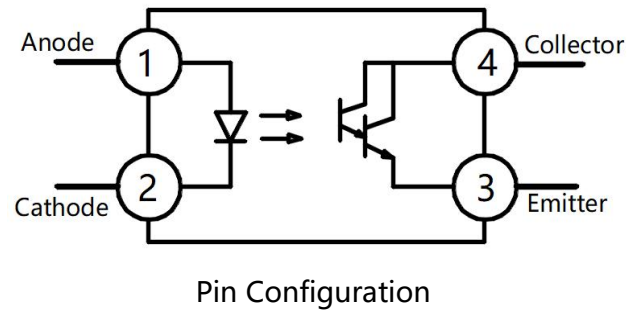
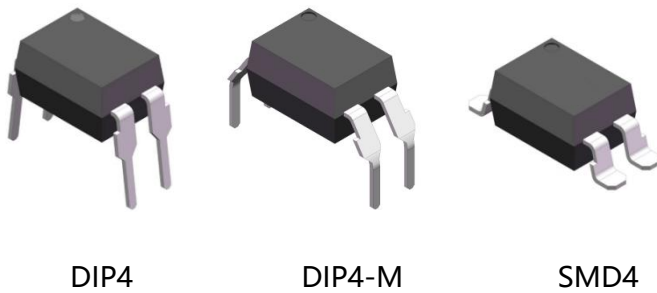


Product packaging logic diagram



Features

- Current transfer ratio
(CTR: 600~7500% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
- High isolation voltage between input and output ($V_{iso} = 5000\text{Vrms}$)
- Operating Temperature: $-55^\circ\text{C} \sim 110^\circ\text{C}$
- 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

- Drive industrial controllers and actuators, Ensure the stability of signal transmission.
- At switch-mode power supplies, regulated power supplies, and battery management systems, Achieve signal isolation and amplification, ensuring the stability of power output.
- Can directly drive high-power motors and provide precise control signals. Achieve precise control over speed and direction
- Home appliances For controlling high-power loads such as motors and relays, Provide reliable signal transmission and electrical isolation to ensure the safe operation.
- Ensuring signal clarity and stability in signal transmission circuits.



Ordering Information

<u>XL</u>	<u>815</u>	<u>(M)</u>	<u>(G)</u>	<u>(X)</u>	-	<u>(U)</u>	<u>(N)</u>	<u>(Y)</u>
①	②	③	④	⑤		⑥	⑦	⑧

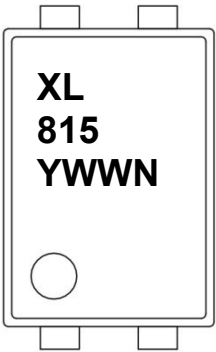
- ① Brand (XL)
- ② Product series (815)
- ③ Package type(None: DIP4、DIP4-M、SMD4)
- ④ Halogen option(None : Halogen free)
- ⑤ CTR Bank(None: 600~7500%)
- ⑥ Lead frame (None: Copper)
- ⑦ Customer option 1 (0-9 or A- Z or none)
- ⑧ Customer option 2 (0-9 or A- Z or none)

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 T _a = 100°C)	P _{DD}	5.8	mW/°C
	Thermal Resistance Junction-Ambient	R _{thJA}	325	°C/W
	Thermal Resistance Junction-Case	R _{thJC}	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	°C
Storage Temperature Range	TSTG	-55 ~ +125	°C
Soldering Temperature *3	TSOL	260	°C

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

Fig.1 Current Transfer Ratio vs. Forward Current

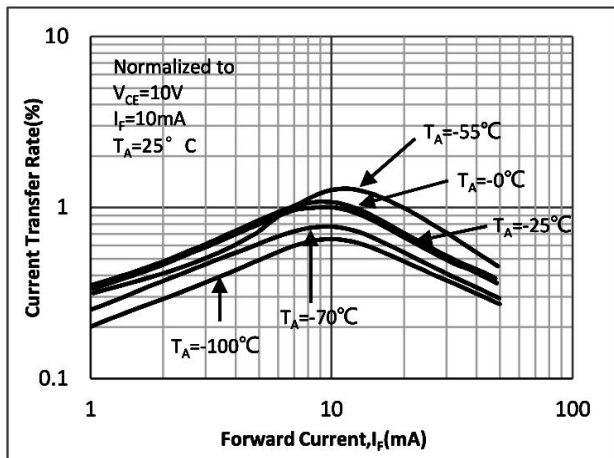


Fig.2 Forward Current vs. Forward Voltage

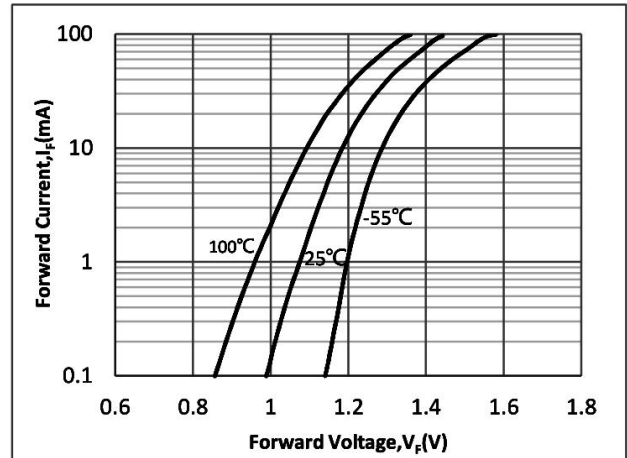


Fig.3 Turn On Time vs. Forward Current

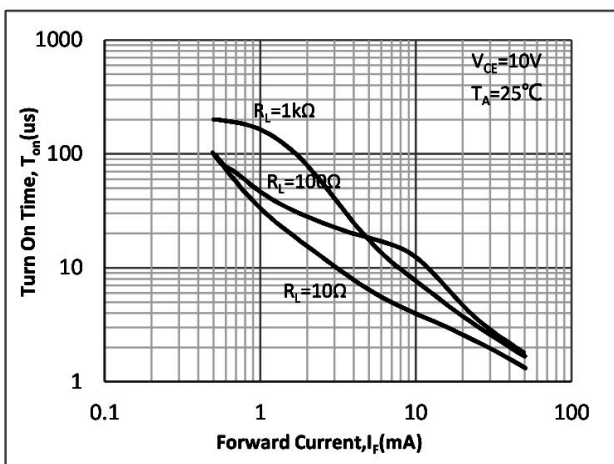


Fig.4 Relative Current Transfer Ratio vs. Ambient Temperature

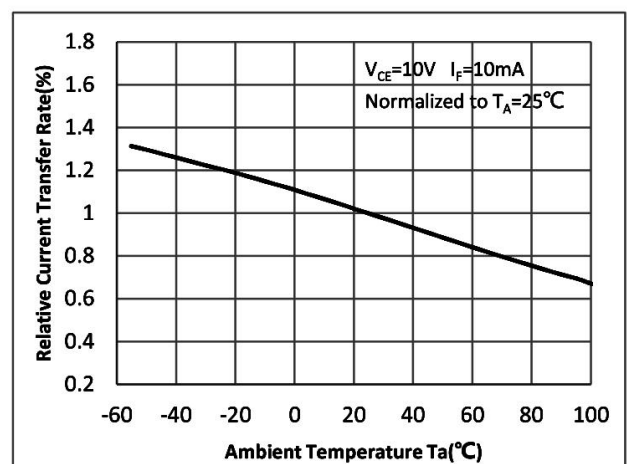


Fig.5 Turn Off Time vs. Forward Current

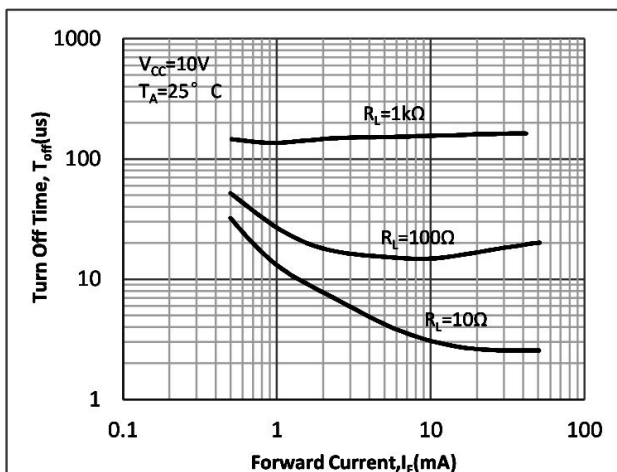
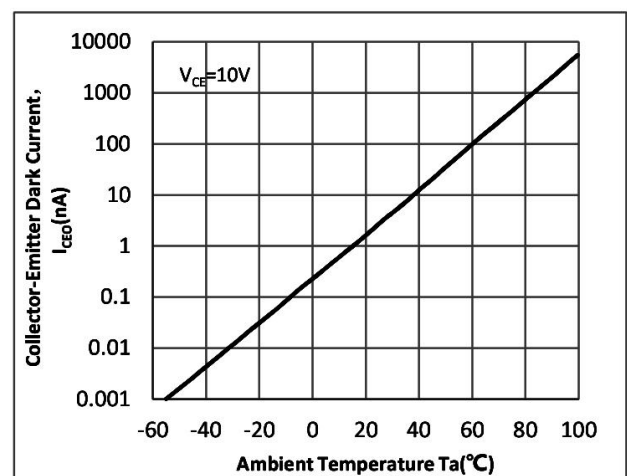
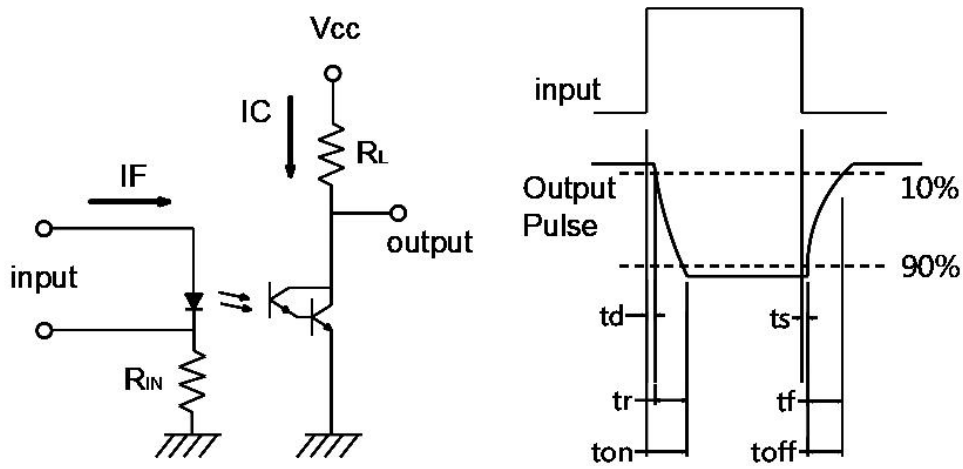


Fig.6 Collector-Emitter Dark Current vs. Ambient Temperature



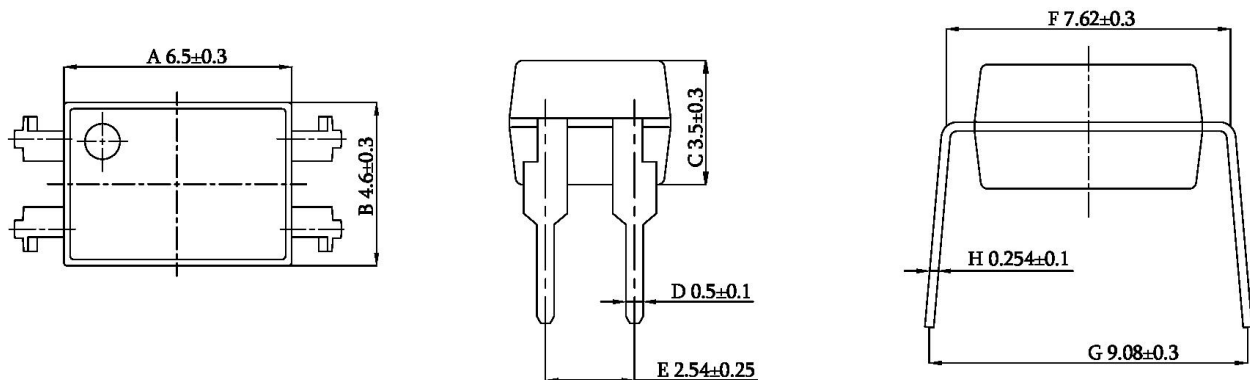
Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Fig.7 witching Time Test Circuit & Wave forms

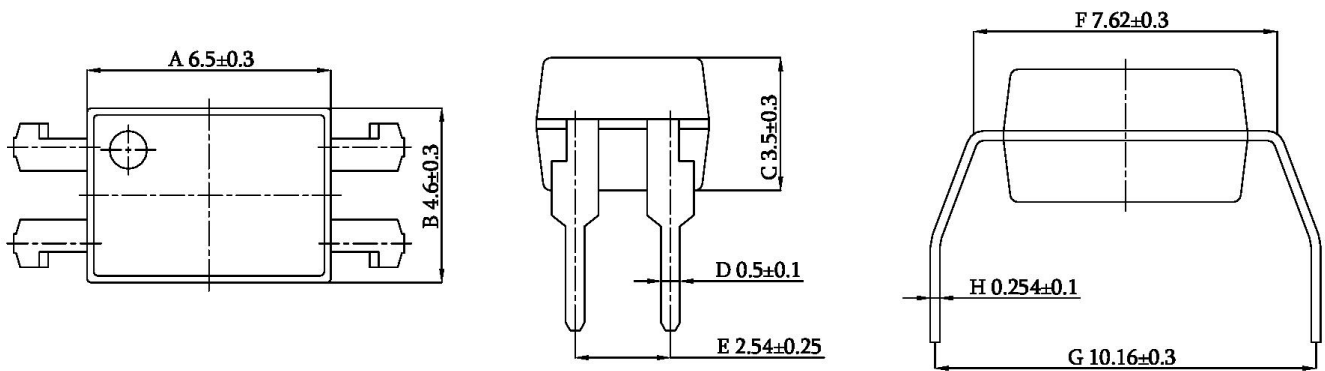


Package Outline Dimensions (unit: mm)

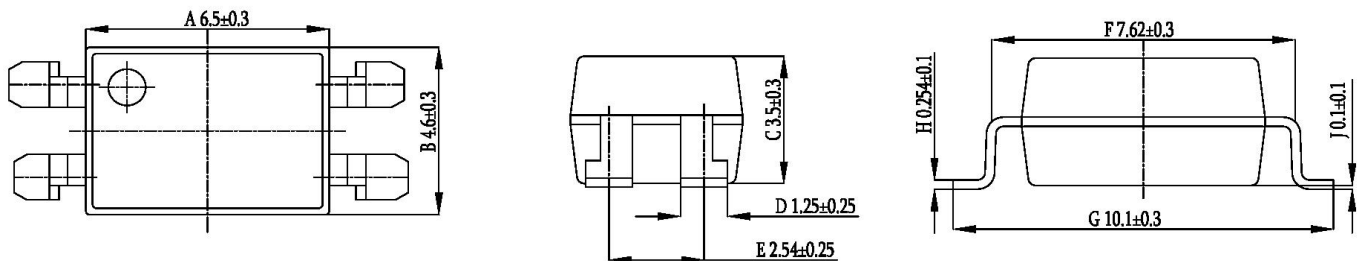
DIP4



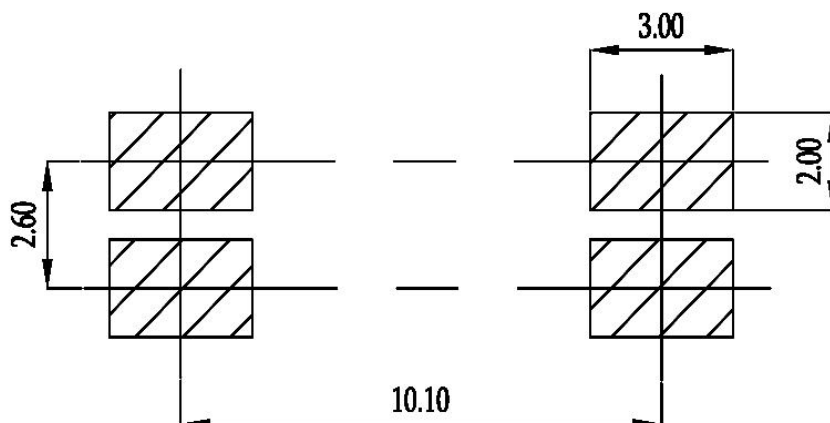
DIP4-M



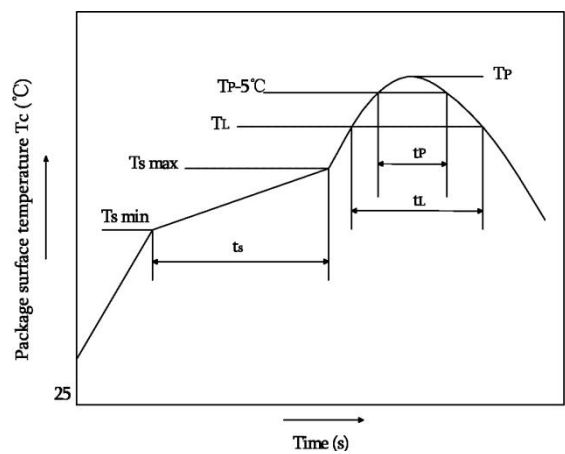
SMD4



SOLDERING FOOTPRINT (unit: mm)



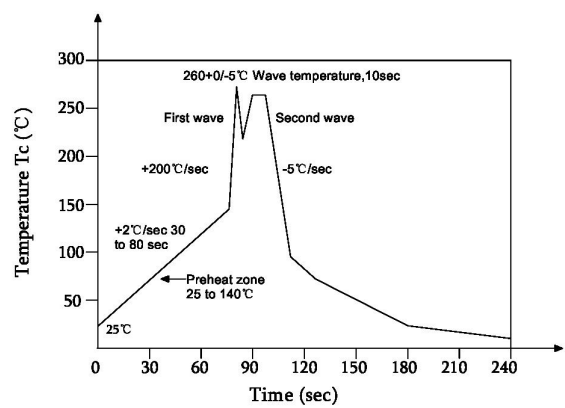
Reflow soldering



	Symbol	Min	Max	Unit
Preheat temprayure	Ts	150	200	°C
Preheat time	ts	60	120	s
Ramp-up ratea(TL to TP)			3	°C/s
Liquidus temperature	TL	217		°C
Time above TL	tL	60	150	s
Peak temperature	TP		260	°C
Time during which Tc is between (TP-5) and TP	tP		30	s
Ramp-down rate(TP to TL)			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 Ts	~130°C
Preheat time (25°C to Ts)	> 60s
Peak temperature TP	260°C
Time within peak temperature tp	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
DIP4	Tube(500mm)	100 pcs/tube	25 tubes /box	12 boxes /ctn	190*670mm	520*105*50mm	545*372*235mm	Straight insert type material tube
DIP4-M	Tube(500mm)	100 pcs/tube	25 tubes /box	12 boxes /ctn	190*670mm	520*105*50mm	545*372*235mm	Seagull foot (M foot) tube
SMD4	Reel(φ330mm)	2000 pcs/reel	2 reels /box	5 boxes /ctn	380*420mm	350*340*60mm	365*330*370mm	Guard band 200mm /min.

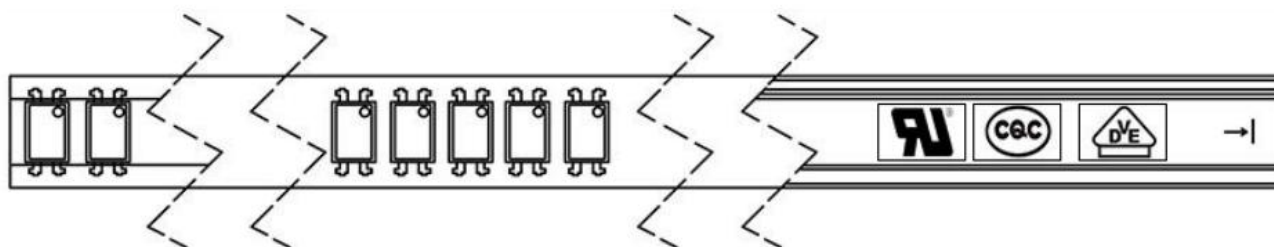
■ Summary table

■ DIP4/DIP4-M (Tube)

Qty/tube: 100pcs. Qty/box: 2500pcs.

Qty/ctn : 30000pcs.

Schematic: (unit:mm)

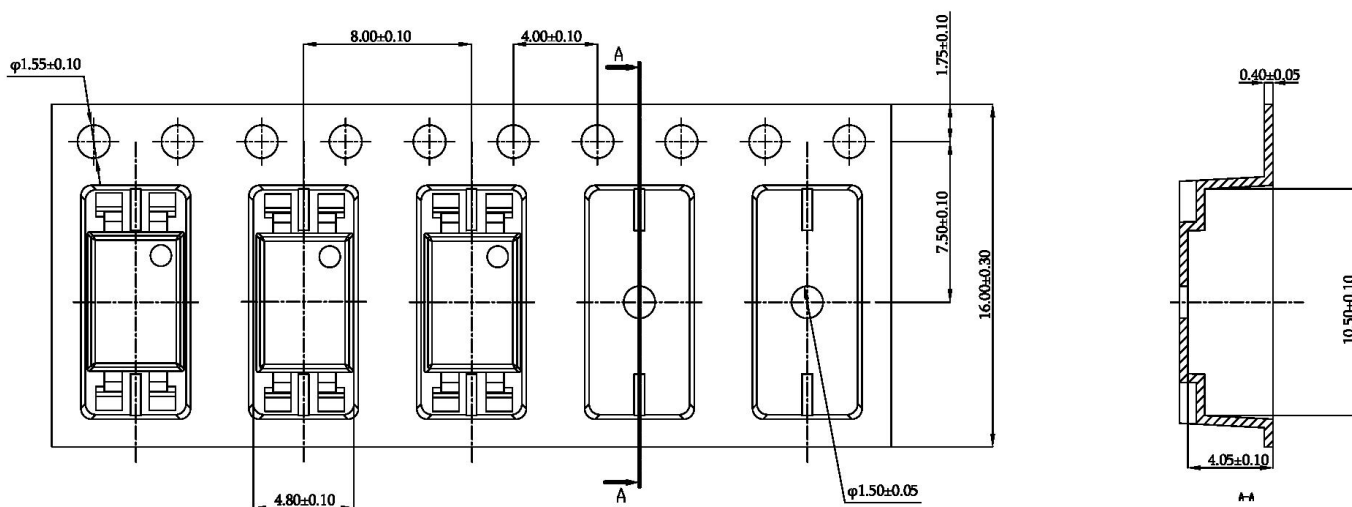


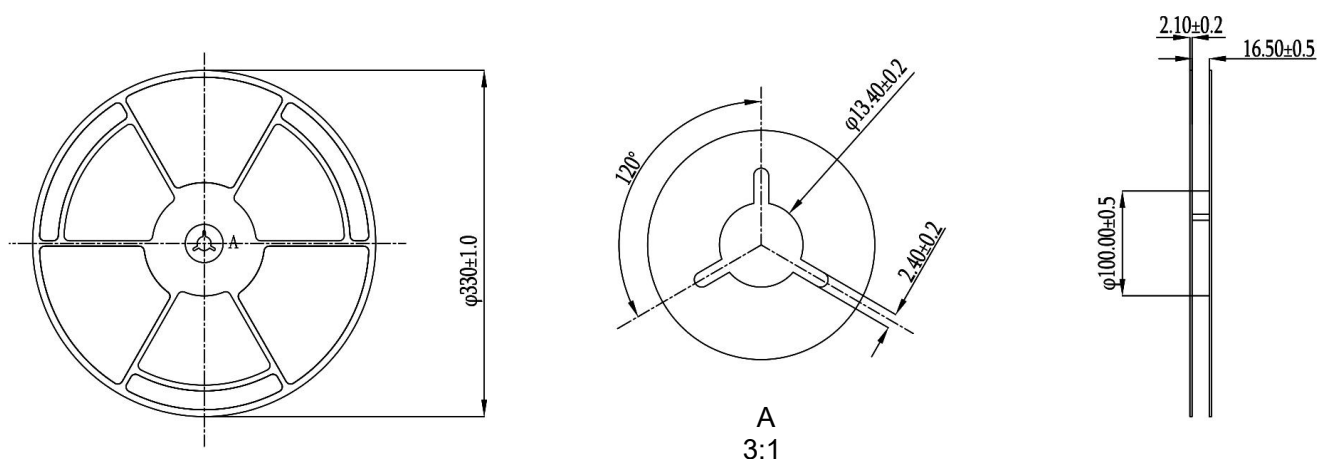
■ SMD4 (Reel)

Qty/reel: 2000pcs. Qty/box: 4000pcs.

Qty/ctn : 20000pcs.

Schematic: (unit:mm)





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