

PRODUCT SPECIFICATION

DATE: 12/02/2011

cosmo ELECTRONICS CORPORATION	Photocoupler : KT1300	NO.61P04092	REV. 3
		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. @ $I_F = \pm 1$ mA, $V_{CE} = 2V$)
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

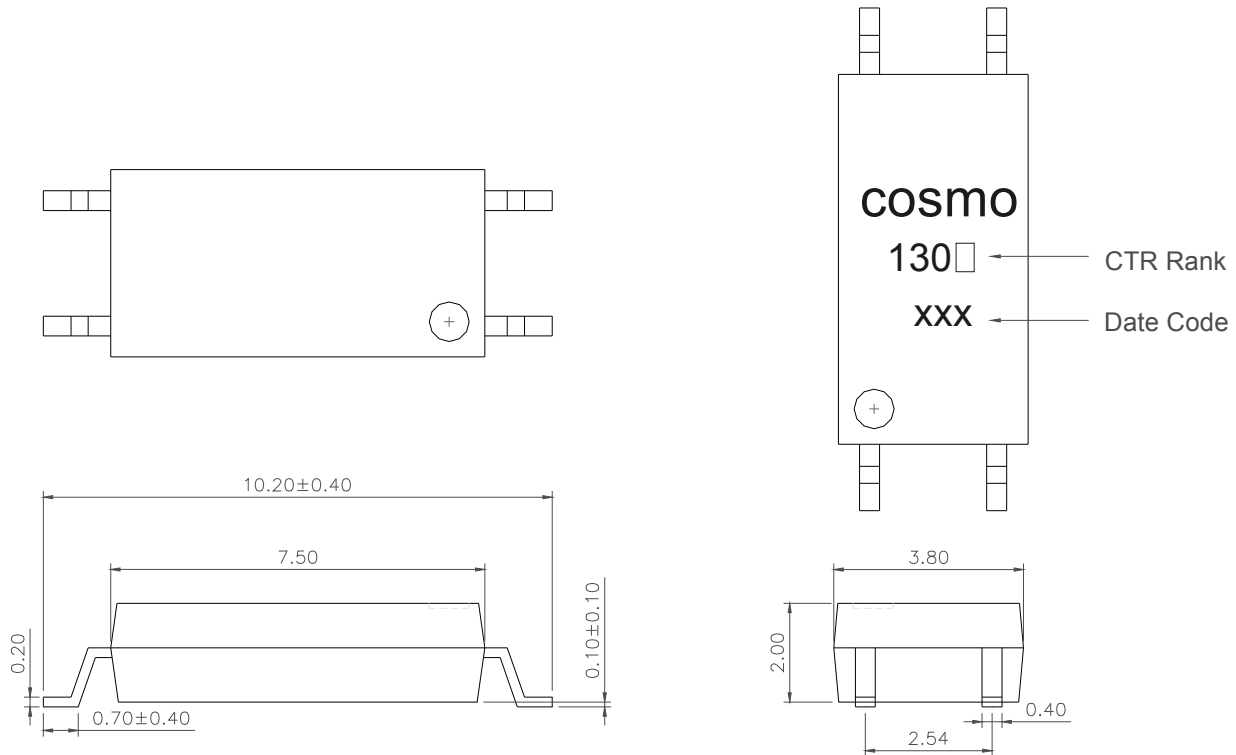
1. Programmable logic controllers.
2. Measuring instruments.
3. Hybrid IC.

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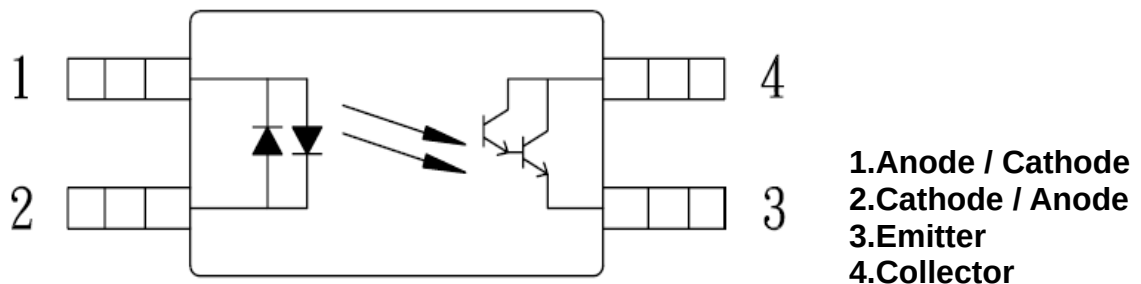
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ± 0.2 mm

2. SCHEMATIC : TOP VIEW



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●Absolute Maximum Ratings(TA=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	IF	±50	mA
	Peak forward current	IFP	±1	A
	Power dissipation	PD	70	mW
Output	Collector-emitter voltage	VCEO	35	V
	Emitter-collector voltage	VECO	5	V
	Collector current	IC	150	mA
	Collector power dissipation	PC	150	mW
Total power dissipation		Ptot	170	mW
Isolation voltage 1 minute		Viso	5000	Vrms
Operating temperature		Topr	-55 to +100	°C
Storage temperature		Tstg	-55 to +125	°C
Soldering temperature 10 second		Tsol	260	°C

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

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	VF	IF=±20mA	-	1.2	1.4	V
	Peak forward voltage	VFP	IFP=±0.5A	-	-	3.5	V
	Terminal capacitance	Ct	V=0, f=1MHz	-	60	-	pF
Output	Collector dark current	ICEO	VCE=10V, IF=0mA	-	-	1.0	uA
Transfer characteristics	Current transfer ratio(IC/IF)	CTR	IF=±1mA, VCE=2V	200	2000	-	%
	Collector-emitter saturation voltage	VCE(sat)	IF=±1mA, IC=2mA	-	-	1.0	V
	Isolation resistance	Riso	DC500V, 40 to 60%RH	5x10 ¹⁰	10 ¹¹	-	ohm
	Floating capacitance	Cf	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

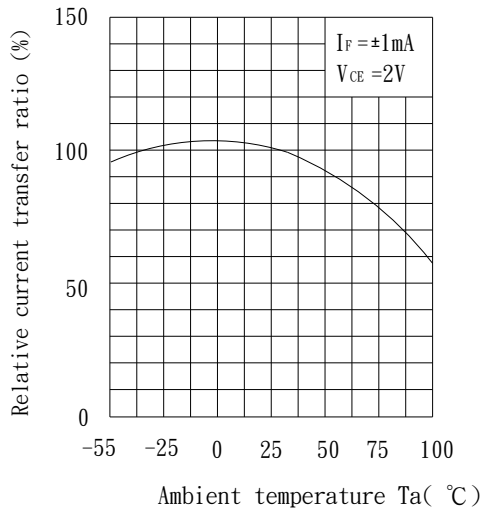


Fig.2 Diode Power Dissipation vs. Ambient Temperature

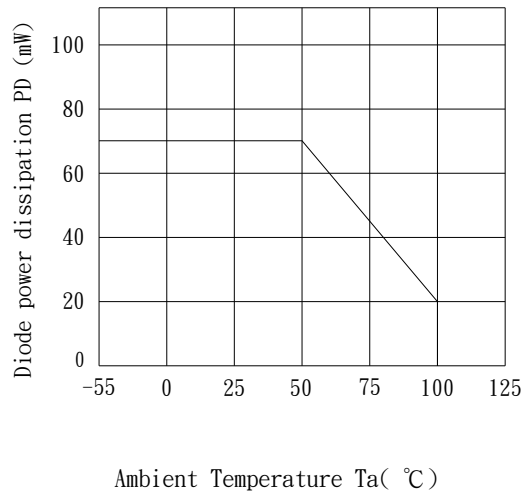


Fig.3 Collector-emitter Saturation Voltage vs. Forward current

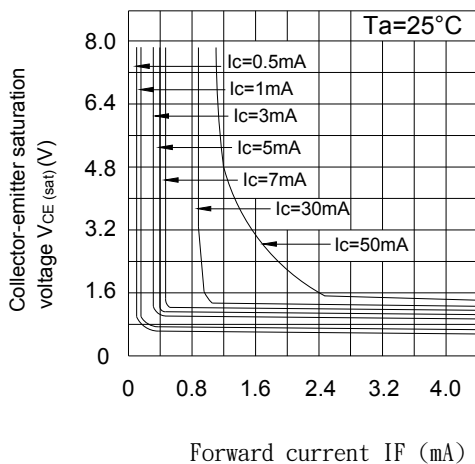


Fig.4 Collector-emitter Saturation Voltage vs. Ambient Temperature

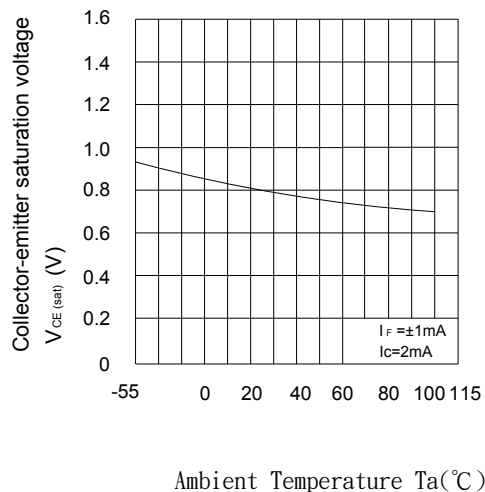


Fig.5 Current Transfer Ratio vs. Forward Current

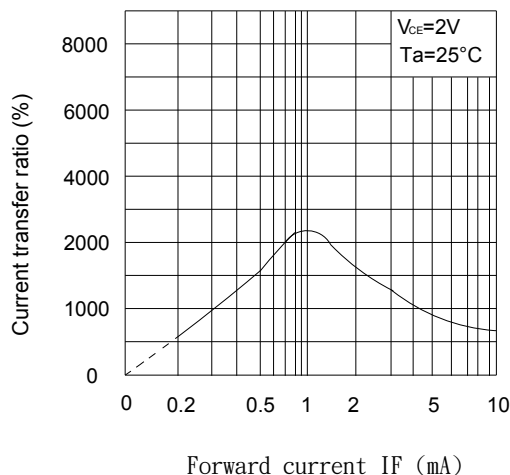
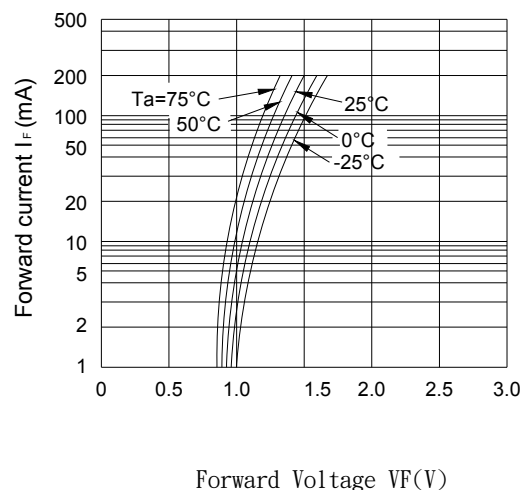


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 Collector Dark Current vs. Ambient Temperature

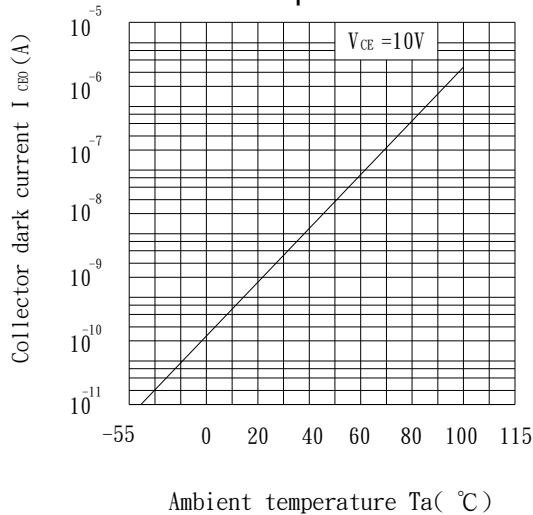


Fig.8 Collector Current vs. Collector-emitter Voltage

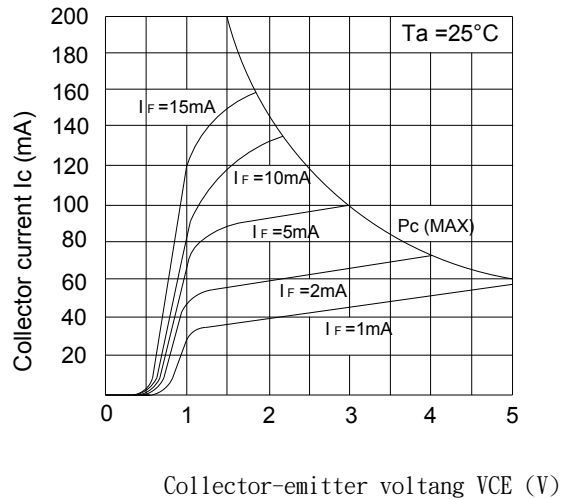


Fig.9 Response Time vs. Load Resistance

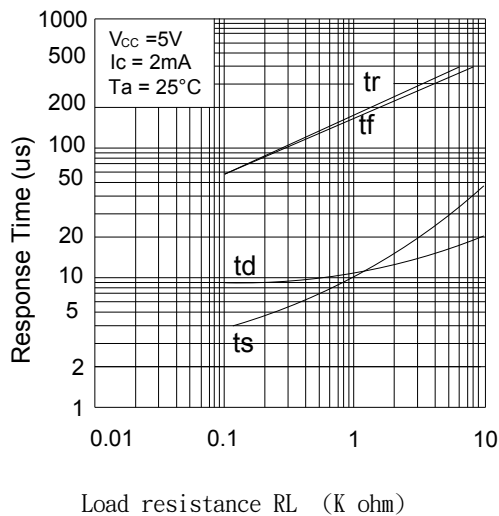
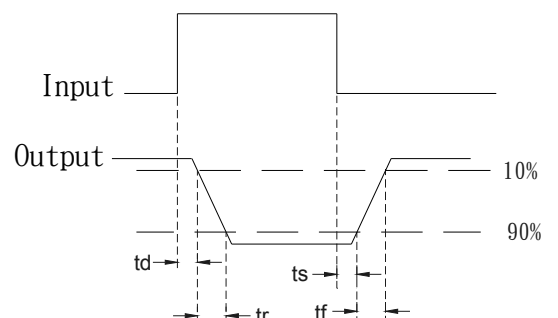
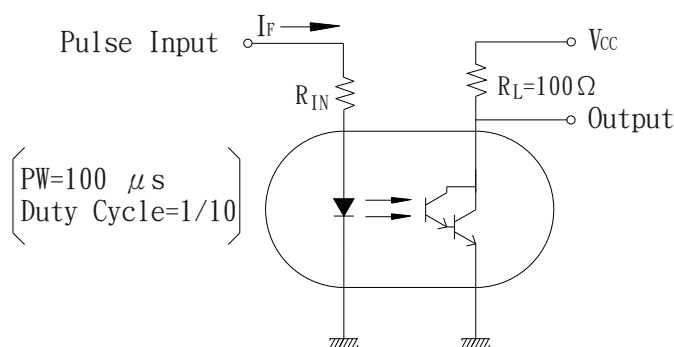


Fig.10 Test Circuit For Response Time

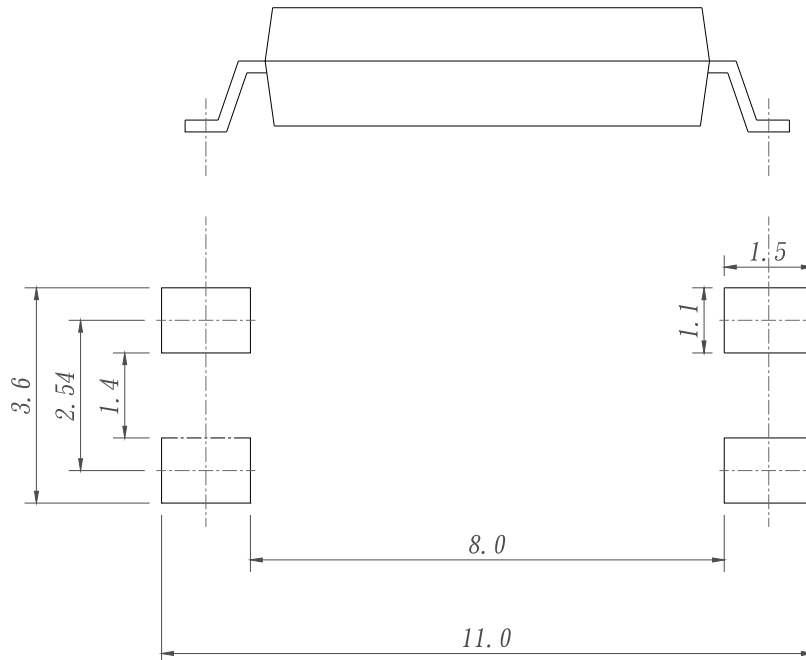


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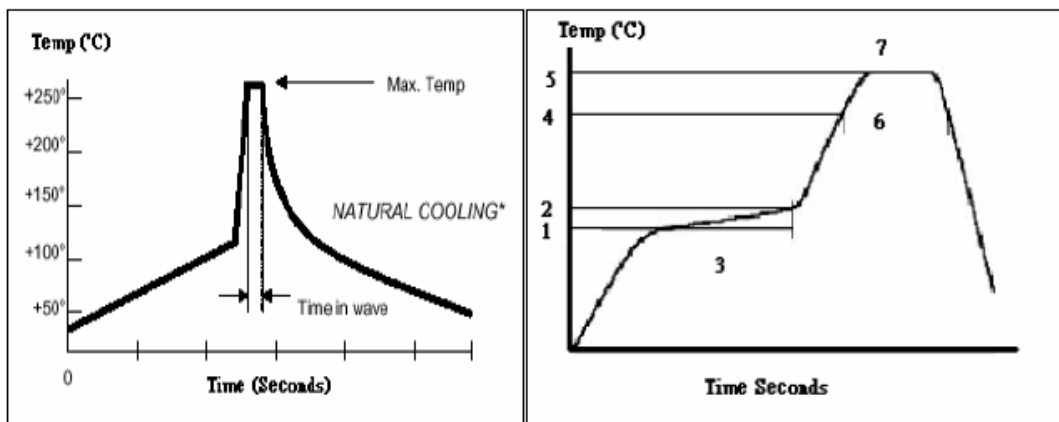
Fig.11 Recommended Mount Pad Dimensions



(Unit:mm)

Recommended Reflow / Wave Soldering Profile Conditions

	Recommended Profile Parameter	Wave Soldering	Infrared Red Reflow
1	Preheat start temperature, °C	N/A	150°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.

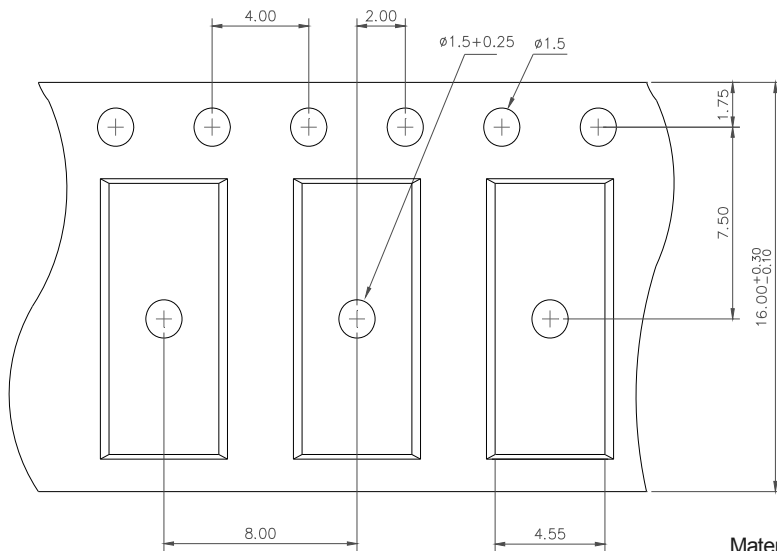
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TAPING SPECIFICATIONS

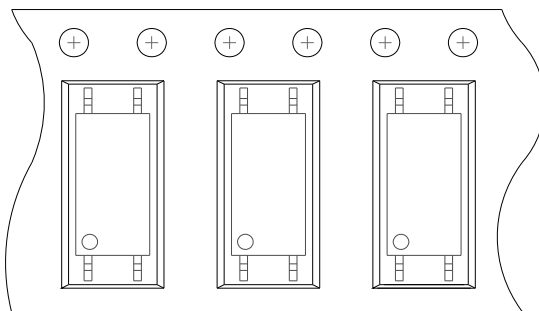
Tape



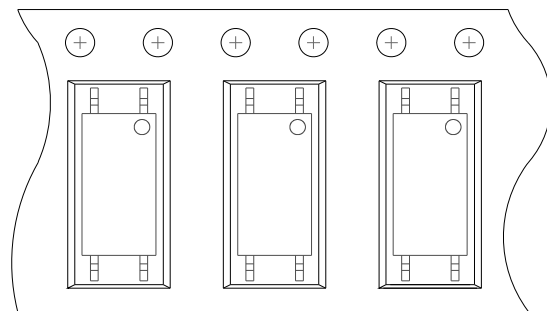
Material : PC

Unit:mm
Tolerance:± 0.2mm

Direction

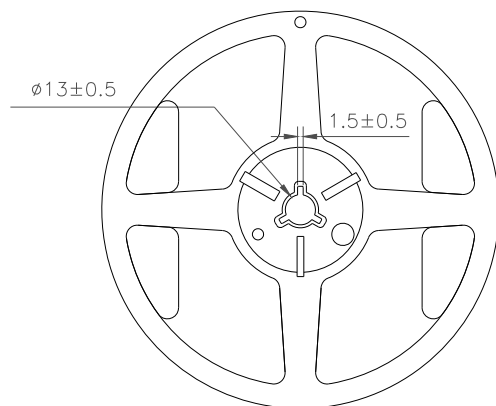


TLD



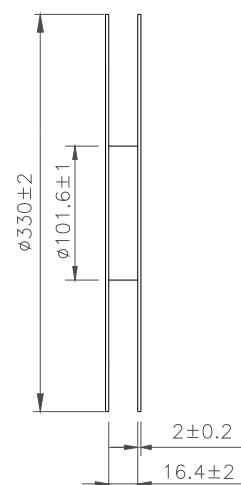
TRU

REEL



Scale 1:3

Material : PS



Packing:3000pcs/reel

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