

产品规格书

Product Specification



晶体管光耦

OPTOCOUPLER

MT815

TRANSISTOR OUTPUT

晶体管光耦

可控硅光耦

达林顿光耦

高速光耦

施密特触发器

IPM驱动光耦

固态继电器

IGBT驱动光耦

深圳市美特光电子有限公司

SHENZHEN MATELIGHT ELECTRONICS CO.,LTD

www.matelight.cn Q

Features

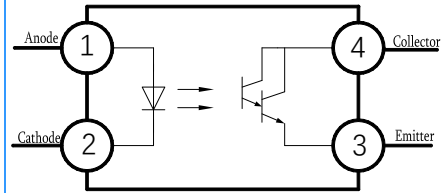
- Current transfer ratio
(CTR :600~7500% at $I_F = 1\text{mA}$, $V_{CE} = 2\text{V}$)
- High isolation voltage between input and output (Viso =5000V rms)
- Operating Temperature: $-55^{\circ}\text{C}\sim 110^{\circ}\text{C}$

Applications

- Switching power supply, intelligent meter
- Industrial control, measuring instruments
- Office equipment such as copiers
- Household appliances: such as air conditioners, fans, water heaters, etc.

Mechanical Data

- Case: DIP-4L, DIP-4L(M),SMD-4L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



Ordering Information

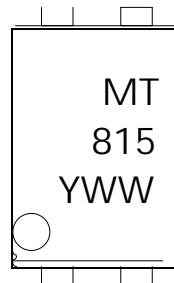
MT 815

- ① Brand(MT) ② Product series(815) ③ Package type(DIP-4L:None, DIP-4L(M):M,SMD-4L:S)
- 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
MT815	DIP-4L	100 pcs / Tube	MT815
MT815M	DIP-4L(M)	100 pcs / Tube	MT815
MT815S	SMD-4L	2000 pcs / Tape & Reel	MT815

Marking Information

- "MT" denotes brand
- "815" denotes Product series
- "Y" denotes Year : A(2024), B(2025), C(2026)
- "WW" denotes Week's number



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	R _{thJ-A}	325	°C/W
	Thermal Resistance Junction-Case	R _{thJ-C}	200	°C/W
	Collector Power Dissipation	P _C	150	mW

-Emitter Voltage	V_{CEO}	40	V
Emitter-Collector Voltage	V_{ECO}	7	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Total Power Dissipation	P_{TOT}	200	mW
Isolation Voltage *2	V_{ISO}	5000	Vrms
Operating Temperature	T_{OPR}	-55 ~ +110	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature *3	T_{SOL}	260	°C

Notes:

1. Pulse width $\leq 1\mu s$, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

Electrical Characteristics (@ $T_A = 25^\circ C$ 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}	$I_E = 10\mu A, I_F = 0$	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F = 1mA, V_{CE} = 2V$	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	$V_{CE} = 5V, I_C = 2mA$ $R_L = 100\Omega, -3dB$	-	6	-	kHz
	Turn on Time	T_{on}	$V_{CE} = 2V, R_L = 100\Omega$	-	60	300	μs
	Turn off Time	T_{off}	$I_C = 10mA$	-	53	250	

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

Fig.1 Current Transfer Ratio vs. Forward Current

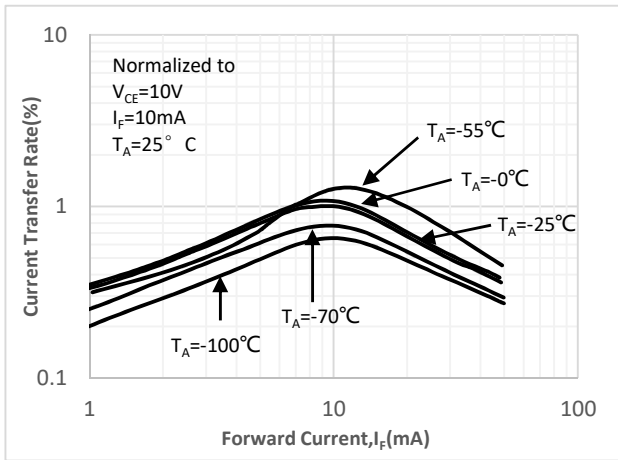


Fig.2 Forward Current vs. Forward Voltage

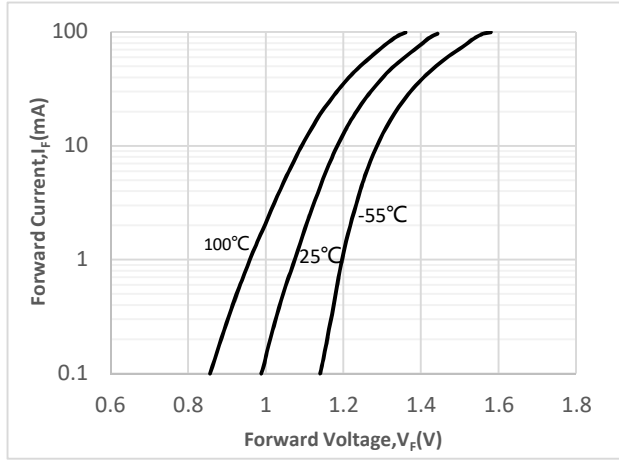


Fig.3 Turn On Time vs. Forward Current

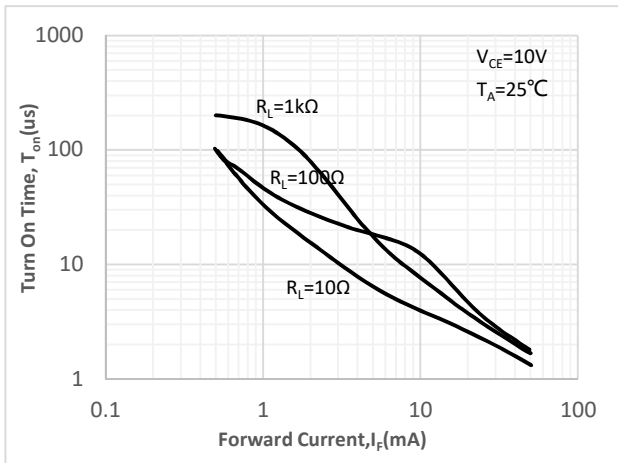


Fig.4 Relative Current Transfer Ratio vs. Ambient Temperature

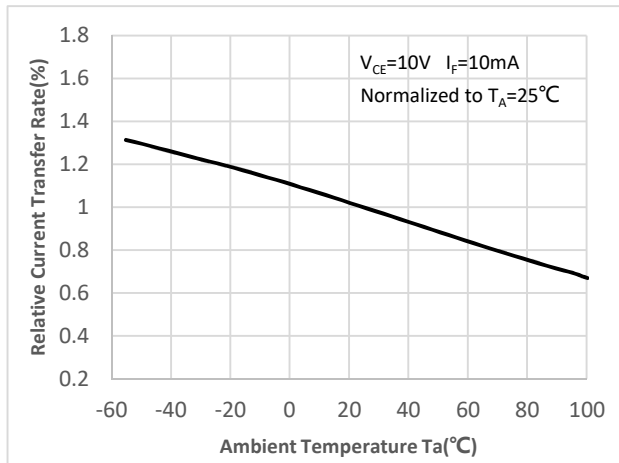


Fig.5 Turn Off Time vs. Forward Current

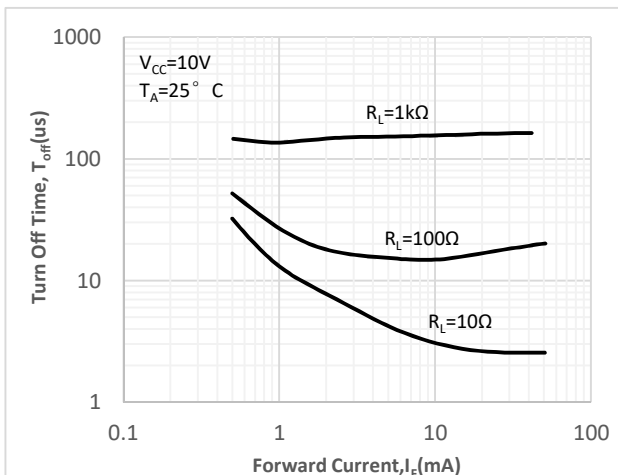


Fig.6 Collector-Emitter Dark Current vs. Ambient Temperature

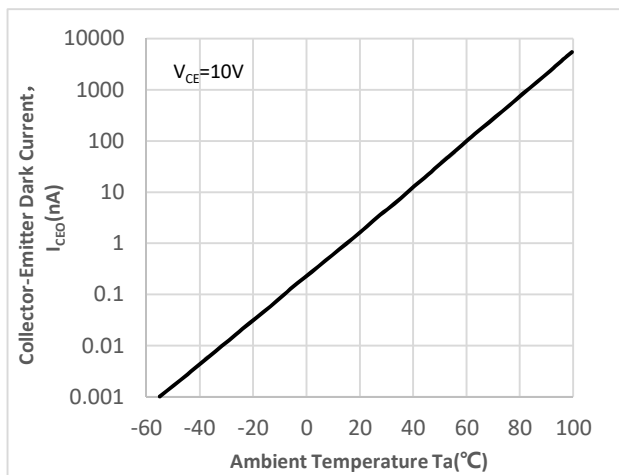
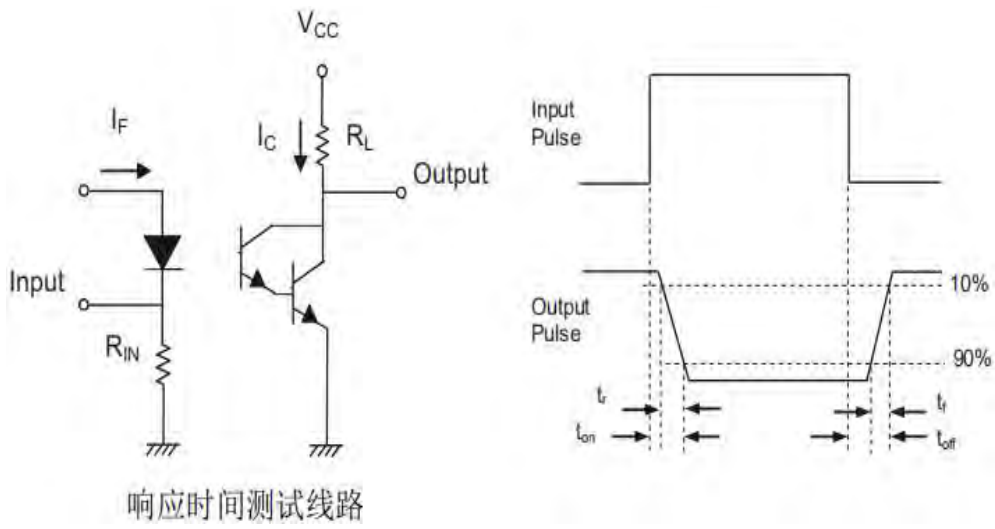
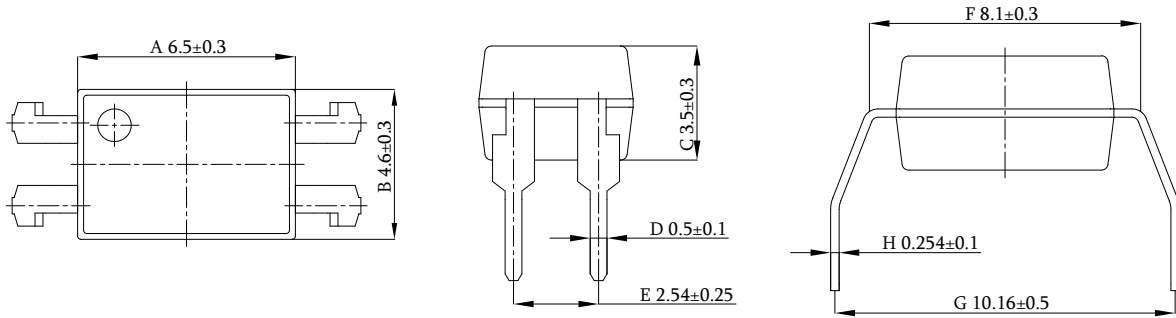


Fig.7 witching Time Test Circuit & Waveforms

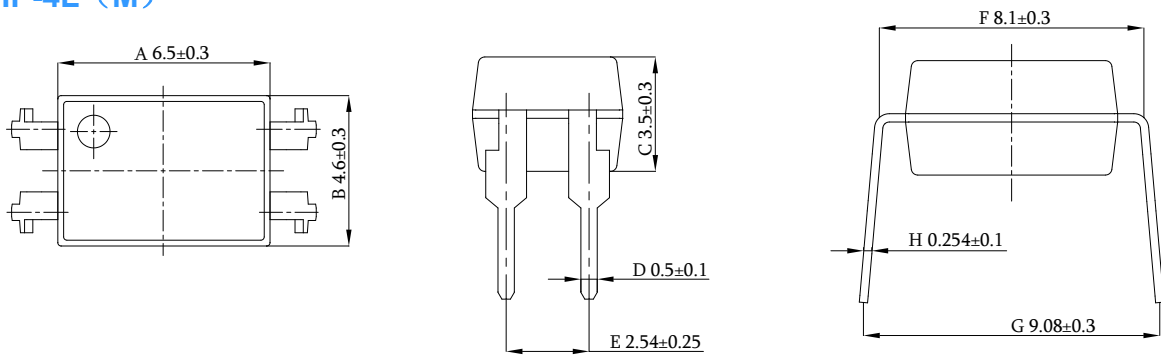


Package Outline Dimensions (unit: mm)

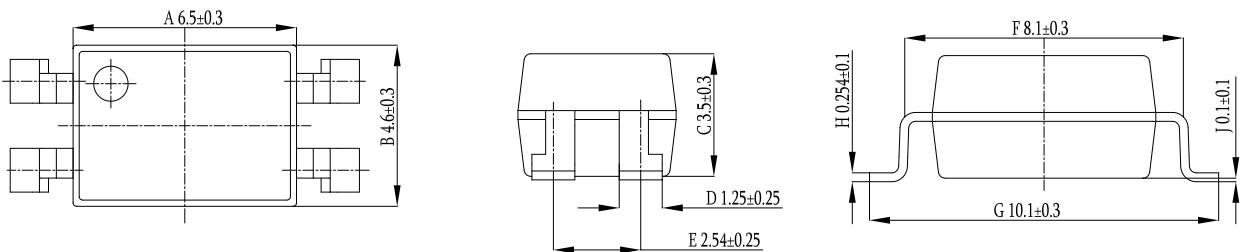
DIP-4L



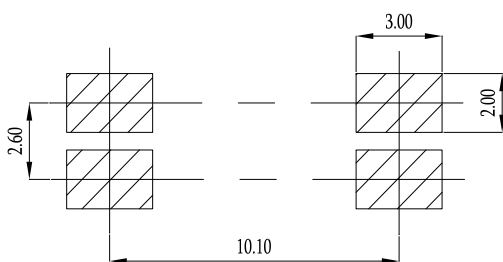
DIP-4L (M)



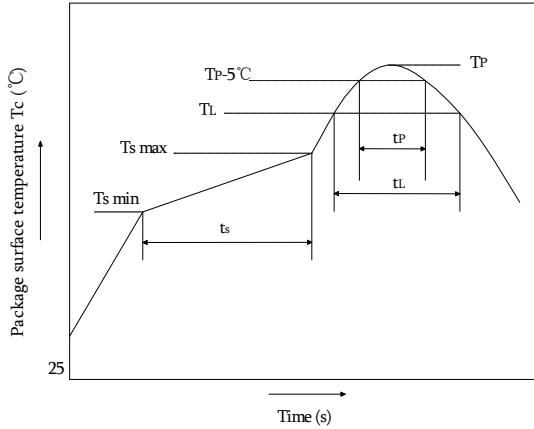
SMD-4L



SOLDERING FOOTPRINT (unit: mm)



Reflow soldering

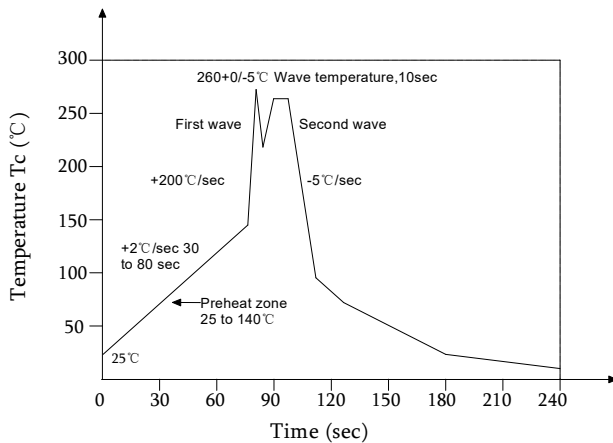


	Symbol	Min	Max	Unit
Preheat temperayure	Ts	150	200	°C
Preheat time	ts	60	120	s
Ramp-up rate(TL to TP)			3	°C/s
Liquidus temperature	TL	217		°C
Time above TL	tL	60	150	s
Peak temperature	TP		260	°C
Time during which Tc is between (TP-5) and TP	tp		30	s
Ramp-down rate(TP to TL)			6	°C/s

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.

Pcaking

Package Type	Packing Form	Quantity per Tube &Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
DIP-4L	Tube(500mm)	100 pcs/tube	25 tubes /box	12 boxes /ctn	190*670mm	520*105*50mm	545*372*235mm	Straight insert type material tube
DIP-4L(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
SMD-4L	Reel(ϕ 330mm)	2000 pcs/reel	2 reels /box	5 boxes /ctn	380*420mm	350*340*60mm	365*330*370mm	Guard band 200mm /min.

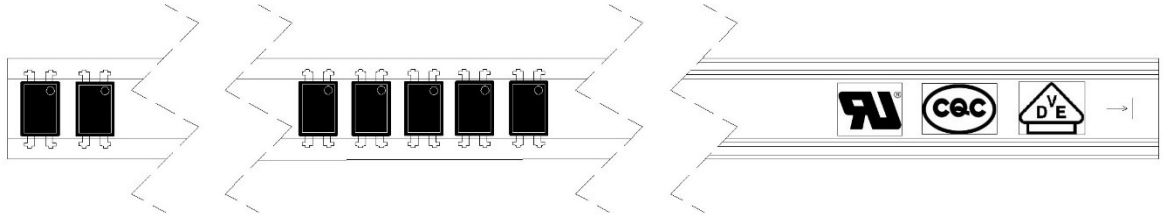
■Summary table

■ DIP-4L/ DIP-4L(M) (Tube)

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

Qty/ctn : 30000 pcs.

Schematic: (unit:mm)

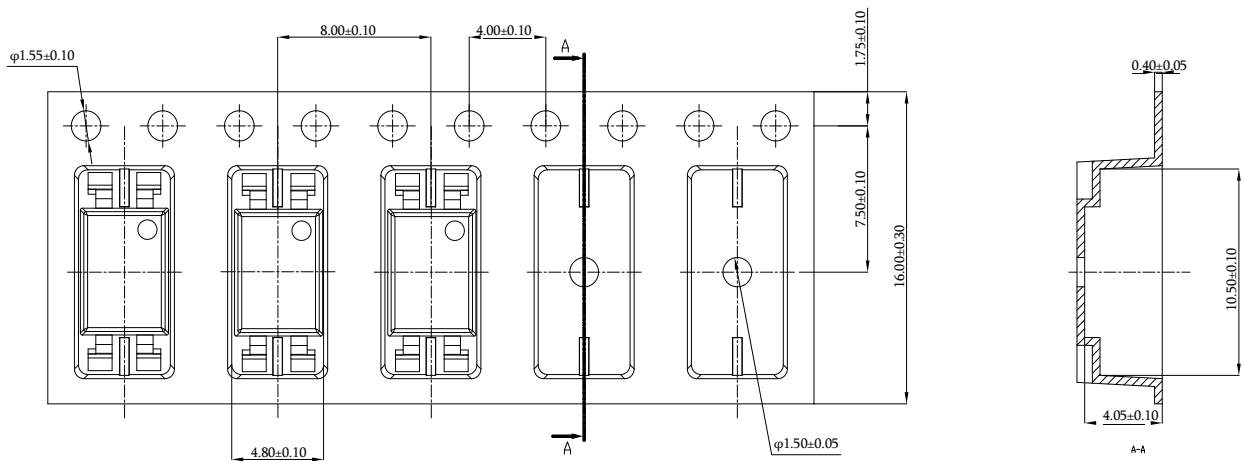


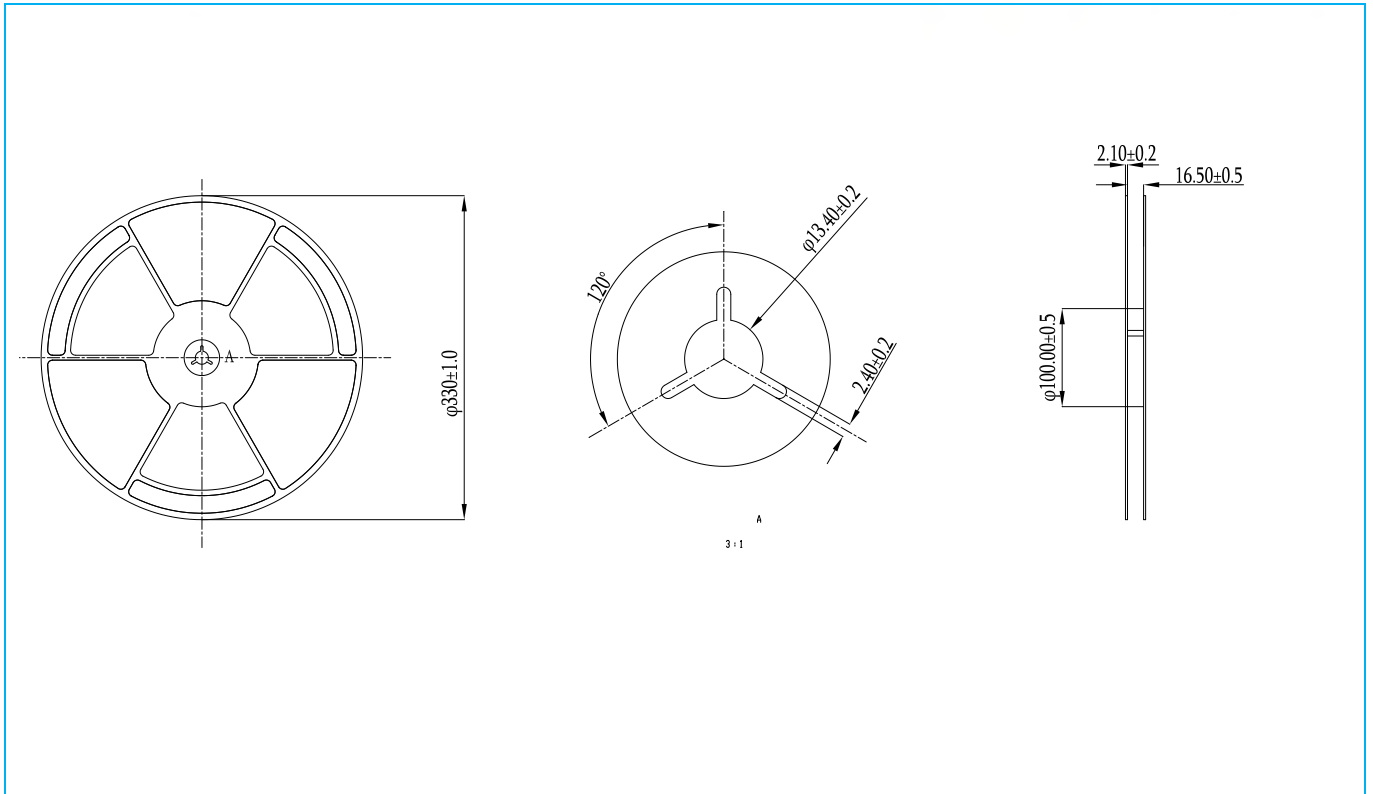
■SMD-4L (Reel)

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

Qty/ctn : 20000 pcs.

Schematic: (unit:mm)





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