PRODUCT SPECIFICATION

DATE:06/04/2012

cosmo ELECTRONICS CORPORATION	Photocoupler : KT1300	NO.61P04092	REV. 5
		SHEET 1 OF 8	

4Pin Long Mini-Flat Package AC Input Response Darlington Phototransistor Output

●Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. High isolation voltage 5000Vrms.
4. Opaque type,SMD low profile 4 lead package.
5. High current transfer ratio (CTR=2000%TYP.@ IF=±1 mA, VCE=2V)
6. 8mm outer creepage distance.
7. AC input response
8. Agency Approvals
   - UL approved：UL1577 , No.E169586
   - CUL approved：C22.2 No.1 & NTC No.5 , No.E169586
   - VDE approved：EN 60747-5-5 No.40031267
   - FIMKO approved：EN 60065 , EN 60950 , EN 60335-1 No.FI26204 M1

●Applications

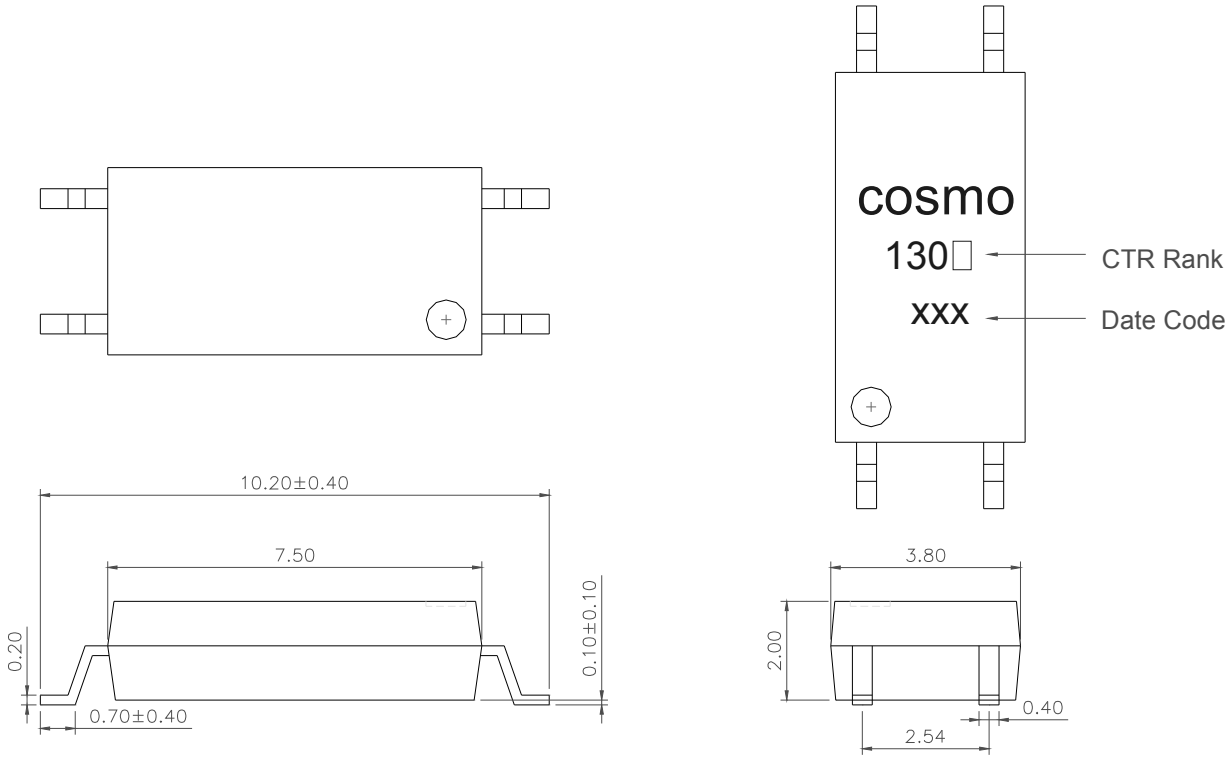
1. Programmable logic controllers.
2. Measuring instruments.
3. Hybrid IC.

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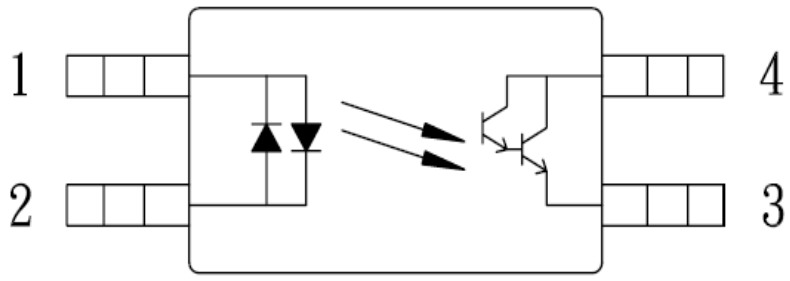
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ±0.2mm

2. SCHEMATIC : TOP VIEW



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

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●Absolute Maximum Ratings(T_A=25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	±50	mA
	Peak forward current	I_{FP}	±1	A
	Power dissipation	P_D	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	5	V
	Collector current	I_C	150	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		Ptot	170	mW
Isolation voltage 1 minute		Viso	5000	Vrms
Operating temperature		Topr	-55 to +100	℃
Storage temperature		Tstg	-55 to +125	℃
Soldering temperature 10 second		Tsol	260	℃

●Electro-optical Characteristics(T_A=25℃)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	IF=±20mA	-	1.2	1.4	V
	Peak forward voltage	V_{FP}	IFP=±0.5A	-	-	3.5	V
	Terminal capacitance	Ct	V=0, f=1MHz	-	60	-	pF
Output	Collector dark current	I_{CEO}	V_{CE}=10V,IF=0mA	-	-	1.0	uA
Transfer characteristics	Current transfer ratio(IC/IF)	CTR	I_F=±1mA, V_{CE}=2V	200	2000	-	%
	Collector-emitter saturation voltage	V_{CE}(sat)	I_F=±1mA, Ic=2mA	-	-	1.0	V
	Isolation resistance	Riso	DC500V, 40 to 60%RH	$5x10^{10}$	10^{11}	-	ohm
	Floating capacitance	C_f	V=0, f=1MHz	-	0.4		pF
	Response time (Rise)	tr	Vcc=5V,Ic=2mA,RL=100ohm	-	200	-	μs
	Response time (Fall)	tf		-	200	-	μs

●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KT1300	Min.200

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Fig.1 Relative Current Transfer Ratio vs. Ambient Temperature

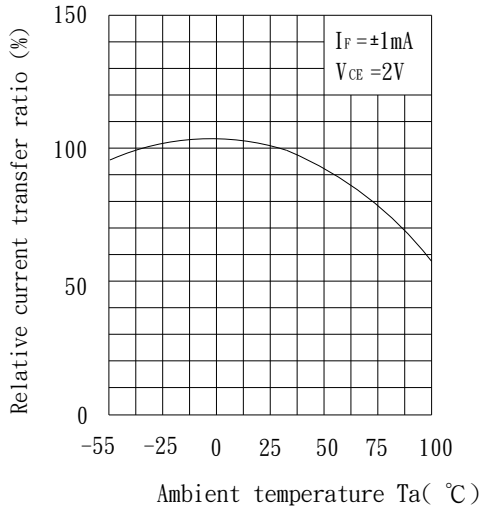


Fig.2 Diode Power Dissipation vs. Ambient Temperature

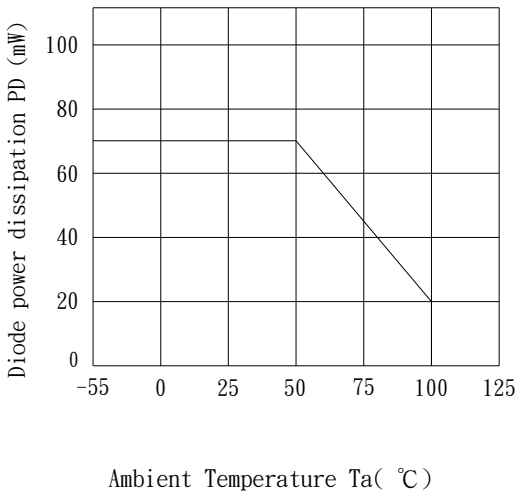


Fig.3 Collector-emitter Saturation Voltage vs. Forward current

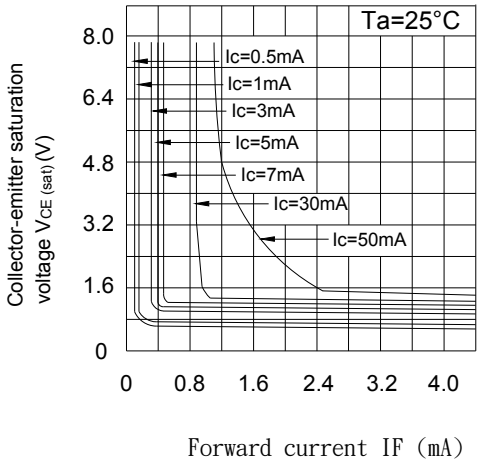


Fig.4Collector-emitter Saturation Voltage vs. Ambient Temperature

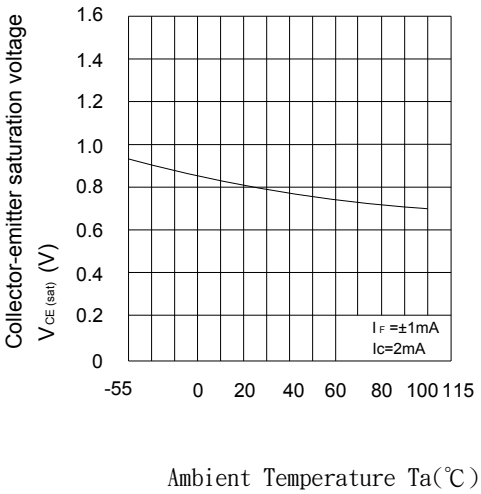


Fig.5 Current Transfer Ratio vs. Forward Current

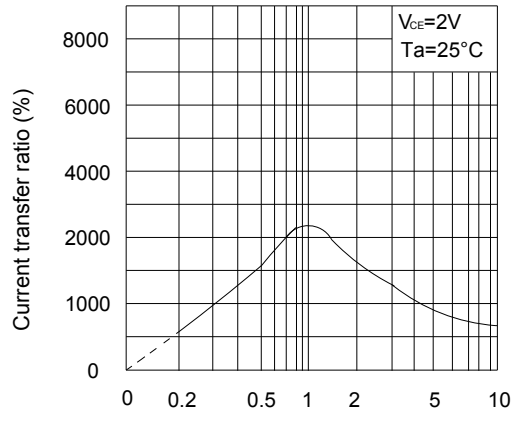
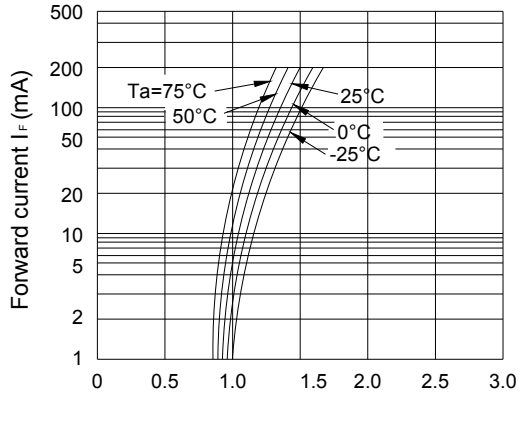


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 Collector Dark Current vs. Ambient Temperature

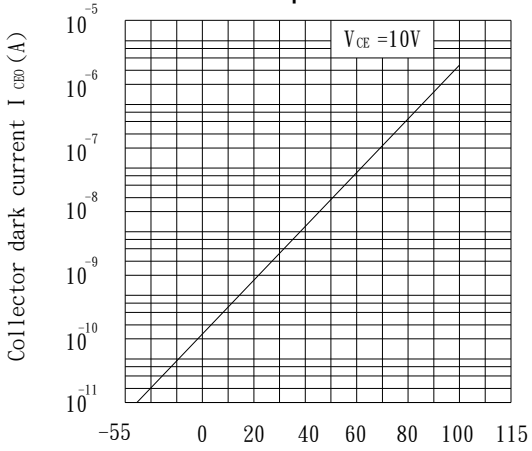


Fig.8 Collector Current vs. Collector-emitter Voltage

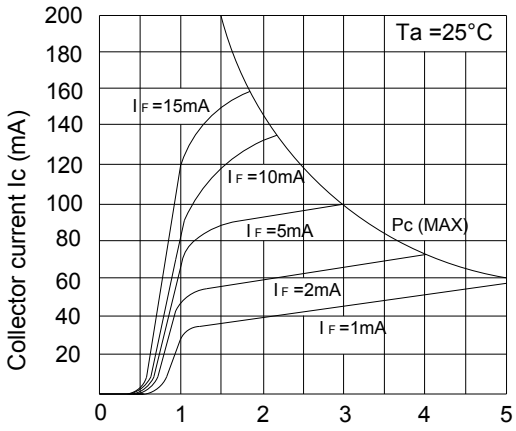


Fig.9 Response Time vs. Load Resistance

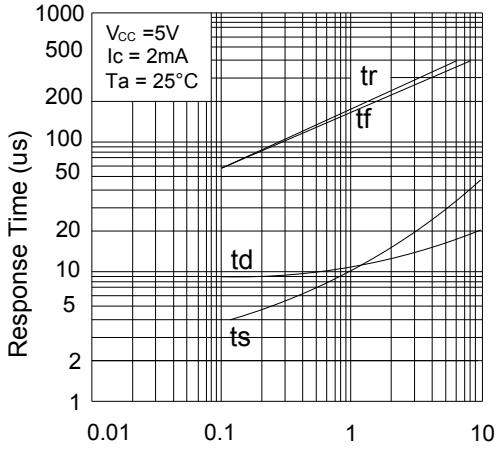
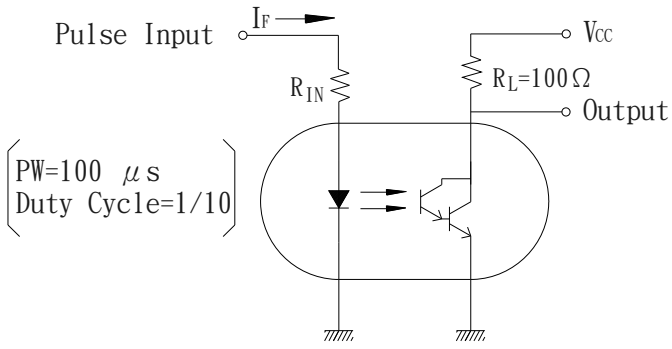
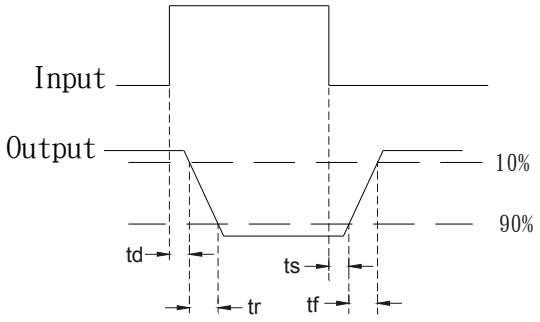


Fig.10 Test Circuit For Response Time



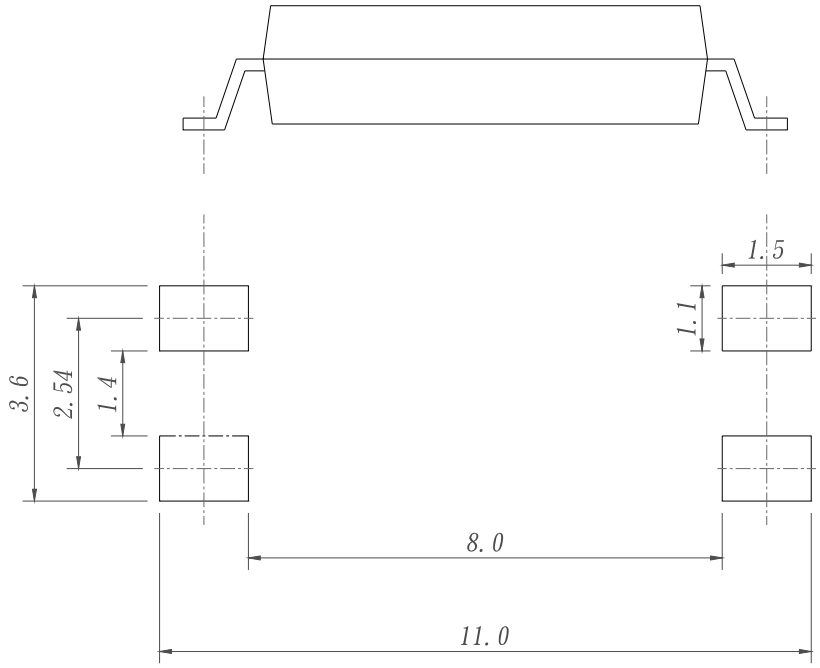


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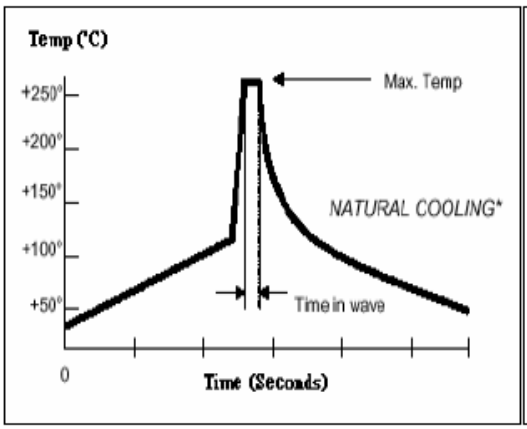
Fig.11 Recommended Mount Pad Dimensions

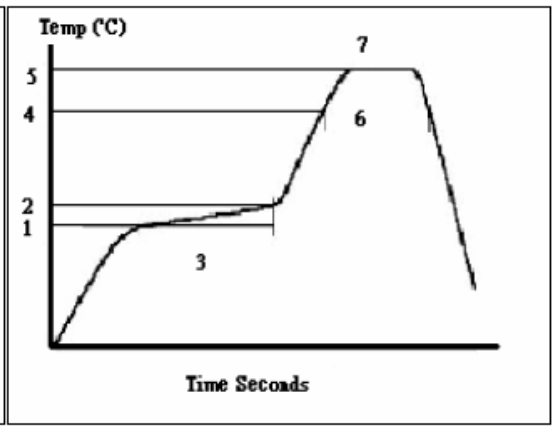


(Unit:mm)

Recommended Reflow / Wave Soldering Profile Conditions

	Recommended Profile Parameter	Wave Soldering	Infrared Red Reflow
1	Preheat start temperature, °C	N/A	150℃
2	Preheat finish temperature, °C	N/A	180℃
3	Preheat time, seconds	N/A	90 to 120 seconds
4	Melting temperature, °C	N/A	230℃
5	Peak temperature, °C	260℃	260℃
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℃, Duration=3+1 / -0 sec.

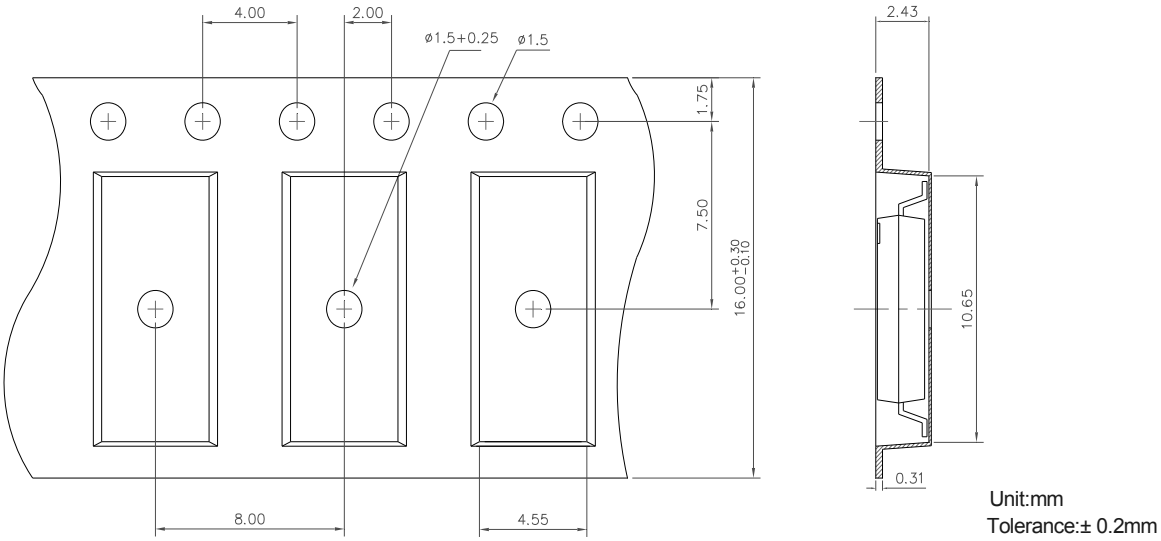
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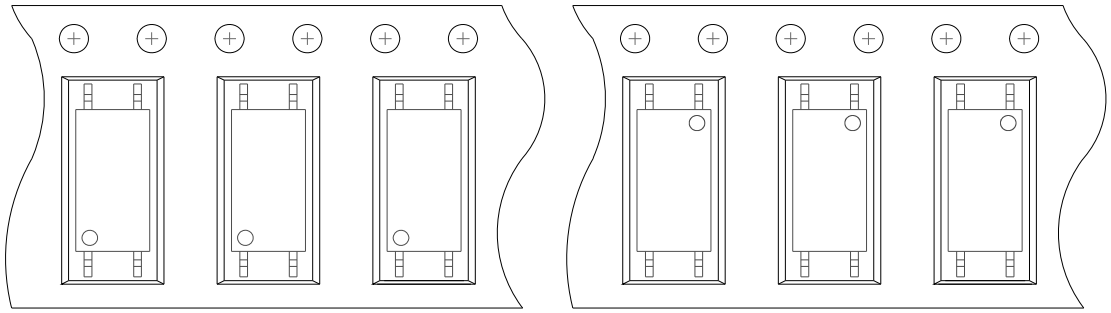
TAPING SPECIFICATIONS

Tape



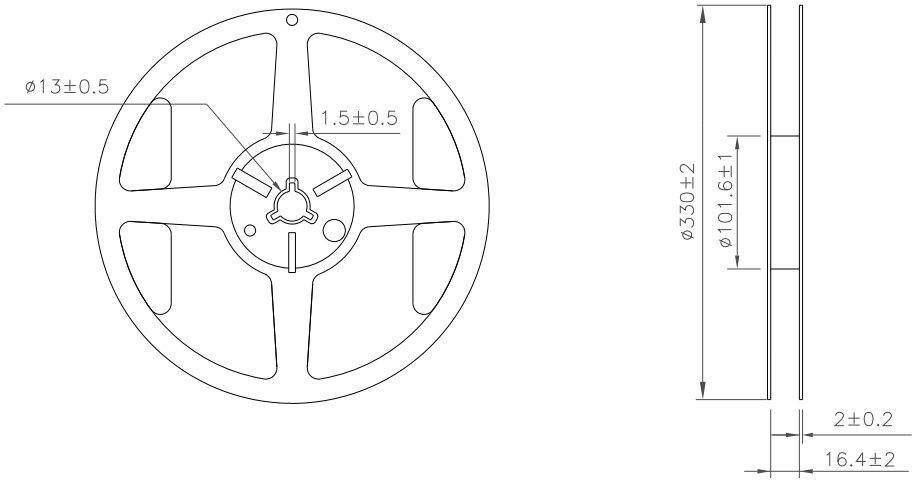
Unit:mm
Tolerance:± 0.2mm

Direction



TLD TRU

REEL



Scale 1:3

Packing:3000pcs/reel

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