

PRODUCT SPECIFICATION

DATE:12/20/2012

cosmo ELECTRONICS CORPORATION	Photocoupler: KT101W	No. 61P04157	REV
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4Pin Phototransistor Output ,Low Input Current , Long Creepage Mini-Flat Package.

● Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. Temperature range -55°C to 115°C.
4. High isolation voltage 5000Vrms.
5. Opaque type,SMD low profile 4 lead package.
6. Current transfer ratio.

(CTR : MIN.50% at IF=0.5mA VCE=5V)

7. 8mm outer creepage distance.
8. Low coupling capacitance.
9. Agency Approvals

- UL UL1577 / CUL C22.2 No.1 & NTC No.5
File No. E169586
- VDE EN 60747 , File No.40031267
- FMKO EN 60065 , EN 60950
File No.FI26204 M1
- CQC GB4943 / GB8898-2011
File No. CQC11001057770,CQC11001057771
File No. CQC11001057773,CQC11001057775

●Applications

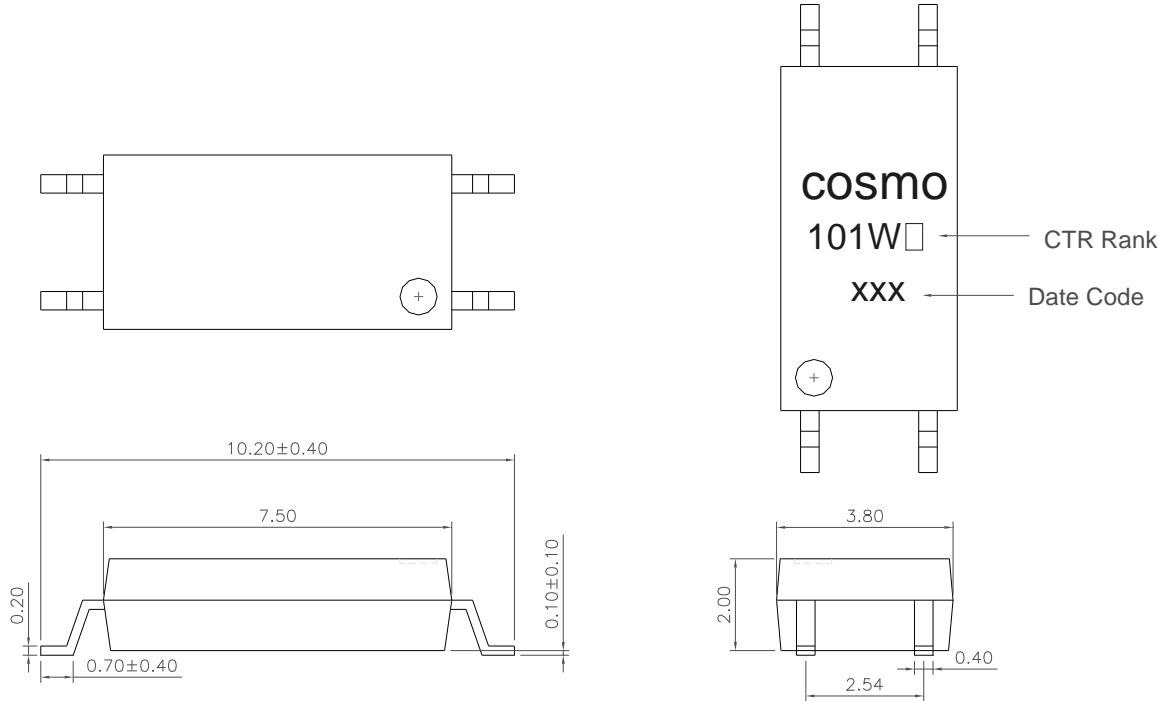
1. Industrial controls.
2. Programmable controllers.
3. Switchmode power supplies,Battery equipment.
4. Office machine.

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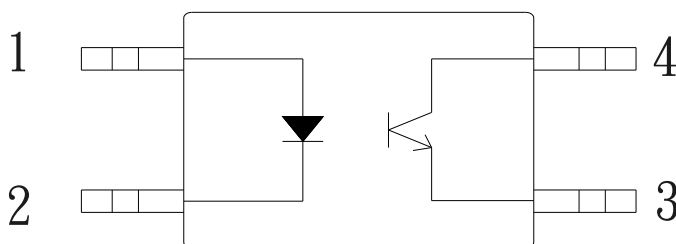
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ± 0.2 mm

2. SCHEMATIC : TOP VIEW



1. Anode
2. Cathode
3. Emitter
4. Collector

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●Absolute Maximum Ratings(T_A=25°C)

Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	50 mA
	Peak forward current	I _{FP}	1 A
	Reverse voltage	V _R	6 V
	Power dissipation	P _D	100 mW
Output	Collector-emitter voltage	V _{CEO}	80 V
	Emitter-collector voltage	V _{ECO}	7 V
	Collector current	I _C	50 mA
	Collector power dissipation	P _C	150 mW
Total power dissipation	P _{tot}	250 mW	
Isolation voltage 1 minute	V _{iso}	5000	V _{rms}
Operating temperature	T _{opr}	-55 to +115	°C
Storage temperature	T _{stg}	-55 to +125	°C
Soldering temperature 10 second	T _{sol}	260	°C

●Electro-optical Characteristics(T_A=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V _F	I _F =10mA	-	1.2	1.8	V
	Reverse current	I _R	V _R =4V	-	-	10	uA
	Terminal capacitance	C _t	V=0, f=1kHz	-	30	250	pF
Output	Collector dark current	I _{CEO}	V _{CE} =20V, I _F =0	-	-	0.1	uA
	Collector-emitter breakdown voltage	BV _{CEO}	I _C =0.1mA, I _F =0	80	-	-	V
	Emitter-collector breakdown voltage	BV _{ECO}	I _E =0.1mA, I _F =0	7	-	-	V
Transfer characteristics	Current transfer ratio	CTR	I _F =0.5mA, V _{CE} =5V	50	-	600	%
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =10mA, I _C =1mA	-	0.1	0.3	V
	Isolation resistance	R _{iso}	DC500V, 40 to 60%RH	5x10 ¹⁰	10 ¹¹	-	ohm
	Floating capacitance	C _f	V=0, f=1MHz	-	0.6	1.0	pF
	Rise time	t _r	V _{CC} =2V, I _C =2mA, R _L =100ohm	-	11	-	us
Fall time	t _f	-		11	-	us	

●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KT101WA	63 TO 125
KT101WB	100 TO 200

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Fig.1 Relative Current Transfer Ratio vs. Ambient Temperature

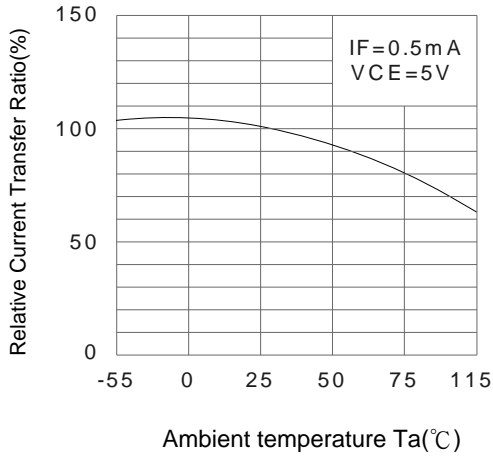


Fig.2 Diode Power Dissipation vs. Ambient Temperature

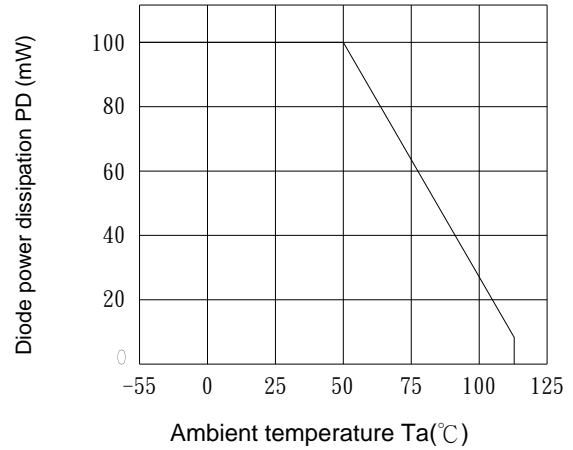


Fig.3 Collector Power Dissipation vs. Ambient Temperature

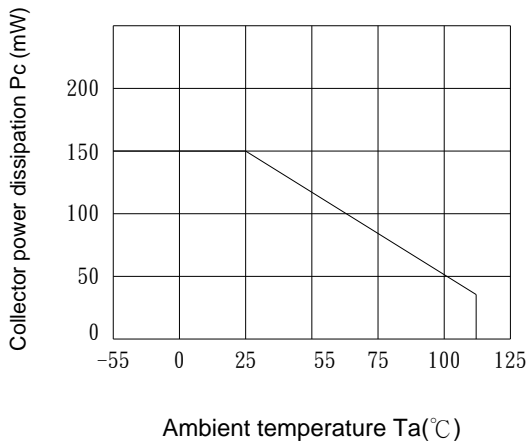


Fig.4 Total Power Dissipation vs. Ambient Temperature

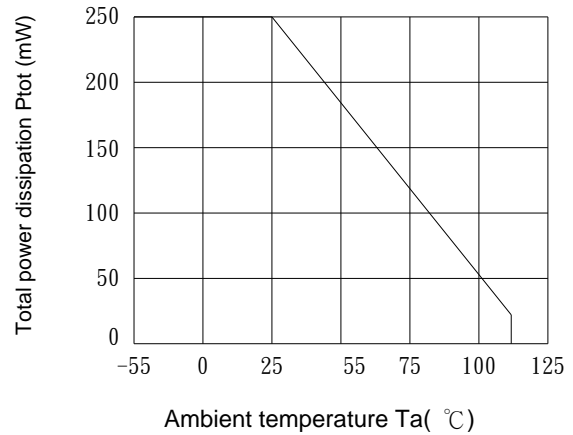


Fig.5 Current Transfer Ratio vs. Forward Current

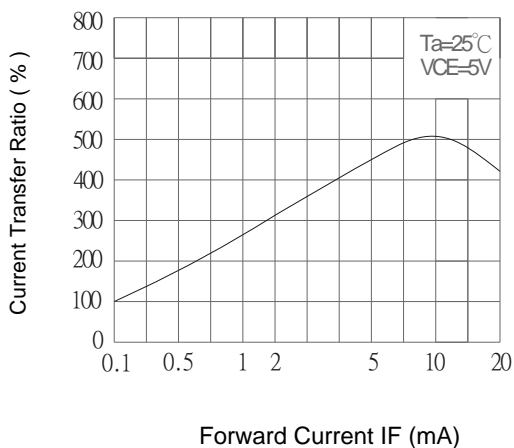
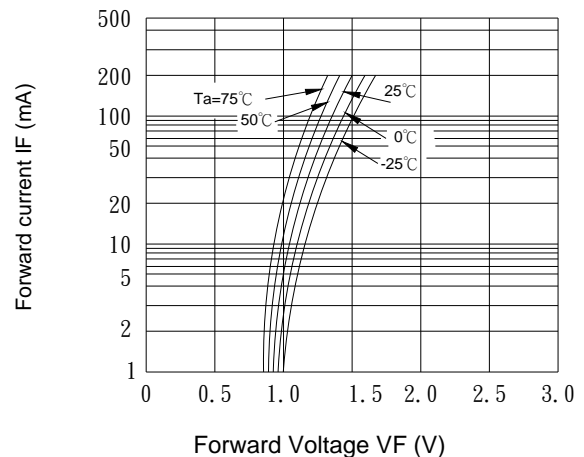


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 Collector Dark Current vs. Ambient Temperature

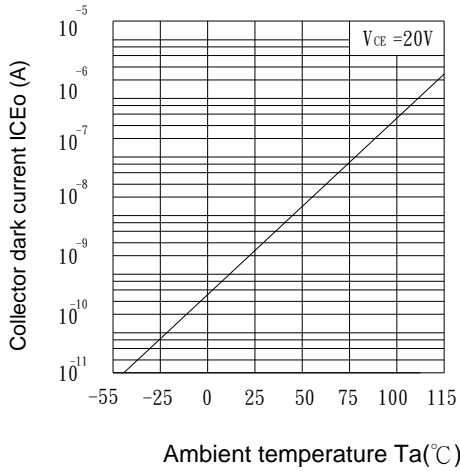


Fig.8 Collector Current vs. Collector-Emitter Voltage

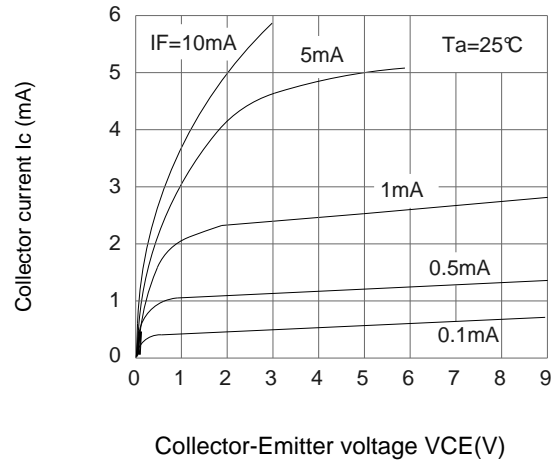


Fig.9 Response Time vs. Load Resistance

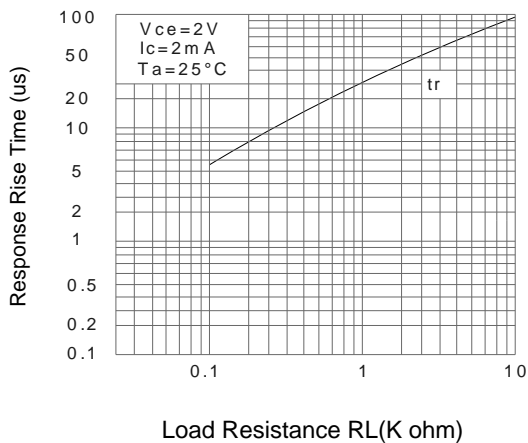


Fig.10 Response Time vs. Load Resistance

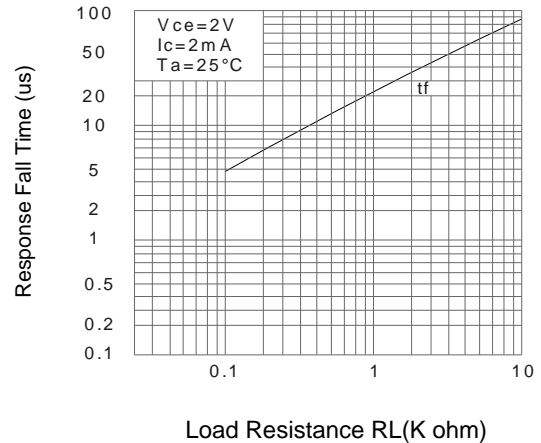
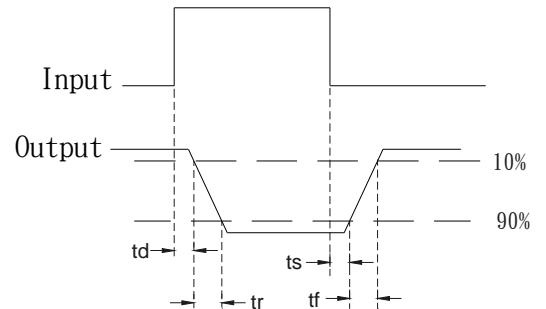
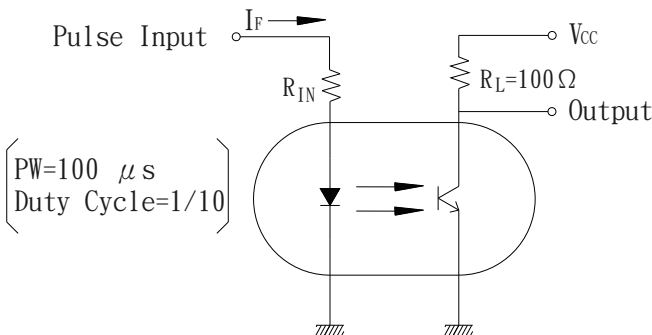


Fig.11 Test Circuit For Response Time

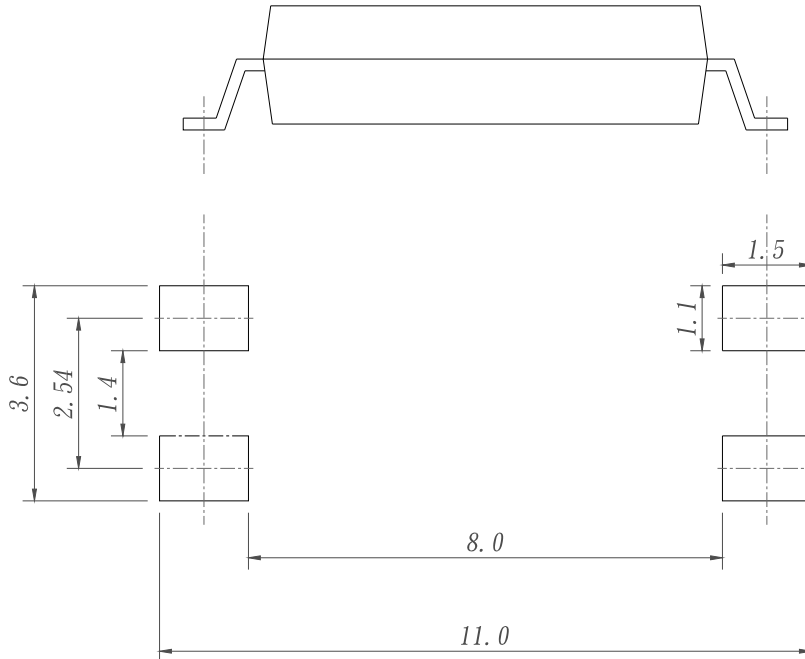


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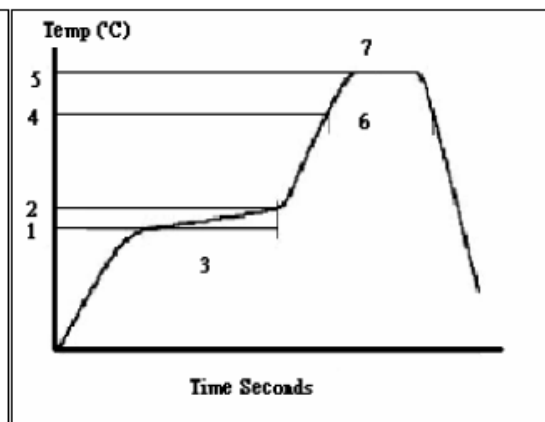
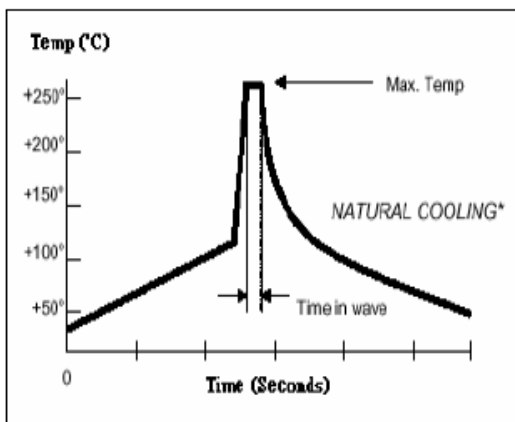
Fig.12 Recommended Mount Pad Dimensions



(Unit:mm)

Recommended Reflow / Wave Soldering Profile Conditions

	Recommended Profile Parameter	Wave Soldering	Infrared Red Reflow
1	Preheat start temperature, °C	N/A	150°C
2	Preheat finish temperature, °C	N/A	180°C
3	Preheat time, seconds	N/A	90 to 120 seconds
4	Melting temperature, °C	N/A	230°C
5	Peak temperature, °C	260°C	260°C
6	Time above melting, seconds	N/A	30 seconds
7	Peak temperature retained time, seconds	10 seconds	10 seconds



The recommended soldering conditions of Hand Soldering Test is Temperature=380±10°C, Duration=3+1 / -0 sec.

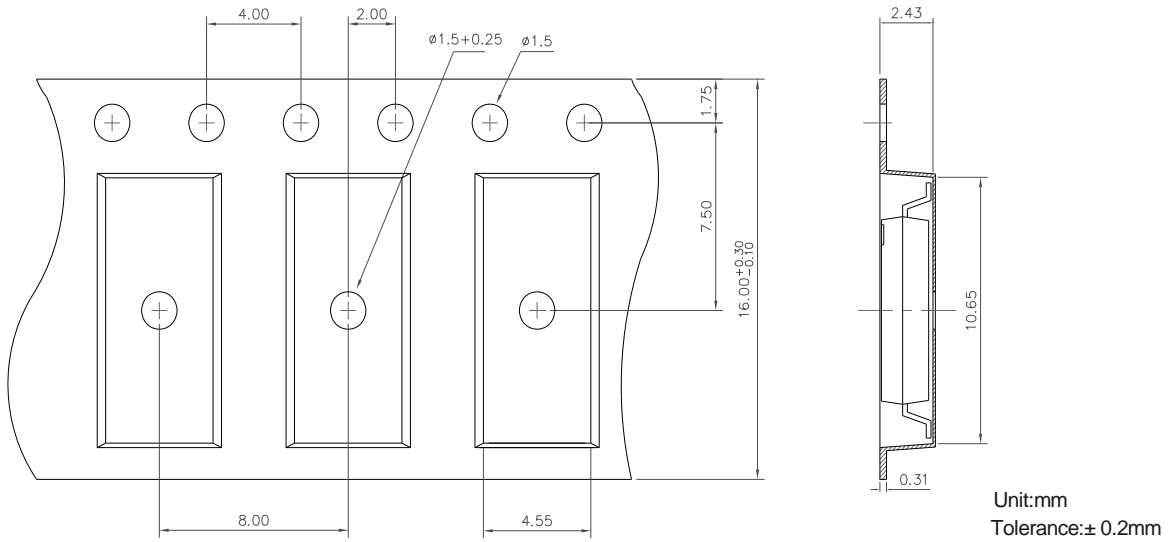
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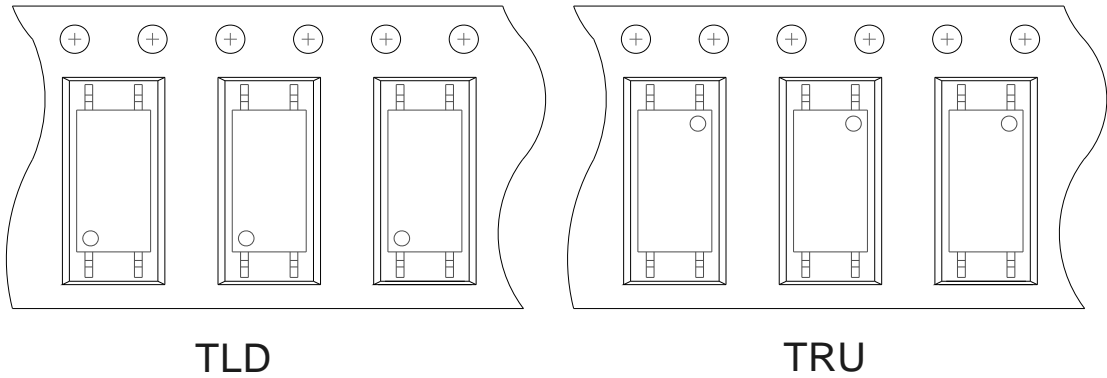
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TAPING SPECIFICATIONS

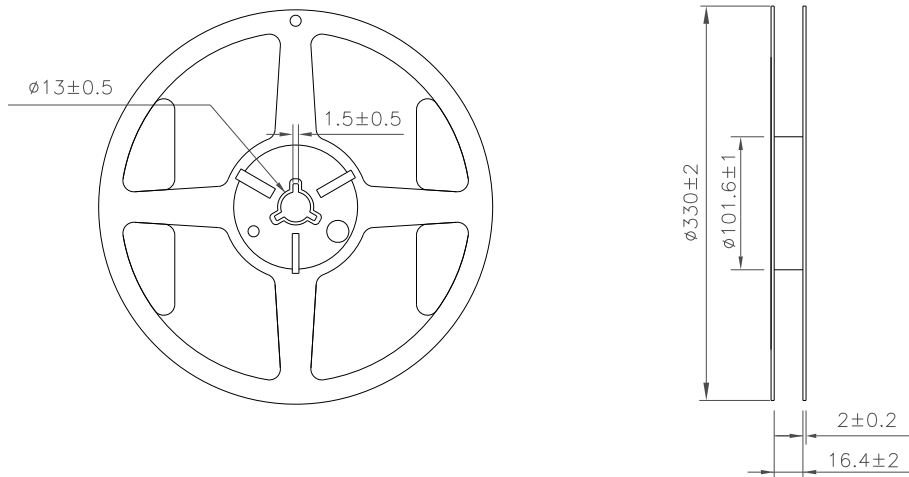
Tape



Direction



REEL



Scale 1:3

Packing:3000pcs/reel

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