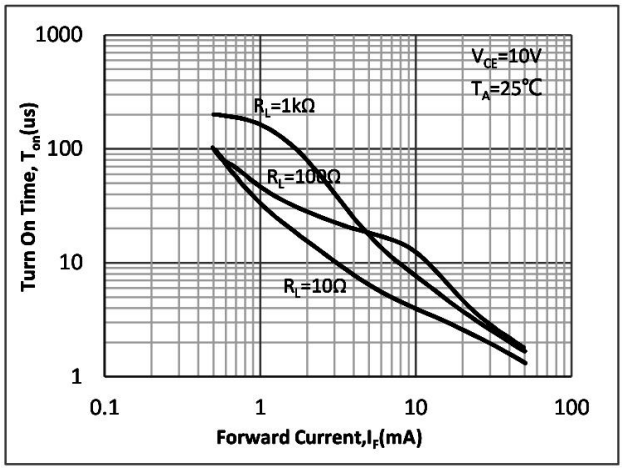


Fig4 Relative Current Transfer Ratio vs. Ambient Temperature

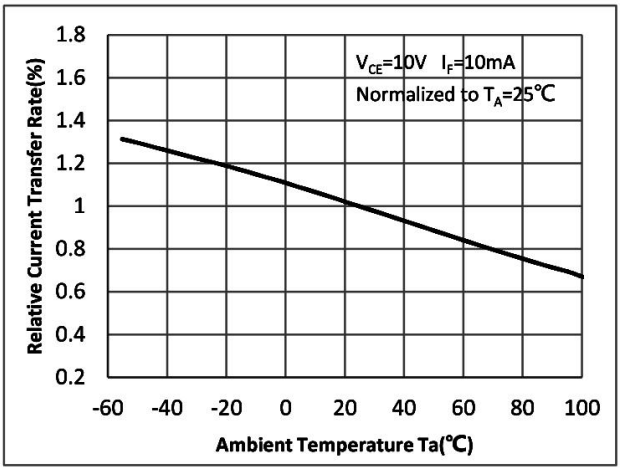


Fig.5 Turn Off Time vs. Forward Current

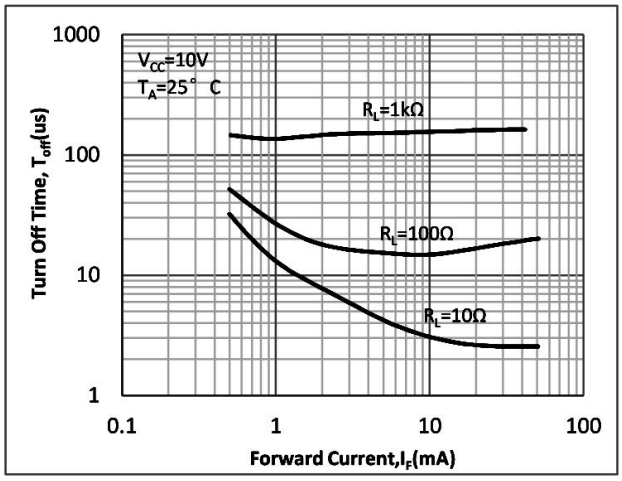
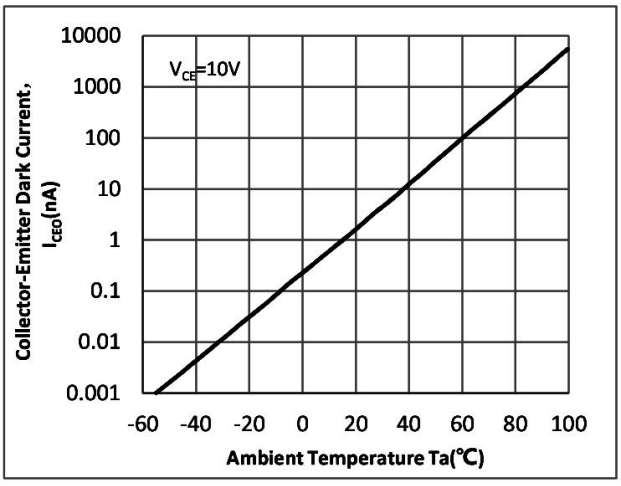
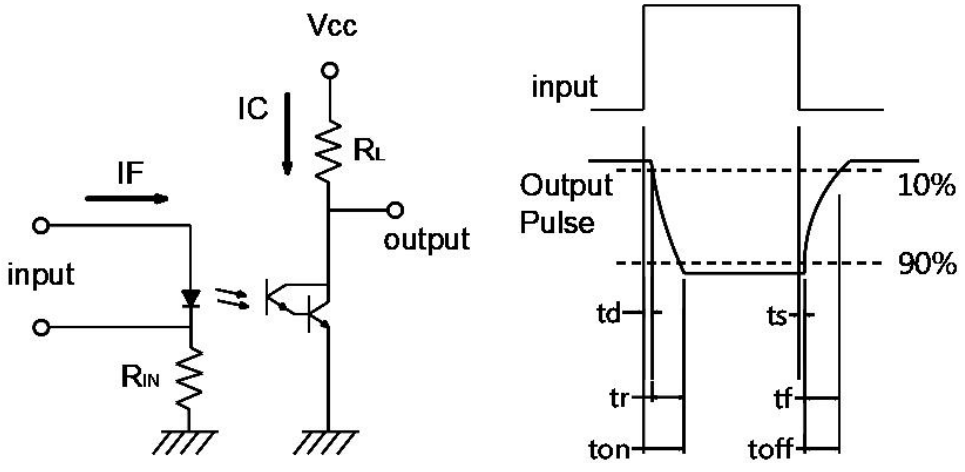


Fig.6 Collector-Emitter Dark Current vs. Ambient Temperature



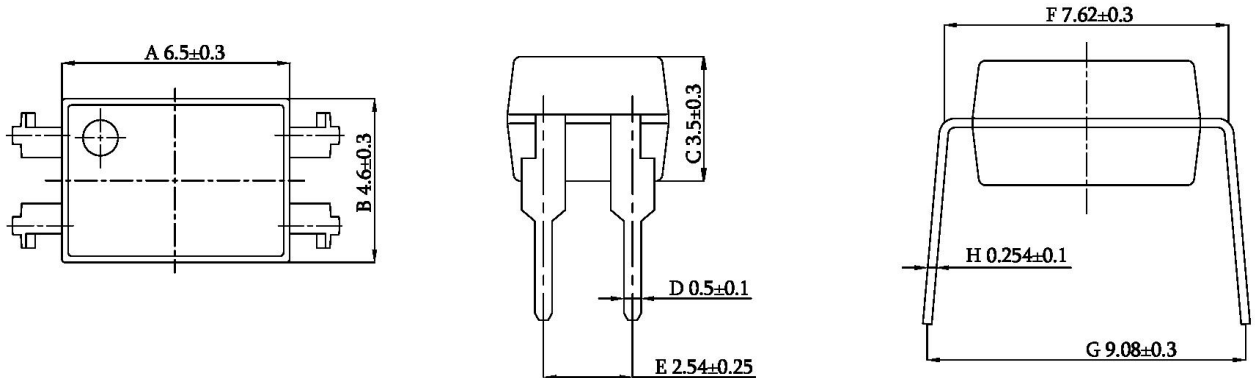
Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

Fig.7 witching Time Test Circuit & Wave forms

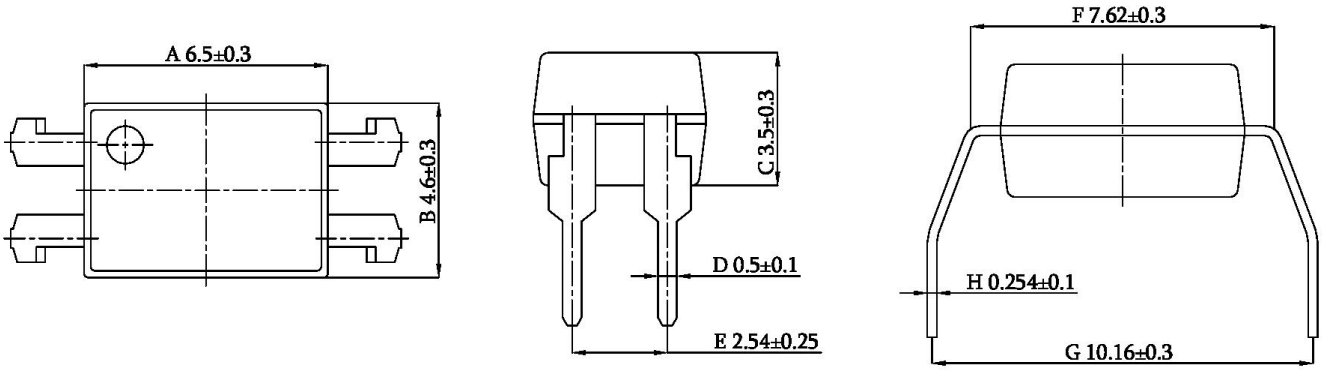


Package Outline Dimensions (unit: mm)

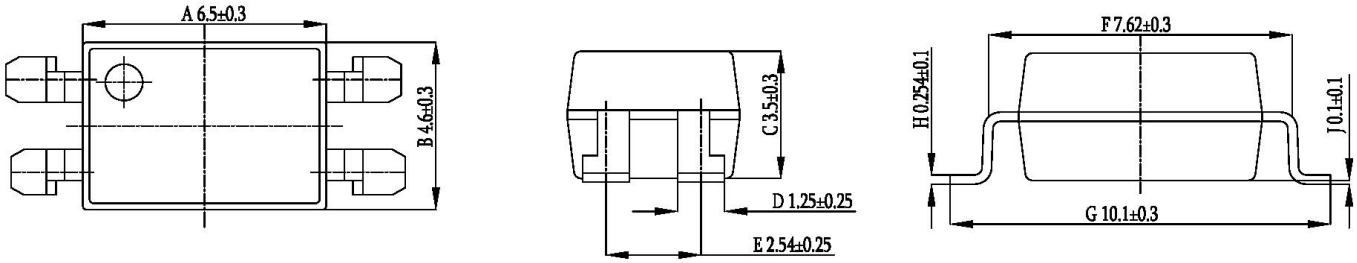
DIP4



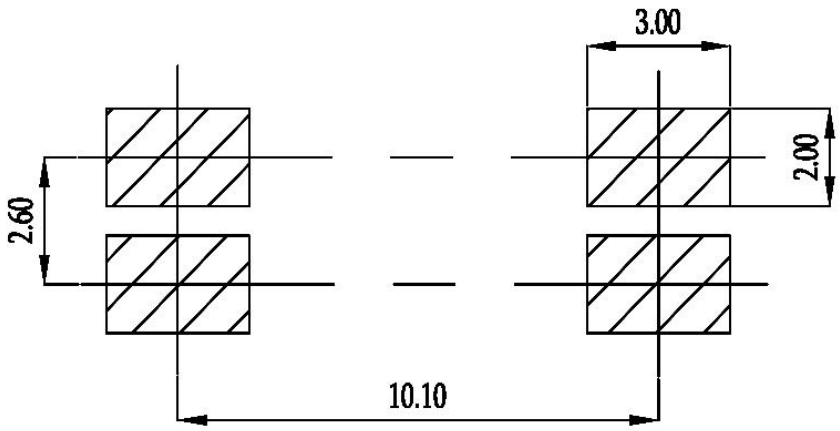
DIP4-M



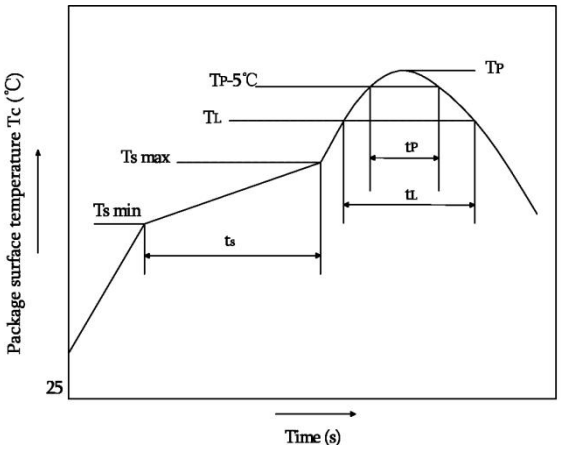
SMD4



SOLDERING FOOTPRINT (unit: mm)



Reflow soldering

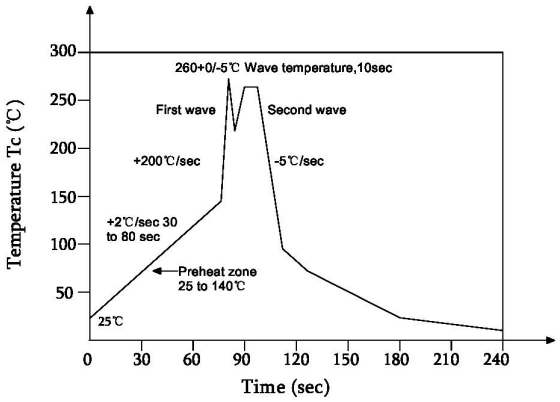


	Symbol	Min	Max	Unit
Preheat temperayure	Ts	150	200	℃
Preheat time	ts	60	120	s
Ramp-up ratea(T_L to T_P)			3	℃/s
Liquidus temperature	T_L	217		℃
Time above T_L	t_L	60	150	s
Peak temperature	Tp		260	℃
Time during which Tc is between (T_P-5) and T_P	t_p		30	s
Ramp-down rate(T_P to T_L)			6	℃/s

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 &Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
DIP4	Tube(500mm)	100 pcs/tube	50 tubes/box	10 boxes /ctn	190*670mm	520*105*50mm	545*372*235mm	Straight insert type material tube
DIP4-M	Tube(500mm)	100 pcs/tube	50 tubes/box	10 boxes /ctn	190*670mm	520*105*50mm	545*372*235mm	Seagull foot (M foot)tube
SMD4	Reel(ϕ330mm)	2000 pcs/reel	2 reels /box	10 boxes /ctn	380*420mm	350*340*60mm	365*330*370mm	Guard band 200mm /min.

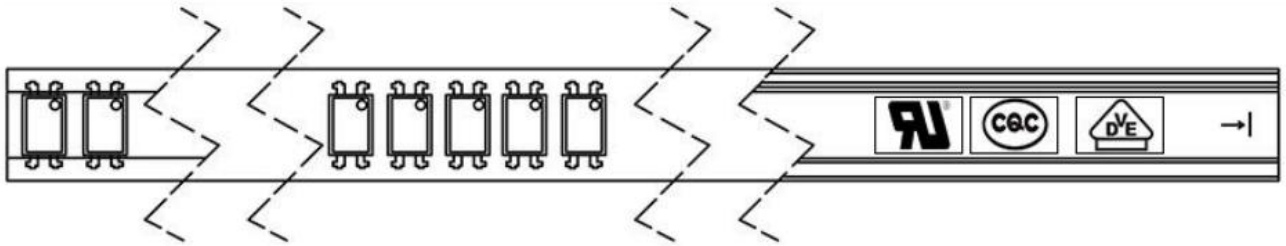
■ **Summary table**

■ **DIP4/DIP4-M (Tube)**

Qty/ tube：100pcs. Qty/box：5000pcs.

Qty/ctn：50000pcs.

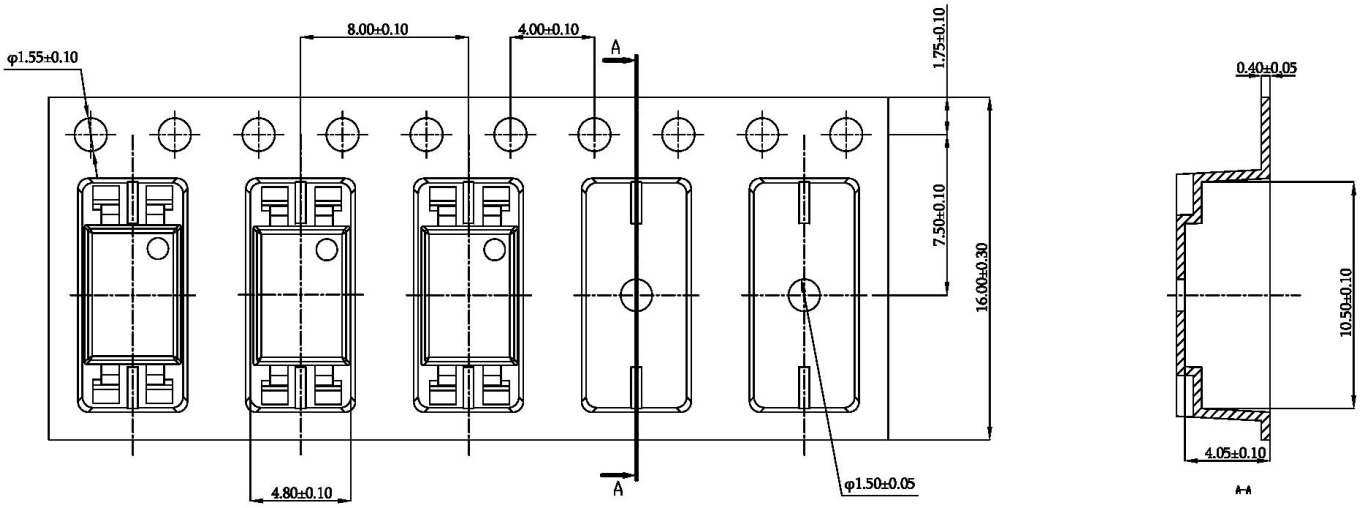
Schematic： (unit:mm)

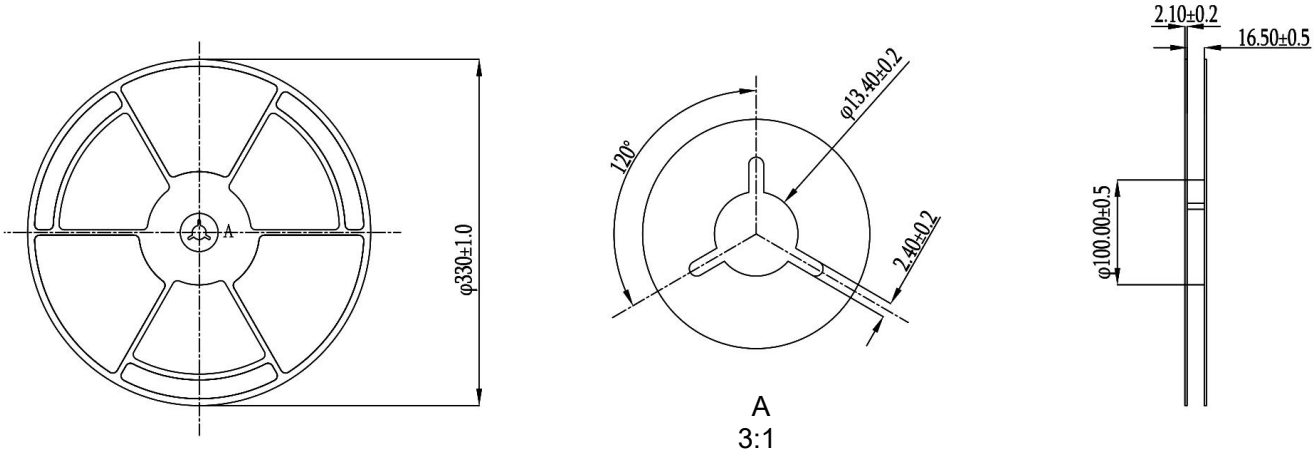


■ **SMD4 (Reel)**

Qty/reel：2000pcs. Qty/box：4000pcs.

Qty/ctn：40000pcs.





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.